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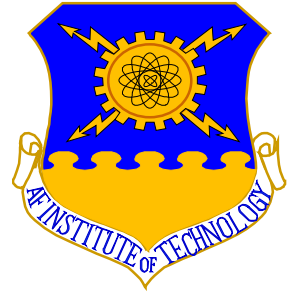


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Air Force Institute of Technology

Research Report 2007

Period of Report: 1 October 2006 to 30 September 2007

Graduate School of Engineering and Management

**GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE, OHIO**

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AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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or visit the AFIT website: www.afit.edu



Air Force Institute of Technology

Research Report 2007

Foreword

Research is the cornerstone of the dramatic advances in air, space, and cyber technology that underpin the nation's ability to meet the international and homeland security challenges of tomorrow. Research is also an integral part of graduate education, providing graduates with in-depth knowledge, critical thinking skills, and problem solving abilities. At the Air Force Institute of Technology (AFIT), our faculty and students engage in research with the goal of sustaining the technological supremacy of the United States Air Force (USAF) and the Department of Defense (DoD).

AFIT maintains active partnerships with our Air Force's organizations and operational communities as well as the DoD and other federal agencies to maximize the contributions of our research programs to national needs. Our faculty and students also engage in collaborations with researchers at universities throughout the nation to advance the state-of-the-art in a variety of disciplines. AFIT cooperates with commercial enterprises to ensure timely transfer of new technology to US industry through Cooperative Research and Development Agreements (CRADAs) whenever appropriate.

This Research Report is prepared annually to report on the significant contributions of this institution; to solicit continued involvement and support from our Air Force, DoD, and other federal partners; and to encourage new sponsors to participate in AFIT's research programs. AFIT welcomes new opportunities to engage in research projects that are of mutual interest to our customers, faculty, and students.

Heidi R. Ries, Ph.D.
Dean for Research
Graduate School of Engineering
and Management



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1. INTRODUCTION

1.1. OVERVIEW

This Research Report presents the FY07 research statistics and contributions of the Graduate School of Engineering and Management (EN) at AFIT. AFIT research interests and faculty expertise cover a broad spectrum of technical areas related to USAF needs, as reflected by the range of topics addressed in the faculty and student publications listed in this report. In most cases, the research work reported herein is directly sponsored by one or more USAF, or DoD agencies.

AFIT welcomes the opportunity to conduct research on additional topics of interest to the USAF, DoD, and other federal organizations when adequate manpower and financial resources are available and/or provided by a sponsor. In addition, AFIT provides research collaboration and technology transfer benefits to the public through CRADAs. Interested individuals may discuss ideas for new research collaborations, potential CRADAs, or research proposals with individual faculty using the contact information in Appendix A or via the AFIT Yellow Pages at www.afit.edu

Additional information on the research programs at AFIT may also be found on the research web home page at <http://www.afit.edu/en/enr/>. The Office of Research and Sponsored Programs, Graduate School of Engineering and Management can be reached at 937-255-3633, (DSN 785-3633) or by email: research@afit.edu. The primary points of contact are Dr. Michael J. Caylor, Director of Sponsored Programs, 937-255-3636 x7104, DSN 785-3636 x7104 and Dr. Heidi R. Ries, Dean for Research, 937-255-3636 x4544, DSN 785-3636 x4544.

1.2. THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION

As detailed in the 2007-2008 catalog at <http://www.afit.edu/en/ener/catalog.cfm>, AFIT offers Master's and Doctoral programs in a variety of disciplines through six departments: the Department of Mathematics and Statistics (ENC), the Department of Electrical and Computer Engineering (ENG), the Department of Engineering Physics (ENP), the Department of Operational Sciences (ENS), the Department of Systems and Engineering Management (ENV), and the Department of Aeronautics and Astronautics (ENY). In all of these disciplines, research is an integral component of graduate education, developing an individual student's skills and providing new knowledge of interest to many.

A brief listing of each department's research areas of emphasis appears below. Please contact the faculty, relevant departmental office, or the Office of Research and Sponsored Programs for further information, or visit the Graduate School of Engineering and Management departmental websites at www.afit.edu

The [Department of Aeronautics and Astronautics](#) invites research topic proposals and collaborative suggestions for the Aeronautical, and Astronautical engineering programs. The following list highlights the Department's research specialties:

Aeroelasticity and Design Optimization
Aerospace Structures and Materials
Analysis of Computer Turbines
Autonomous Control of UAVs
Computational Fluid Dynamics
Control of High Performance Aircraft
Dynamic Flight Simulation
Experimental Fluid Dynamics
High Velocity Impact
Impact Dynamics
Inflatable Space Structures

Materials and Structural Analysis
Mechanics of Materials and Structures
Micro Air Vehicles
Non-Linear Dynamics
Reentry Dynamics
Rocket & Space Propulsion
Rotocraft Aeromechanics
**Satellite Cluster Dynamics, Navigation,
& Control**
Spacecraft Dynamics & Control

The [Department of Electrical and Computer Engineering](#) invites research topic proposals and collaborative suggestions for the Electrical Engineering, Computer Engineering, and Computer Science programs, as well as the **Advanced Navigation Technology Center (ANT)** and the **Center for Cyberspace Research (CCR)**. The following list highlights the Department's research specialties:

Advanced Security-focused Computing Architectures
Artificial Intelligence
Automatic Target Recognition
Communications/Radar
Computer Communication Networks
Cyber Operations and Security
Electromagnetics/Low Observables
Evolutionary Algorithms
Guidance, Navigation and Control

Information Visualization
Information Engineering, Exploitation, and Dissemination
Micro and Nanosystems
Parallel and Distributed Processing
Signal and Image Processing
Software Engineering
Wireless Networks
Wireless Sensor Networks

The [Department of Engineering Physics](#) invites research topic proposals and collaborative suggestions for the Applied Physics, Nuclear Engineering, Electro-Optics (jointly operated with the Department of Electrical and Computer Engineering), and Materials Science (jointly operated with the Department of Aeronautics and Astronautics) programs, as well as the **Center for Directed Energy (CDE)** and the **Center for MASINT Studies and Research (CMSR)**. The following list highlights the Department's research specialties within these programs:

Combating Weapons of Mass Destruction
Computational Physics
Counterproliferation
Directed Energy Weapons
Electronic and Photonic Materials

Lasers and Electro-Optics
Nuclear Weapons and Effects
Remote Sensing and Signature Analysis
Space Weather

The [Department of Mathematics and Statistics](#) invites research topic proposals and collaborative suggestions for the following research specialties:

Acoustic Wave Scattering
Category Theory
Combinatorial Optimization
Design of Experiments
Electromagnetics
Gait Recognition
Image Analysis

Information Fusion
Multiscale Methods
Nonlinear Optimization
Numerical Analysis
Partial Differential Equations
Reliability
Wavelets

The [Department of Operational Sciences](#) invites research topic proposals and collaborative suggestions within the areas of Operations Research, Logistics Management programs, as well as the **Center for Operational Analysis (COA)**. The following list highlights the Department's research specialties:

Applied/Multivariate Statistics
Capacity and Queue Modeling
Decision and Risk Analysis
Information Operations/Information Warfare
Inventory Management/Theory
Math Programming and Optimization
Network Modeling

Operational Modeling and Simulation
Operational Problems and Heuristic Modeling
Sensor/Classifier Fusion
Space and International Logistics
Space Logistics Modeling
Stochastic Systems Analysis
Supply Chain Management

The [Department of Systems and Engineering Management](#) is seeking research topic proposals and collaborative suggestions for the Cost Analysis, Engineering Management, Environmental Engineering and Science, Information Resource Management, Research and Development Management programs, as well as the **Center for Systems Engineering (CSE)**. The following list highlights the Department's research specialties:

Applied Environmental Sciences
Cost Analysis
Crisis Project Management
Crisis Engineering Services Management
Crisis Knowledge Management
Defense Product Development
Economics and Finance
Facility and Infrastructure Management
Information Assurance and Security
Knowledge and Strategic Information Management
Leadership and Management

Multidisciplinary Distributed Cognition
Nanotoxicity and Pharmacokinetic Modeling
Operational Information Integration
Organizational Change and Theory
Organizational Control Center Performance
Sustainable Development
System Dynamics Modeling
Systems Engineering
Technology Development and Application

Another avenue for educational and research collaboration with the Graduate School of Engineering and Management is through association with one or more of **AFIT's Research Centers**. A brief listing of each Center's educational or research areas of emphasis appears below. Please contact the Centers directly (see Ch. 6), or contact the Office of Research and Sponsored Programs for further information (937-255-3633, DSN 785-3633).

The [Advanced Navigation Technology \(ANT\) Center](#) is a forward-looking navigation research center seeking to identify and solve tomorrow's most challenging navigation problems by focusing on three research thrusts: multiple-vehicle autonomous navigation and control, non-GPS precision navigation, and robust GPS navigation.

The [Center for Directed Energy \(CDE\)](#) is dedicated to Air Force and DoD research in high energy lasers (HEL), high power microwaves (HPM), and their enabling technologies. The Center is an advocate for transitioning these systems to the battlefield through vigorous scientific and engineering research, graduate education programs and diverse consulting activities.

The [Center for Cyberspace Research \(CCR\)](#) is one of the National Security Agency (NSA) and Department of Homeland Security's designated Centers of Academic Excellence in Information Assurance Education (CAE/IAE). CCR is also a National Science Foundation Cyber Corp institution. CCR's objectives are to provide cutting-edge offensive and defensive research solutions for cyberspace and cyber security applications and produce a cadre of technically educated leaders for the DoD and federal Government.

The [Center for MASINT Studies and Research \(CMSR\)](#) is focused on Air Force and Department of Defense Measurement and Signature Intelligence (MASINT) scientific, technical and operational activities through graduate research programs. CMSR is a national resource for educating a new generation of MASINT professionals.

The [Center for Operational Analysis \(COA\)](#) directs defense relevant research and timely technology transfer in providing approaches and solutions to current and future operational and resource issues while developing critical and forward thinking analysts, managers, and leaders.

The [Center for Systems Engineering \(CSE\)](#) is established to promote education, training, research, and consultation throughout the DoD in the best practices of Systems Engineering, Systems Architecture, Evolutionary Acquisition, Risk Management, and Total Life Cycle Project Management.

2. SPECIAL RECOGNITIONS

2.1. FACULTY FELLOWS

Badiru, Adedeji B., Professor of Systems and Engineering Management, Fellow of the Institute of Industrial Engineers, Fellow of the Nigerian Academy of Engineering.

Bridgman, Charles J., Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, Fellow of the American Nuclear Society.

Elrod, William E., Professor Emeritus of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of American Society of Mechanical Engineers International.

Franke, Milton E., Professor Emeritus of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

Houpis, Constantine H., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Mall, Shankar, Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers International.

Maybeck, Peter S., Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Pachter, Meir, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Palazotto, Anthony N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Civil Engineers.

Perram, Glen P., Professor of Physics, Department of Engineering Physics, Fellow of the Directed Energy Professional Society.

Ruggles-Wrenn, Marina B., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers International.

Soni, Som R., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society for Composites.

Thomas, M. U., Dean, Graduate School of Engineering and Management, Fellow of the Institute of Industrial Engineers, Fellow of the American Society of Quality, Fellow of the Institute for Operations Research and Management Sciences.

Torvik, Peter J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, Fellow of the American Institute of Aeronautics and Astronautics, Life Fellow of American Society of Mechanical Engineers International, Fellow of the Ohio Academy of Science.

2.2. PROFESSIONAL CERTIFICATIONS

Anthenien, Ralph A., Professional Engineer, State of Ohio

Badiru, Adedeji B., Leadership Certificate, University of Tennessee Leadership Institute

Badiru, Adedeji B., Professional Engineer, State of Oklahoma

Baldwin, Rusty O., Professional Engineer, State of Ohio

Baldwin, Rusty O., Certified Information Systems Security Professional (CISSP)

Barelka, Alex J., Certified Project Management Professional (PMP)

Cunningham, William A. III, Certified Transportation and Logistics (CTL) by the American Society of Transportation and Logistics (AST&L)

Goltz, Mark N., Hazardous Waste Management Specialty Certification as a Diplomate Environmental Engineer, American Academy of Environmental Engineers

Goltz, Mark N., Professional Engineer, State of Minnesota

Goltz, Mark N., Board Certified Environmental Engineer, American Academy of Environmental Engineers

Greendyke, Robert B., Professional Engineer, State of Texas

Grimaila, Michael R., Certified Information Systems Security Professional (CISSP), International Information Systems Security Certification Consortium ((ISC)²)

Grimaila, Michael R., INFOSEC Assessment Methodology (IAM) and INFOSEC Evaluation Methodology (IEM) Certification, National Security Agency INFOSEC Assurance Training and Rating Program (NSA/IATRP)

Grimaila, Michael R., Gold Standard, Level 4, Security Essentials Certification (GSEC) from the SysAdmin, Audit, Network, Security Institute's (SANS) Global Information Assurance Certification (GIAC) Program

Grimaila, Michael R., Certified Information Security Manager (CISM), Information Systems Audit and Control Association (ISACA)

Heil, Michael L., Professional Engineer, State of Colorado

Houpis, Constantine H., Professional Engineer, State of Ohio

Kunz, Donald L., Professional Engineer, Commonwealth of Virginia

Mattioda, Daniel D., FAA Airframe and Powerplant License

Mattioda, Daniel D., FCC Ground Radio Operators License with Radar Endorsement

Mullins, Barry E., Professional Engineer, State of Colorado

Palazotto, Anthony N., Professional Engineer, State of Ohio

Perram, Glen P., Professional Engineer, State of Ohio

Quinn, Dennis W., Professional Engineer, State of Ohio

Reeder, Mark F., Professional Engineer, State of Ohio

Slagley, Jeremy, Certified Industrial Hygienist, American Board of Industrial Hygienists

Thomas, M. U., Professional Engineer, State of Michigan

Turner, J. M., Certified Enterprise Architect, Federal Enterprise Architecture Certification Institute

2.3. RESEARCH AWARDS

2.3.1. FACULTY

BALDWIN, RUSTY O.,

General Bernard A. Schriever Award for contributions to advancing aerospace power, technology, and doctrine, 2006.

CANFIELD, ROBERT A.,

American Institute of Aeronautics and Astronautics Sustained Service Award, 2007.

Rasmussen, C., and Canfield, R. A., "The Least Squares Finite Element Method Applied to Fluid-Structure Interaction Problems," 2nd Annual ASME Dayton Engineering Sciences Symposium, Dayton, Ohio, 30 October 2006. Best Presentation Award.

COOPER, MARTHA C.,

Social Science Research Network (SSRN) top ten downloads of working paper, "The Intellectual Structure of Supply chain Management: A Bibliometric Approach," Francois Charvet, Martha Cooper, and John Gardner, May and June, 2007.

"Organizational Commitment and Governance for Supply Chain Success," International Journal of Physical Distribution and Logistics Management. The article was highly commended in the 2007 Emerald Literature Network Awards for Excellence – Outstanding Paper Competition.

Bernard J. La Londe Best Paper in the Journal of Business Logistics, 2007.

DECKRO, RICHARD F.,

MORS Best Working Group Paper, WG 8, Information Operations/Information Warfare, 2007.

GOLTZ, MARK N.,

Affiliate Societies Council of Dayton Outstanding Engineers and Scientists Education Award, 2007.

HALL, SHANE N., Maj,

Young Researcher, Institute for Operations Research and the Management Sciences, 2007.

HAVRILLA, MICHAEL J.,

Best student paper award, 2nd place, to J. Stewart at the Antenna Measurements Technique Association Conference, Oct 2006.

KHAROUFEH, JEFFREY P.,

Best Paper Award in Operations Research Track, Industrial Engineering Research Conference, 2007.

Best in Working Group: Space Topics, Satellite payloads for inclusion on a satellite bus. Presented at the Air Force Operations Research Symposium, Albuquerque, NM, October 17-20, 2006.

Nominated for a Presidential Early Career Award in Science and Engineering (PECASE), Air Force Office of Scientific Research, 2006.

KURKOWSKI, STUART H., Maj,

Nominated to the HKN Honor Society, November 2006.

MARTIN, RICHARD K.,

HKN (Eta Kappa Nu, Delta Xi Chapter) Instructor of the Year, March 2007.

MOORE, JAMES T.,

“Solving the Theater Distribution Problem with Tabu Search”, Military Operations Research Society Symposium, Annapolis, MD, 12-14 Jun 2007 selected as best paper in Composite Group D and nominated for Barchi Prize.

OGDEN, JEFFREY A.,

“Organizational Commitment and Governance for Supply Chain Success,” International Journal of Physical Distribution and Logistics Management. The article was highly commended in the 2007 Emerald Literati Network Awards for Excellence – Outstanding Paper Competition.

PALAZOTTO, ANTHONY N.,

Larson, R., and Palazotto, A., “Analysis of Wave Propagation in Functionally Graded Circular Plates Under Impact Loading”, Best Paper Award presented at the 32nd Annual Dayton-Cincinnati Aerospace Science Symposium, March 6, 2007.

PERRY, MARCUS B.,

MORS Best Working Group Paper, WG 8, Information Operations/Information Warfare, 2007.

RAINES, RICHARD A.,

Colonel Charles A. Stone Award, Wright Memorial Chapter Air Force Association for personal leadership in the advancement of the Air Force Institute of Technology mission, September 2007.

The Kittyhawk Chapter of the Association of Old Crows, Information Operations Award winner—for significant contributions in development of information technology programs or related doctrine or tactics, or in the application of information operations; 2007 AFIT, AU, AETC Nominee for the Secretary of the Air Force Harold Brown Award—for significant achievement in research and development.

RAQUET, JOHN F.,

US Air Force John L. McLucas Basic Research Award (Honorable Mention), 2007.

Colonel Charles A. Stone Award for personal leadership in the advancement of the Air Force Institute of Technology mission, 2006.

RUGGLES-WRENN, MARINA B.,

Col. Gage H. Crocker Outstanding Professor Award, 2007.

The American Ceramic Society, Certificate of Recognition and Appreciation, 2006.

ASME International, Pressure Vessel and Piping Division, Certificate of Appreciation, 2006.

SAVILLE, MICHAEL A., Maj,

Promoted to Full Member Sigma Xi, November 2006.

WILLIAMS, PAUL D., Maj,

AFIT Teacher of the Year – 2007 Leslie M. Norton Award Winner – Student award for the faculty member who demonstrates the highest standards of excellence in and out the classroom. #1/162 EN Professors.

ZALEWSKI, DANIEL J., Col,

MORS Best Working Group Paper, WG 8, Information Operations/Information Warfare, 2007.

2.3.2. STUDENTS

AFTANAS, JASON, Capt,

Project Management Institute Thesis Award, March 2007.

ARTELLI, MICHAEL, Maj,

MORS Best Working Group Paper, WG 8, Information Operations/Information Warfare, 2007.

BARTON, RICHARD J., Capt,

Association of Old Crows (AOC), Electronic Defense Academic Research Award, March 2007.

COHEE, BRANNEN C., Maj,

Mervin E. Gross Award, June 2007.

CORDEIRO, JAMES, Maj,

Best Paper Award in Operations Research Track, Industrial Engineering Research Conference, 2007.

FENSTERER, GERALD, 1Lt,

Air Force Historical Foundation Award, March 2007.

FRANZ, TIMOTHY P., Maj,

Air Force Association, Lt Edwin E. Aldrin Award, March 2007.

Mervin E. Gross Award, March 2007.

GEFFRE, JENNIFER, 1Lt,

The Military Operations Research Society Award, March 2007.

GIMELSHTYN, MAXIM, Capt,

The MASINT Committee Outstanding Thesis Award, March 2007.

JACKSON, WILLIAM, SMSgt,

The Secretary James G. Roche Award, March 2007.

KOO, ROBERT, 1Lt,

“Feature Extraction Using Principal and Independent Component Analysis for Hyperspectral Imagery”, 2007
Air Force Institute of Technology Commandant’s Award, March 2007.

LARSON, R.,

Larson, R., and Palazotto, A., “ Analysis of Wave Propagation in Functionally Graded Circular Plates Under Impact Loading”, presented at the 32nd Annual Dayton-Cincinnati Aerospace Science Symposium, March 6, 2007. Best Paper Award.

MICHALSKI, SYDNEY, Capt,

International Society of Logistics’ 2007 Jerome G. Peppers Outstanding Student Award, March 2007.

MONTMINY, DAVID P., Capt,

The National Defense Industrial Association (NDIA), Louis F. Polk Award, March 2007.

MOTT, STEPHEN D., 2Lt,

Armed Forces Communications-Electronics Association (AFCEA) Command, Control, Communications, Computers, and Intelligence (C4I) Research Excellence Award Winner, March 2007.

OLIVER, BRAD, Maj,

“Optimizing the Undergraduate Pilot Training Scheduling Process”, The Military Operations Research Society Award, June 2007.

RASMUSSEN, C.,

Rasmussen, C., and Canfield, R. A., “The Least Squares Finite Element Method Applied to Fluid-Structure Interaction Problems,” 2nd Annual ASME Dayton Engineering Sciences Symposium, Dayton, OH. October 30, 2006. Best Presentation Award.

SEYBA, JASON R., 2Lt,

Armed Forces Communications-Electronics Association (AFCEA) Command, Control, Communications, Computers and Intelligence (C4I) Research Excellence Award Winner, June 2007.

SILVA, RYAN J., 2Lt,

Association of Old Crows (AOC), Information Security/Information Operations Academic Research Excellence Award, March 2007.

SPINELLI, CHRISTOPHER, Capt,

Institute of Navigation’s Research Excellence Award, March 2007

3. RESEARCH STATISTICS

3.1. RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS

An AFIT Research Assessment Questionnaire, shown on the following page, was sent to each sponsor of a Master's thesis and doctoral dissertation project during FY 2007 to determine the project's contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 3.1. The data in this table are based on 73 questionnaires returned out of the 292 questionnaires mailed.

Table 3.1: Sponsor Assessment of AFIT Research

QUESTION	EN
Did this research contribute to a current Air Force/DoD project? (Yes answers)	99%
The thesis work was: Highly significant Significant Slightly significant Not significant	30% 57% 12% 1%
Average man-years of effort saved by the sponsors.	.88
Average cost avoided per thesis/dissertation by the sponsors.	\$122,929
Total cost avoided for all theses and dissertations sponsored (estimated).	\$31 M
Rank of respondents Colonel (DR IV/GM-15) Lt Col (DR-III/GM-14) Major (DR-II/GM-13) Captain (DR-I/GS-12) Other	25% 40% 16% 4% 15%



RESEARCH ASSESSMENT QUESTIONNAIRE

TO:

Thank you for sponsoring the AFIT thesis or dissertation listed below. AFIT is working hard to keep its research focused on defense technologies of interest to the Air Force and to the nation.

Title:

Student Author: Designator:

Faculty Advisor:

Date of Graduation:

Please help us determine the value and contribution of this research to your organization's mission by answering the questions below:

1. Did this research contribute to a current task or goal of interest to your organization? Y / N
2. Would you have completed this work if AFIT had not done it? Y / N
3. Regardless of your answers above, how would you rate this work? Highly significant
 Significant
 Slightly significant
 No significance
4. If AFIT had not done this work, please estimate what it would have cost your organization to perform it, either by using in-house resources or by contract. Man-Years _____ \$ _____

Please note that typically an MS thesis requires 0.5MY of the student's time and one month of the faculty advisor's time. For a PhD dissertation the numbers are 2MY for the student and 4 months for the advisor.

5. Would you like to make any remarks? (These will be shared with the academic department and the faculty chairperson.) (If necessary, please continue on reverse side.)

You may mail this to AFIT/ENR, 2950 Hobson Way, Wright-Patterson AFB OH 45433-7765, or fax it to 937-656-7139 (DSN 986-7139), or just e-mail your answers (only) to 1 to 5 to research@afit.edu

If you use e-mail, please include the designator above so that we might identify the project.

Thank you.

Name of Evaluator Office Symbol

Grade/Rank of Evaluator

3.2. RESEARCH AND CONSULTING OUTPUT MEASURES

There are measurable indicators of AFIT's contribution to the engineering and scientific community and AFIT's success in staying well informed of technical possibilities and scientific opportunities. These indicators include the number and quality of technical publications accepted by the editors of journals; the number of presentations accepted for regional, national and international conferences; the number of research projects conducted; the number of consultations performed for Air Force and DoD customers; and finally, the number of student graduate research papers, MS theses, and PhD dissertations completed and submitted to the Defense Technical Information Center. For FY07, these output measures are shown in Table 3.2.

Table 3.2: Faculty Research and Sponsored Programs Output by Graduate School Department

	Graduate School (EN) Total	Graduate School by Department					
		Math & Stats (ENC)	Electrical & Comp Eng (ENG)	Engineering Physics (ENP)	Operational Sciences (ENS)	Sys & Eng Management (ENV)	Aeronautics & Astro (ENY)
Number of Faculty (FTE)	136	16	36	19	20	23	22
Refereed Publications	207	25	64	19	30	24	45
Refereed Presentations	263	8	143	24	59	20	9
Other Presentations and Publications	267	31	71	41	11	35	78
Sponsor Funded Projects	171	4	57	36	16	11	47
Substantial Consultations	76	5	30	11	22	8	0
Books	5	0	1	0	1	2	1
Chapters of Books	5	0	3	0	0	2	0
Patents	1	0	1	0	0	0	0
Doctoral Dissertations Advised	21	0	9	5	3	0	4
Master's Theses Advised	298	0	71	19	53	56	99
Graduate Research Papers Advised	66	0	9	0	28	29	0

FTE: Full-time equivalent

3.3. RESEARCH AND CONSULTING SPONSORSHIP

As part of an Air Force institution, the faculty members of the Air Force Institute of Technology focus their research on current problems as well as future systems of the Air Force and other DoD organizations. Evidence of this focus is that 82% of technical, and 74% of all theses and dissertations listed in Table 3.2 are externally sponsored by Air Force, DoD and Government agencies. In addition, most of the research projects and consultations are carried out for Air Force and DoD units. The data are summarized in Table 3.3 and Figure 3.1.

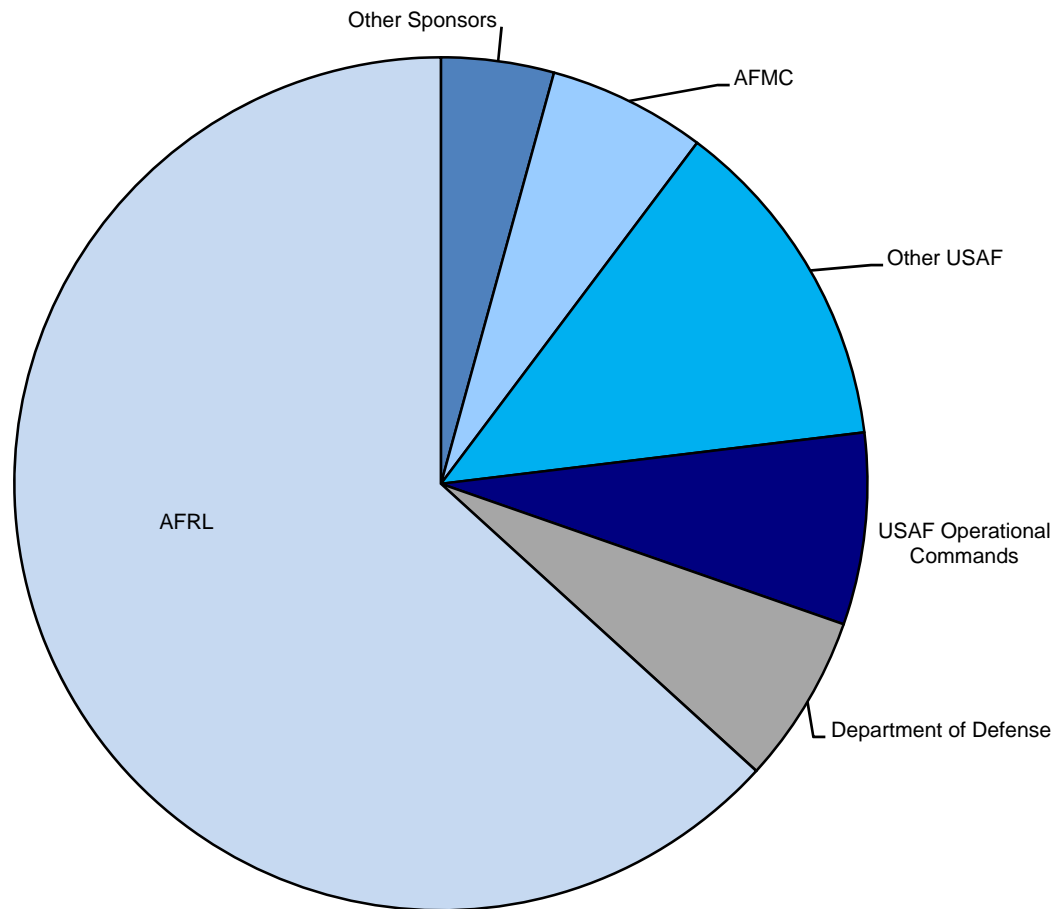


Figure 3.1: Sponsors of AFIT Theses and Dissertations

Table 3.3: AFIT External Sponsorship by Organization

SPONSOR ORGANIZATION	PhD Dissertations	Master's Theses	Graduate Research Papers	Funded Projects	Substantial Consultations
HQ UNITED STATES AIR FORCE		5	9	1	
OFFICE OF THE SECRETARY OF THE AIR FORCE	2	6	6	11	1
AIR EDUCATION AND TRAINING COMMAND		2	1	1	
19 th Air Force			1		
AIR COMBAT COMMAND		2	2	6	2
8 th Air Force		3	1		1
National Air and Space Intelligence Center	2	5	1	7	5
AIR FORCE MATERIEL COMMAND		9	4		
Aeronautical Systems Center		5	1		3
Air Force Research Laboratory (AFRL)			3		
Air Force Office of Scientific Research (AFOSR)	2	18		27	3
Air Vehicles Directorate (VA)	1	25		21	2
Directed Energy Directorate (DE)	3	3		9	
Human Effectiveness Directorate (HE)		5		6	
Information Directorate (IF)	1	5		7	1
Materials & Manufacturing Directorate (ML)		8		6	1
Munitions Directorate (MN)		5		3	3
Propulsion Directorate (PR)		16		5	
Requirements Directorate (XR)		1			
Sensors Directorate (SN)	5	35		23	9
Space Vehicles Directorate (VS)	2	13		2	
AIR FORCE SPACE COMMAND		2			
AIR MOBILITY COMMAND		1	11		3
US AIR FORCE OPERATING AGENCIES					
Air Force Center for Environmental Excellence		4			
Air Force Civil Engineer Support Agency		4			
Air Force Communications Agency		4		1	1
Air Force Cost Analysis Agency		1		1	
Air Force Geographical Info Systems Support Center		1			
Air Force Test Pilot School		1	1		
Air Force Technical Application Center	1	1		1	2
DEPARTMENT OF DEFENSE			1	7	6
Defense Logistics Agency		1			
Defense Threat Reduction Agency		5		1	2
High Energy Laser Joint Technology Office		1		7	
US Office of Secretary Defense		1		1	
US Strategic Command		1			
US Transportation Command		1			
United States Army	1	2		1	3
United States Navy		2			2
DEPARTMENT OF ENERGY	1	1			
OTHER FEDERAL AGENCIES					
Environmental Protection Agency		2		1	
National Aeronautics and Space Administration		1			
National Geospatial Intelligence Agency		1		2	
National Parks Services		1			
National Security Agency		2		3	4
NATIONAL SCIENCE FOUNDATION				1	
NATIONAL ACADEMY OF SCIENCES	1				
CANADIAN ROYAL MILITARY					5
DAYTON AREA GRADUATE STUDIES INSTITUTE				5	
TOTALS	22	212	42	162	59

NOTE: Some student publications have multiple sponsors; See App C for Selected Acronym List

3.4. OUTSIDE FUNDING FOR THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT

Many of the Graduate School of Engineering and Management's theses and research projects completed under faculty supervision (sponsored or unsponsored) are funded in part by other Air Force, DoD and government units and agencies. Often, this funding results from collaboration between faculty and thesis sponsors and occurs when the research project can be leveraged by the purchase of equipment or services not otherwise available. Tables 3.4 and 3.5, and Figure 3.3, summarize outside funding for FY07, and Figure 3.2 summarizes the past seven fiscal years of outside sponsored funding.

Table 3.4 New FY07 Awards to Academic Departments & Research Centers by Type

Department	Research		Education		Total	
	#	Dollars	#	Dollars	#	Dollars
Mathematics & Statistics (ENC)	4	68,979	-	-	4	68,979
Electrical & Computer Eng (ENG)	52	2,241,268	5	1,090,018	57	3,331,286
Engineering Physics (ENP)	34	2,316,659	3	548,922	36	2,865,581
Research & Sponsored Programs (ENR)	1	10,201	-	-	1	10,201
Operations Sciences (ENS)	16	388,825	-	-	16	388,825
Systems & Eng Management (ENV)	11	644,877	-	-	11	644,877
Aeronautical & Astronautical Eng (ENY)	43	1,014,789	4	150,045	47	1,164,834
TOTAL	161	6,685,599	12	1,788,985	173	8,474,584

Research Center	Research		Education		Total	
	#	Dollars	#	Dollars	#	Dollars
Advanced Navigation Technology Center (ANT)	25	1,140,390	1	20,160	26	1,160,550
Center for Directed Energy [CDE]	17	1,353,227	2	38,922	19	1,392,149
Center for Cyberspace Research (CCR)	9	390,987	4	1,069,858	13	1,460,845
Center for MASINT Studies and Research [CMSR]	5	357,240	1	510,000	6	867,240
Center for Operational Analysis (COA)	12	343,825	-	-	12	343,825
Center for Systems Engineering (CSE)	6	215,150	2	109,725	8	324,875
Center for Space Studies & Research (CSSR)	2	97,869	-	-	2	97,869
TOTAL	76	3,893,268	10	1,748,665	86	5,647,353

Notes: DoD regulations limit AFIT's charges to DoD organizations. Accounting for these nonchargeable items, the cost of our research program at a comparable civilian university would have been approximately \$15 million
All Center funds are also included in departmental funding

Figure 3.2: New Award History FY00-FY07

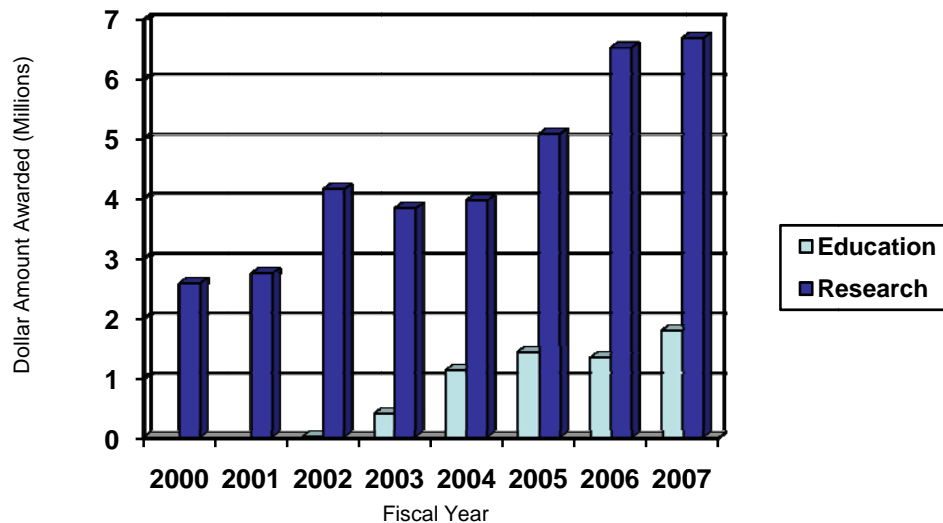


Figure 3.3: Sponsors of FY07 Funded Projects

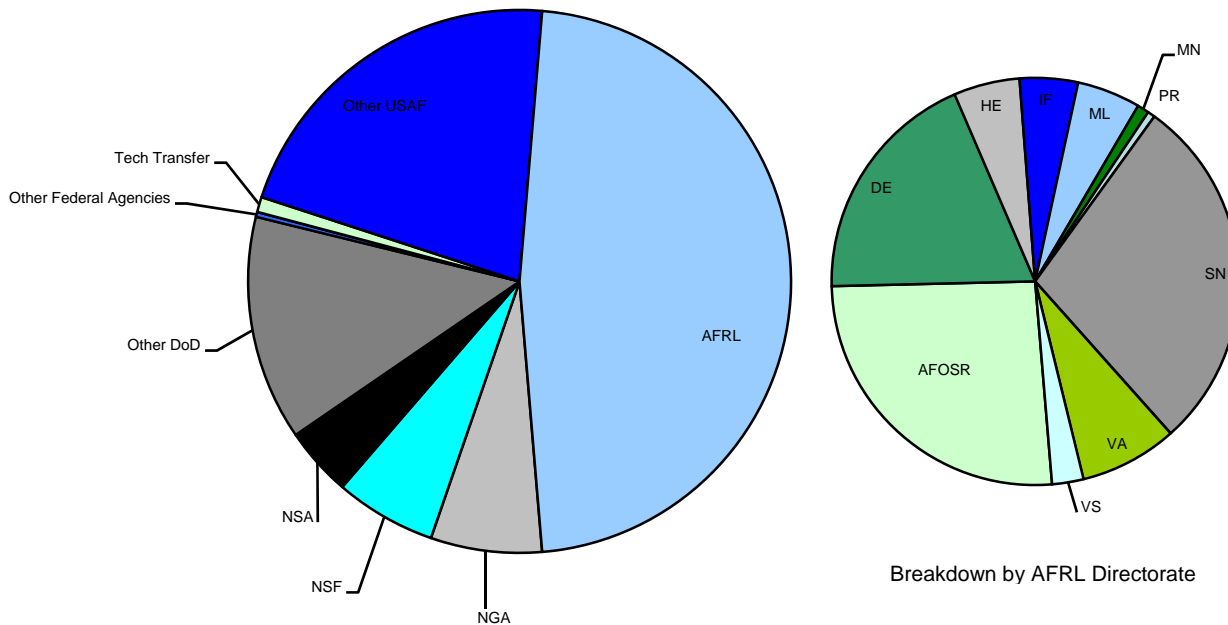


Table 3.5 New FY07 Awards to Academic Departments & Research Centers by Sponsor

Dept.	AFRL Dollars	Other USAF Dollars	Other DoD Dollars	NGA Dollars	NSF Dollars	NSA Dollars	Other Federal Dollars	Non- Federal Dollars	Total Dollars
ENC	68,979	-	-	-	-	-	-	-	68,979
ENG	1,655,917	481,601	285,450	50,000	510,710	327,448	-	20,160	3,331,286
ENP	1,215,776	380,000	759,805	510,000	-	-	-	-	2,865,581
ENR	10,201	-	-	-	-	-	-	-	10,201
ENS	271,825	97,000	-	-	-	20,000	-	-	388,825
ENV	120,000	421,328	78,800	-	-	-	24,750	-	644,878
ENY	676,506	422,567	9,444	-	-	-	-	56,317	1,164,834
TOTAL	4,019,204	1,802,496	1,133,499	560,000	510,710	347,448	24,750	76,477	8,474,584

Research Center	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
ANT	869,679	101,961	118,750	50,000	-	-	-	20,160	1,160,550
CCR	355,000	100,987	166,700	-	510,710	327,448	-	-	1,460,845
CDE	889,632	-	502,517	-	-	-	-	-	1,392,149
CMSR	132,240	225,000	-	510,000	-	-	-	-	867,240
COA	246,825	97,000	-	-	-	-	-	-	343,825
CSE	84,000	240,875	-	-	-	-	-	-	324,875
CSSR	-	97,869	-	-	-	-	-	-	97,869
TOTAL	2,577,376	863,692	787,967	560,000	510,710	327,448	-	20,160	5,647,353

Note: All Center funds are also included in departmental funding

4. SPONSORSHIP OF STUDENT RESEARCH

4.1. DOCTORAL DISSERTATIONS

4.1.1. OFFICE OF THE SECRETARY OF THE AIR FORCE

GROSS, KEVIN C., *Phenomenological Model for Infrared Emissions from High-Explosive Detonation Fireballs*. AFIT/DS/ENP/07-03. Faculty Advisor: Dr. Glen P. Perram. Sponsor: SAF and NASIC/DE.

SMETEK, TIMOTHY E., *Hyperspectral Imagery Target Detection Using Improved Anomaly Detection and Signature Matching Methods*. AFIT/DS/ENS/07-07. Faculty Advisor: Dr. Kenneth W. Bauer. Sponsor: SAF.

4.1.2. AIR COMBAT COMMAND

NATIONAL AIR AND SPACE INTELLIGENCE CENTER

GROSS, KEVIN C., *Phenomenological Model for Infrared Emissions from High-Explosive Detonation Fireballs*. AFIT/DS/ENP/07-03. Faculty Advisor: Dr. Glen P. Perram. Sponsor: SAF and NASIC/DE.

4.1.3. AIR EDUCATION AND TRAINING COMMAND

AIR FORCE INSTITUTE OF TECHNOLOGY

Although no external sponsor is identified, in most cases, AFIT faculty sponsored the below projects due to their relevance to current or future USAF, DoD and/or Homeland Security requirements.

DREHER, PETER, A., *Dynamic Response of a Collidant Impacting a Low Pressure Airbag*. AFIT/DS/ENY/07-09. Faculty Advisor: Dr. Robert A. Canfield. Sponsor: N/A.

NGUYEN, THAO Q., *Efficient GPS Position Determination Algorithms*. AFIT/DS/ENG/07-09. Faculty Advisor: Dr. Meir Pachter. Sponsor: N/A.

4.1.4. AIR FORCE TECHNICAL APPLICATIONS CENTER

DISHAW, JAMES R., *Time Dependent Discrete Ordinates Neutron Transport Using Distribution Iteration in XYZ Geometry*. AFIT/DS/ENP/07-S01. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: AFTAC.

4.1.5. AIR FORCE RESEARCH LABORATORY

AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

ADAMSON, PAUL E., *A General Quantum Mechanical Method to Predict Positron Spectroscopy*. AFIT/DS/ENP/07-04. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AFOSR/NL.

CORDEIRO JR., JAMES D., *Unreliable Retrial Queues in a Random Environment*. AFIT/DS/ENS/07-03. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. Sponsor: AFOSR.

AFRL: AIR VEHICLES DIRECTORATE

WALSTON, JENNIFER G., *Search Techniques for Multi-Objective Optimization of Mixed-Variable Systems Having Stochastic Responses*. AFIT/DS/ENS/07-06. Faculty Advisor: Dr. James W. Chrissis. Sponsor: AFRL/VASD & The National Academy of Sciences.

AFRL: DIRECTED ENERGY DIRECTORATE

JOHNSON, PETER M., *Phase Diversity and Polarization Augmented Techniques for Active Imaging*. AFIT/DS/ENG/07-05. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/DESA.

STRONG, DAVID M., *Polarimeter Blind Deconvolution Using Image Diversity*. AFIT/DS/ENG/07-23. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/DESA.

TERRY, NATHAN B., *Raman Fiber Lasers and Amplifiers Based on Multimode Graded-Index Fibers and Their Application to Beam Cleanup*. AFIT/DS/ENP/07-02. Faculty Advisor: Lt Col Thomas G. Alley. Sponsor: AFRL/DE.

AFRL: INFORMATION DIRECTORATE

MANN, CHRISTOPHER R., *Energy-Efficient Querying of Wireless Sensor Networks*. AFIT/DS/ENG/07-19. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/IFSC.

AFRL: SENSORS DIRECTORATE

EDGE, KENNETH S., *A Framework for Analyzing and Mitigating the Vulnerabilities of Complex Systems via Attack and Protection Trees*. AFIT/DS/ENG/07-13. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SNT.

FORMWALT, BYRON P., *Modeling, Simulation, and Estimation of Optical Turbulence*. AFIT/DS/ENG/07-04. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/SNJM.

OCHOA, EDWARD M., *Hybrid Micro-Electro-Mechanical Tunable Filter*. AFIT/DS/ENG/07-23. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/SNDP.

SALLBERG, SCOTT A., *Sampled-Data Kalman Filtering and Multiple Model Adaptive Estimation for Infinite-Dimensional Continuous-Time Systems*. AFIT/DS/ENG/07-08. Faculty Advisor: Dr. Peter S. Maybeck. Sponsor: AFRL/SN.

SISKANINETZ, WILLIAM J., *Bipolar Cascade Vertical-Cavity Surface-Emitting Lasers for RF Photonic Link Applications*. AFIT/DS/ENG/07-22. Faculty Advisor: Lt Col James A. Fellows. Sponsor: AFRL/SNDP.

AFRL: SPACE VEHICLES DIRECTORATE

IRVIN JR., DAVID J., *Optimal Control Strategies for Constrained Relative Orbits*. AFIT/DS/ENY/07-03. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/VS.

JORRIS, TIMOTHY, R., *Common Aero Vehicle Autonomous Reentry Trajectory Optimization Satisfying Waypoint and No-Fly Zone Constraints*. AFIT/DS/ENY/07-04. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/VS.

4.1.6. US ARMY RESEARCH DEVELOPMENT AND ENGINEERING COMAND

SCHULZ, CHRISTOPHER S., *Rotorcraft Smoothing Via Linear Time Periodic Methods*. AFIT/DS/ENY/07-10. Faculty Advisor: Dr. Donald L. Kunz. Sponsor: USA RDECOM.

4.1.7. DEPARTMENT OF ENERGY

BECK, ERIC V., *A Multireference Density Functional Approach to the Calculation of the Excited States of Uranium Ions*. AFIT/DS/ENP/07-01. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: DOE.

4.1.8. THE NATIONAL ACADEMY OF SCIENCES

WALSTON, JENNIFER G., *Search Techniques for Multi-Objective Optimization of Mixed-Variable Systems Having Stochastic Responses*. AFIT/DS/ENS/07-06. Faculty Advisor: Dr. James W. Chrissis. Sponsor: AFRL/VASD & The National Academy of Sciences.

4.2. MASTER'S THESES

4.2.1. HQ UNITED STATES AIR FORCE

BLOOD, DEBORA L., *Predicting the Benefits, Barriers, and Bridges for USAF Expeditionary Combat Support System Implementation*. AFIT/GIR/ENS/07-01. Faculty Advisor: Maj Barry Brewer. Sponsor: HAF/A4IT.

GENTIL, KATHRINE J., *Developing Advanced Academic Degree Educational Profiles for Career Fields*. AFIT/GOR/ENS/07-08. Faculty Advisor: Maj Shane Knighton. Sponsor: HAF/A1.

HENNETTE, JAY C., *AFSO 21: A Comparison of Private Sector and Air Force Practices*. AFIT/GLM/ENV/07-09. Faculty Advisor: Dr. David Vaughan. Sponsor: HAF/A3.

JOHNSON, JOHN P., *Balanced Scorecard: Aggregating Aircraft Mission Capable Rates*. AFIT/GLM/ENS/07-06. Faculty Advisor: Dr. Alan Johnson. Sponsor: HAF/A4ID.

WALKER, S. DAVID., *The Effects of Career Broadening on Leadership Development*. AFIT/GLM/ENV/07-M6. Faculty Advisor: LtCol Kent Halverson. Sponsor: HAF/A1DD.

4.2.2. OFFICE OF THE SECRETARY OF THE AIR FORCE

BARBA-SORRA, VICTOR M., *Controller Design for Accurate Antenna Pointing Onboard a Spacecraft*. AFIT/GAE/ENG/07-03. Faculty Advisor: Dr. Meir Pachter. Sponsor: SAF.

BLAIR, AARON M., *Assessing Perceptions of Knowledge Management Maturity/Capabilities: A Case Study of SAF/FM*. AFIT/GIR/ENV/07-M3. Faculty Advisor: LtCol Summer E. Bartczak. Sponsor: SAF.

CRAWFORD, BRIAN P., *Approximate Analysis of an Unreliable M/M/2 Retrial Queues*. AFIT/GOR/ENS/07-05. Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: SAF.

DAINTY, BENJAMIN G., *Use of Two-Way Time Transfer Measurements to Improve Geostationary Satellite Navigation*. AFIT/GSS/ENG/07-01. Faculty Advisor: Dr. John F. Raquet. Sponsor: SAF.

KALLEMYN, BENJAMIN S., *Prioritizing Satellite Payload Selection via Optimization*. AFIT/GOR/ENS/07-14. Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: SAF.

WRIGHT, GARY L., *A Comparative Assessment of Knowledge Management Education Across the United States Department of Defense*. AFIT/GIR/ENV/07-M17. Faculty Advisor: LtCol Summer E. Bartczak. Sponsor: SAF/XC.

4.2.3. AIR COMBAT COMMAND

AFTANAS, JASON M., *Optimizing the Prioritization of Natural Disaster Recovery Projects*. AFIT/GEM/ENS/07-01. Faculty Advisor: Maj Shane Knighton. Sponsor: ACC/A7-2.

SIMMERS, DOUGLAS M., *Identifying Knowledge, Skill, and Ability Requirements for 33S Officers in Deployed Environments*. AFIT/GIR/ENV/07-M16. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: ACC/A600.

8th AIR FORCE

CZUMAK, MICHAEL N., III, *Recommendations for a Standardized Program Management Office (PMO) Time Compliance Network Order (TCNO) Patching Process*. AFIT/GIR/ENV/07-M8. Faculty Advisor: Dr. Michael R. Grimala. Sponsor: AFNOC/DET1 (8AF).

SHAW, ALFRED K., *A Model for Performing Mission Impact Analysis of Network Outages*. AFIT/GCS/ENG/07-10. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 8th AF/AFNOC.

SMITH, TIFFINY S., *In Pursuit of an Aptitude Test for Potential Cyberspace Warriors*. AFIT/GIR/ENG/07-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 315 IOS/CC.

NATIONAL AIR AND SPACE INTELLIGENCE CENTER

CORYELL, CHRISTOPHER E., *Using Concept Maps to Efficiently Build Information Models for SAVANT*. AFIT/GCE/ENG/07-03. Faculty Advisor: LtCol Timothy J. Halloran. Sponsor: NASIC/SC.

CLAYCAMP, RYAN C., *Threat Modeling of Spacecraft Attitude Control Subsystem*. AFIT/GA/ENY/07-M04. Faculty Advisor: LtCol Nathan A. Titus. Sponsor: NASIC/SMSV.

CRIDER, KENDRA L., *Radial Diffusion Between Coaxial Cylinders*. AFIT/GAE/ENY/07-M09. Faculty Advisor: Dr. Paul I. King. Sponsor: NASIC/ADNA.

GEFFRE, JENNIFER L., *A Layered Social and Operational Network Analysis*. AFIT/GOR/ENS/07-07. Faculty Advisor: Dr. Richard Deckro. Sponsor: NASIC/FCEB & AFRL/HECS.

SEDER, JOSHUA S., *Examining Clandestine Social Networks for the Presence of Non-Random Structure*. AFIT/GOR/ENS/07-24. Faculty Advisor: Dr. Marcus Perry. Sponsor: AFRL/HECS & NASIC/FCEB.

4.2.4. AIR EDUCATION AND TRAINING COMMAND

BOYD, EDWARD K., *Professionalism in the USAF: A Comparative Analysis of Commissioned Officers with Non-Commissioned Officers*. AFIT/GIR/ENV/07-M4, Faculty Advisor: LtCol Kent C. Halverson. Sponsor: AETC.

HEATH VAN HORN, MATHEW J., *An Analysis of the Balance of Management, Technical and Leadership Progression through the Three USAF Officer Tiers*. AFIT/GIR/ENV/07-M10. Faculty Advisor: Dr. Alan Heminger. Sponsor: SOC/DEO/SOS (AETC).

AIR FORCE INSTITUTE OF TECHNOLOGY

Although no external sponsor is identified, in most cases, AFIT faculty sponsored the below projects due to their relevance to current or future USAF, DoD and/or Homeland Security requirements.

BAILEY, LANDON C., *Refinement of an Instrument to Assess Readiness for Knowledge Management*. AFIT/GIR/ENV/07-M2, Faculty Advisor: LtCol Daniel T. Holt. Sponsor: N/A.

BALDWIN, JASON L., *Optimal Control of a Circular Satellite Formation Subject to Gravitational Perturbations*. AFIT/GA/ENY/07-M02. Faculty Advisor: LtCol Nathan Titus. Sponsor: N/A.

BELLUCCI, JOSEPH P., *Improved Hyperspectral Image Testing Using Synthetic Imagery and Factorial Designed Experiments*. AFIT/GOR/ENS/07-01. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

BITTLE, NICOLE, M., *Estimating the Aerodynamic and Heating Properties of an Unknown Reentry Vehicle Using Least Squares Filtering*. AFIT/GSS/ENY/07-M01. LtCol Kerry D. Hicks. Sponsor: N/A.

BOND, MATTHEW S., JAMES A. RODRIGUEZ and HIEU T. NGUYEN. *A Systems Engineering Process for an Integrated Structural Health Monitoring System*. AFIT/GSE/ENY/07M-02. Faculty Advisor: Dr. Som R. Soni. Sponsor: N/A.

BROAS, TINA M., *The Effect of Downsizing on Attrition Rates in the Department of Defense (DoD)*. AFIT/GCA/ENV/07-M1, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

BRUNNER, ABRAHAM F., *Spacecraft Proximity Operations Used to Estimate the Dynamical & Physical Properties of a Resident Space Object*. AFIT/GA/ENY/07-M03. Faculty Advisor: Dr. William E. Wiesel. Sponsor: N/A.

BRYANT, MICHAEL, *Forecasting the KC-135 Cost Per Flying Hour: A Panel Data Analysis*. AFIT/GCA/ENV/07-M2, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

BURRELL, DERREN P., *An Analysis of the Military Retirement System: How Does Retirement Return Influence Retention?* AFIT/GCA/ENV/07-M3. Faculty Advisor: LtCol Jeffrey S. Smith. Sponsor: N/A.

BYNUM, ARNOLD R., *An Analysis of Delivering Persistent Real Time Imagery Intelligence to Combatant Commanders*. AFIT/GLM/ENV/07-M1. Faculty Advisor: Maj Sonia Leach. Sponsor: N/A.

CATES, MICHAEL S., *Corporate Entrepreneurship Assessment Instrument (CEAI): Refinement and Validation of a Survey Measure*. AFIT/GIR/ENV/07-M7. Faculty Advisor: LtCol Daniel T. Holt. Sponsor: N/A.

CAULK, RYAN F., *Outlier Detection in Hyperspectral Imaging Using Closest Distance to Center with Ellipsoidal Multivariate Trimming*. AFIT/GOR/ENS/07-02. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

CAVALLARO, KRISTEN L., *Analyzing the Interdiction of Sea-Borne Threats Using Simulation Optimization*. AFIT/GOR/ENS/07-03. Faculty Advisor: Dr. Sharif Melouk. Sponsor: N/A.

CHO, NAM-SUK., *Critical Infrastructure Rebuild Prioritization Using Simulation Optimization*. AFIT/GOR/ENS/07-04. Faculty Advisor: Dr. Sharif Melouk. Sponsor: N/A.

CHOI, PETER M., *The Effects of Social Network Centrality on Group Satisfaction*. AFIT/GEM/ENV/07-M2. Faculty Advisor: LtCol Kent C. Halverson. Sponsor: N/A.

COATES, GREGORY M., *Collaborative, Trust-Based Security Mechanisms for a National Utility Intranet*. AFIT/GIA/ENG/07-05. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: N/A.

COLACICCO, JOSEPH M., *Analysis of Army Transformation and the Effects on Customer Ordering Behavior*. AFIT/GLM/ENS/07-03. Faculty Advisor: Dr. William Cunningham, III. Sponsor: N/A.

COLLUP, JUSTIN W., *Forecasting Demand for Civilian Pilots: A Cost Savings Approach to Managing Air Force Pilot Resources*. AFIT/GCA/ENV/07-M4. Faculty Advisor: LtCol Jeffery S. Smith. Sponsor: N/A.

CROUSE, JOSHUA D., *Development of Cursor-on-Target Control for Semi-Autonomous Unmanned Aircraft Systems*. AFITGAE/ENY/07-J04. Research Advisor: Maj Paul Blue. Sponsor: N/A.

CROW, SHIRLEY D., *An Evaluation of Organizational and Experience Factors Affecting the Perceived Transfer of U.S. Air Force Basic Combat Skills Training*. AFIT/GLM/ENV/07-M2. Faculty Advisor: Maj Sharon Heilmann. Sponsor: N/A.

DENISON, NICHOLAS A., *Automated Carrier Landing of an Unmanned Combat Aerial Vehicle Using Dynamic Inversion*. AFIT/GAE/ENY/07-J06. Faculty Advisor: Maj Christopher Shearer. Sponsor: N/A.

DEVUONO, AMANDA J., *Flight Dynamic Response of HALE Aircraft to KC-135 Flowfield*. AFIT/GAE/ENY/07-S06. Faculty Advisor: Maj Christopher Shearer. Sponsor: N/A.

DRIES, ERIK J., *Scaling Ant Colony Optimization with Hierarchical Reinforcement Learning Partitioning*. AFIT/GCS/ENG/07-16. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: N/A.

DUNCAN, DAVID J., *Rapid Runway Repair (RRR): an Optimization for Minimum Operating Strip (MOS) Selection*. AFIT/GEM/ENV/07-M4. Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

ELKINS, JOSEPH S., *Internal Versus External Acquisition for Small Weapons Systems*. AFIT/GLM/ENV/07-M3. Faculty Advisor: Maj Sonia Leach. Sponsor: N/A.

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- WILKEN, BRIAN A., *Change-Point Methods for Overdispersed Count Data*. FIT/GOR/ENS/07-26. Faculty Advisor: Dr. Marcus Perry. Sponsor: N/A.
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4.2.5. AIR FORCE MATERIEL COMMAND

- BERG, BRYAN, K., *The Application of System Engineering Techniques to the Integration of a Digital Nuclear Weapon Onto The F-15*. AFIT/GSE/ENY/07-M05. Faculty Advisor: Maj Joerg Walter. Sponsor: 912 AESG/VA.
- BECKLY, CHRISTOPHER M., *Sizing Mobility Readiness Spares Packages for Today's Warfighting Units*. AFIT/GLM/ENS/07-01. Faculty Advisor: LtCol Bradley Anderson. Sponsor: AFMC/A8S.
- CAIRO, LUIS N., *An Analysis of the Deployment of System Oriented Architecture Environments in Air Force Combined Air Operations Centers*. AFIT/GIR/ENV/07-M6. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: 46TS/OGEA.
- CASPERS, MATTHEW S., *CFD Investigation of Flow Past Idealized Engine Nacelle Clutter*. AFIT/GAE/ENY/07-M08. Faculty Advisor: LtCol Raymond C. Maple. Sponsor: 46 TW OG.
- FOWLER, JOSHUA D., *Impact of Window Selection on Zero-Doppler Clutter Estimation and Subtraction for ISAR Applications*. AFIT/GE/ENG/07-07. Faculty Advisor: Dr. Michael A. Temple. Sponsor: 46 TS/OGEE.

GEMAS, DAVID L., *A Systems Engineering Approach to Analyzing Weather Input Sensitivities of the Joint Precision Air Drop System*. AFIT/GSE/ENY/07J-01. Faculty Advisor: LtCol Steven T. Fiorino. Sponsor: 516th ASW/XR.

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MAYNARD, JILL L., *Commercial Firm Training Practices Versus Aerial Port Hazardous Cargo Frustration*. AFIT/GLM/ENS/07-08. Faculty Advisor: Dr. Alan Johnson. Sponsor: AFMC/LSO.

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AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

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ADAMS, BRANDON, J., *Structural Stability of a Joined-Wing Sensorcraft*. AFIT/GAE/ENY/07-J01. Faculty Advisor: Dr. Robert Canfield. Sponsor: AFRL/VASD.

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AFRL: DIRECTED ENERGY DIRECTORATE

BAIRD, C. JAMES., *Direct Diode Pumped Raman Amplified Based on a Multimode Graded Index Fiber*. AFIT/GAP/ENP/07-01. Faculty Advisor: LtCol Thomas G. Alley. Sponsor: AFRL/DE.

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AFRL: HUMAN EFFECTIVENESS DIRECTORATE

GEFFRE, JENNIFER L., *A Layered Social and Operational Network Analysis*. AFIT/GOR/ENS/07-07. Faculty Advisor: Dr. Richard Deckro. Sponsor: NASIC/FCEB & AFRL/HECS.

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AFRL: INFORMATION DIRECTORATE

DEFREITAS, ADRIAN A., *Developing Parallel Ant Colony Synchronization Strategies*. AFIT/GCS/ENG/07-15. Faculty Advisor: Maj Christopher B. Mayer. Sponsor: AFRL/IFS.

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AFRL: MATERIALS AND MANUFACTURING DIRECTORATE

ALLARD, MARK E., *Characterization of a Polymer-Based MEMS Pyroelectric Infrared Detector*. AFIT/GEO/ENG/07-01. Faculty Advisor: LtCol James A. Fellows. Sponsor: AFRL/MLPJF.

BACK, CHRISTOPHER A., *Effects of Prior Aging on the Creep Response of Carbon Fiber Reinforced PMR-15 Neat Resin at 288°C in an Air Environment*. AFIT/GAE/ENY/07-J02. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsors: AFOSR/NL and AFRL/MLBCM.

BRAUN, JASON C., *Effects of Temperature and Environment on Creep Behavior of an Oxide-Oxide Ceramic Matrix Composite*. AFIT/GAE/ENY/07-M04, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTC and AFRL/MLLN.

KATWYK, DAVID W., *Tension-Compression Fatigue Behavior of a Carbon Fiber/Epoxy (IM7/EPON 862) Composite Fabricated Using Vacuum Assisted Resin Transfer Molding Process*. AFIT/GA/ENY/07-M14. Faculty Advisor: Dr. Shankar Mall. Sponsor: AFRL/MLBCO.

LINK, P. E., *High Temperature Degradation of 5250-4 Polymer Resin*. AFIT/GAE/ENY/07-J12. Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFRL/ML.

SALVIA, ROBERT A., *Effects of prior aging at 191°C on creep response of IM7/BMI 5250-4*. AFIT/GAE/ENY/07-J23. Faculty Advisors: Dr. Marina Ruggles-Wrenn. Sponsor: AFRL/MLBCM and AFOSR/NL.

SCHWENDIMAN, K.A., *Critical Life Prediction Research on Boron-Enhanced Ti-6Al-4V*. AFIT/GAE/ENY/07-J24. Faculty Advisor: Dr. Shankar Mall. Sponsor: AFRL/MLLMD.

SUTTER, DAVID, A., *Three-Dimensional Analysis of a Composite Repair and the Effect of Overply Shape Variation on Structural Efficiency*. AFIT/GAE/ENY/07-M22. Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFRL/MLBC.

AFRL: MUNITIONS DIRECTORATE

BELLOTT, MARK M., *Microelectro-Mechanical (MEMS) Safe and Arm Device*. AFIT/GE/ENG/07-03. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/MNMF.

FLETCHER, JORDAN L., *Real-Time GPS-Alternative Navigation Using Commodity Hardware*. AFIT/GCS/ENG/07-02. Faculty Advisor: Maj Michael J. Veth. Sponsor: AFRL/MN.

GLAUVITZ, NATHAN E., *Toward a Flying MEMS Robot*. AFIT/GE/ENG/07-09. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/MNAV.

MILLER, VIRGINIA., *Conceptual MEMS Devices for a Redeployable Antenna*. AFIT/GE/ENG/07-30. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/MNMF.

VANDERHYDE, MICHAEL J., *Comparison of Thermodynamic Equilibrium and Non-Equilibrium Representation of Materials*. AFIT/GAE/ENY/07-M25. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/MNAC and AFOSR.

AFRL: PROPULSION DIRECTORATE

AN, YOUNG MAN., *Raman Scattering Study of Supercritical Bi-Component Mixtures Injected into a Subcritical Environment*. AFIT/GA/ENY/07-S01. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/PRAS.

ANDERSON, WESLY S., *Design, Construction, and Validation of the AFIT Small Scale Combustion Facility and Section Model of the Ultra-Compact Combustor*. AFIT/GAE/ENY/07-M01. Faculty Advisor: Maj Richard Branam. Sponsor: AFRL/PRS and AFRL/PRTC.

ANDRUS, IONIO Q., *Comparative Analysis of a High Bypass Turbofan Using a Pulsed Detonation Combustor*. AFIT/GAE/ENY/07-M02. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/PRTA.

BATCHELOR, RYAN G., *Fuel Spray Analysis of The F-22 Augmentor Pilot Fuel Injector*. AFIT/GAE/ENY/07-S01. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/PRTC.

BRAUN, JASON C., *Effects of Temperature and Environment on Creep Behavior of an Oxide-Oxide Ceramic Matrix Composite*. AFIT/GAE/ENY/07-M04, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTC and AFRL/MLLN.

GREATTING, HEATHER, *Analysis of the Feasibility of a Space-Based ICBM Interceptor and Propulsion System Trade Study*. AFIT/GA/ENY/07-M09. Faculty Advisor: Maj Richard D. Branam. Sponsor: AFRL/PRS.

HOFFMAN, DAVID A., *Experimental Investigation of Turbojet Thrust Augmentation Using an Ejector*. AFIT/GAE/ENY/07-M13. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/PRTC.

HOWELL, THOMAS G., *Catalytic Partial Oxidation Reforming of JP8 and S8*. AFIT/GAE/ENY/07-J08. Faculty Advisor: Maj Richard D. Branam. Sponsor: AFRL/PRPS.

JANTZ, BRADLEY. *Contamination of the TacSat-2 Spacecraft Structure by a 200-Watt Hall Effect Thruster*. AFIT/GA/ENY/07-M13. Faculty Advisor: Maj Richard Branam. Sponsor: AFRL/PRS.

LAFHEY, P. D., *The Effects of Environment on the Interlaminar Shear Performance of an Oxide/Oxide Ceramic Matrix Composite at Elevated Temperature*. AFIT/GAE/ENY/07-J11. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsor: AFRL/PRTC.

KOETHER, STEPHEN J., *Validation of the AFIT Small Scale Combustion Facility and OH Laser-Induced Fluorescence of an Atmospheric Laminar Premixed Flame*. AFIT/GAE/ENY/07-S03. Faculty Advisor: Dr. Paul King. Sponsor: AFRL/PRTC.

RADTKE, J. T., *Efficiency and Pressure Loss Characteristics of an Ultra-Compact Combustor with Bulk Swirl*. AFIT/GAE/ENY/07-J18. Faculty Advisor: Dr. Paul King. Sponsor: AFRL/PRTC.

SZYMCZAK, N.R., *Compressive Creep Behavior of Nextel™ 720/Alumina Ceramic Matrix Composite At 1200°C in Air and in Steam Environment*. AFIT/GAE/ENY/07-J20. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsor: AFRL/PRTC.

TOMASZEWSKI, JAMES W., *Characterization of a Hall Effect Thruster Using Thermal Imaging*. AFIT/GA/ENY/07-M18. Faculty Advisor: Maj Richard D. Branam. Sponsor: AFRL/PRS.

UMHOLTZ, M., *A Comparison of Film Cooling Techniques in a High Speed, True Scale, Fully Cooled Turbine Vane Ring*. AFIT/GAE/ENY/07-J21. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/PRF.

WHITING, BRIDGETT A., *Cyclic Creep and Recovery Behavior of Nextel™ 720/Alumina Ceramic Matrix Composite at 1200 °C in Air and in Steam Environments*. AFIT/GAE/ENY/07-S05. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTS.

AFRL: SENSORS DIRECTORATE

ABBOTT, LAIRD, GARRETT KNOWLAN, CRAIG PHILLIPS and CHRISTIAN STILLINGS. *Systems Engineering Analysis for Transition of the Fleeting Target Technology Demonstrator*. AFIT/GSE/ENY/07-M03. Faculty Advisor: Dr. Richard Cobb. Sponsor: AFRL/SN.

ALBAIRAT, OUAIL, *Multi-Dimensional Classification Algorithm for Automatic Modulation Recognition*. AFIT/GE/ENG/07-01. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/SNR.

BARTON, RICHARD J., *Design and Analysis of a Compact Passive Ultra-Wideband Hexagonal Spiral Array Antenna*. AFIT/GE/ENG/07-02. Faculty Advisor: Dr. Andrew J. Terzuoli. Sponsor: AFRL/SNR.

BENSON, JOSHUA A., *Software Protection Against Reverse Engineering Tools*. AFIT/GIA/ENG/07-01. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/SNTA.

BIRRER, BOBBY D., *Metamorphic Program Fragmentation as a Software Protection*. AFIT/GCE/ENG/07-01. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SNT.

BRAKUS, BRIAN M., *A Modular Mixed-Signal VLSI Design Approach for Digital Radar Applications*. AFIT/GCE/ENG/07-02. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/SND.

BUSCHELMAN, ERIC A., *Material Characterization Improvement in High Temperature Rectangular Waveguide Measurements*. AFIT/GE/ENG/07-05. Faculty Advisor: Dr. Michael J. Havrilla. Sponsor: AFRL/SNS.

HAKER, MARSHALL E., *Hardware Realization of a Transform Domain Communications System*. AFIT/GE/ENG/07-10. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/SNRW.

HARKISS, SAMUEL I., *A Study of Bi-Directional Reflectance Distribution Functions and their Effect on Infrared Signature Models*. AFIT/GE/ENP/07-01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/SN.

HARNER, ALAN L., *Sub-Surface Navigation Using Very-Low Frequency Electromagnetic Waves*. AFIT/GE/ENG/07-12. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/SNRP.

HART, SAMUEL A., *APHID: Anomaly Processor in Hardware for Intrusion Detection*. AFIT/GCE/ENG/07-03. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SNTA.

HAYDEN, WALTER J., *Locating Encrypted Data Hidden Among Non-Encrypted Data Using Statistical Tools*. AFIT/GCS/ENG/07-06. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/SNTA.

HOLSTON, MATTHEW E., *Moving Target Focusing, Geolocation, and Ambiguity Resolution Using Single-Channel Synthetic Aperture Radar*. AFIT/GE/ENG/07-13. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/SNAS.

JONES, DAVID A., *Portable Diode Pumped Femtosecond Lasers*. AFIT/GAP/ENP/07-04. Faculty Advisor: LtCol Matthew J. Bohn. Sponsor: AFRL/SN.

KNOWLAN, GARRET, see ABBOTT, LAIRD

KOPERSKI, CHOYONG G., *Multi-Robot FastSLAM for Large Domains*. AFIT/GCE/ENG/07-06.
Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/SNRN.

LEAVER, MICHAEL D., *Signal Coexistence Study on the GPS L2 Civil Signal Broadcast From the Block IIR-M Class Satellites*. AFIT/GE/ENG/07-14. Faculty Advisor: Dr. Stewart L. DeVilbiss. Sponsor: AFRL/SNZW.

MAJUMDER, UTTAM K., *Point Spread Function Characterization of a Radially Displaced Scatterer Using Circular Synthetic Aperture Radar*. AFIT/GE/ENG/07-26. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/SNAS.

MAYHEW, OSCAR C., *RADAR System Characterization Extended to Hardware-in-the-Loop Simulation for the Lab-Volt System*. AFIT/GE/ENG/07-29. Faculty Advisor: Maj Michael A. Saville. Sponsor: AFRL/SN.

MEDLEY, DOUGLAS P., *Virtualization Technology Applied to Rootkit Defense*. AFIT/GCE/ENG/07-08.
Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SN.

MONTIMINY, MYRNA B., *Passive Geolocation of Low-Power Emitters in Urban Environments Using TDOA*. AFIT/GE/ENG/07-16. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/SNRW.

MOTT, STEPHEN D., *Hardware-Based Primitives to Enhance Parallel Security Monitoring in a Novel Computing Architecture*. AFIT/GE/ENG/07-17. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SNTA.

NERENBERG, DANIEL D., *A Study of Rootkit Stealth Techniques and Associated Detection Methods*. AFIT/GCE/ENG/07-10. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SNTA.

PATTERSON, CHRISTOPHER A., *Multi-Objective Optimization for Speed and Stability of a Sony AIBO Gait*. AFIT/GCS/ENG/07-17. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/SNRN.

PAUL, JASON V., *Anti-Tamper Method for Field Programmable Gate Arrays Through Temporal Decoy Circuits*. AFIT/GE/ENG/07-18. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/SNTA.

PEREZ, SERGIO P., *Amplitude Comparison Method to Determine Direction of Arrival for RF Communication*. AFIT/GE/ENG/07-27. Faculty Advisor: LtCol Juan R. Vasquez. Sponsor: AFRL/SNAT.

PHILLIPS, CRAIG, see ABBOTT, LAIRD

SEAL, MICHAEL D., *Nonlinear Time-Variant Response in an Avalanche Photodiode Array Based Laser Detection and Ranging System*. AFIT/GEO/ENG/07-03. Faculty Advisor: Dr. Stephen C. Cain.
Sponsor: AFRL/SNJM.

SHELL, SCOTT A., *Optical Parametric Oscillation in Orientation-Patterned Gallium Arsenide*. AFIT/GMS/ENP/07-01. Faculty Advisor: LtCol Thomas G. Alley. Sponsor: AFRL/SN.

SILVA, RYAN J., *Implementation and Optimization of the Advanced Encryption Standard Algorithm on an 8-Bit Field Programmable Gate Array Hardware Platform*. AFIT/GE/ENG/07-21. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/SNTA.

SPANGLER, BRETT R., *Characterizing the Solar Wind Using DMSP Ion Drift Data*. AFIT/GAP/ENP/07-J01. Faculty Advisor: LtCol Christopher G. Smithtro. Sponsor: AFRL/SN.

STILLINGS, CHRISTIAN, see ABBOTT, LAIRD

TODD, ADAM D., *Network Intrusion Detection System Evasion*. AFIT/GIA/ENG/07-04. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SN.

VELOTTA, JAMIE S., *Navigation Using Orthogonal Frequency Division Multiplexed Signals of Opportunity*. AFIT/GE/ENG/07-31. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/SNRN.

WOOLLEY, BRIAN G., *Unified Behavior Framework for Reactive Control in Real-Time Systems*. AFIT/GCS/ENG/07-11. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/SNRN.

AFRL: REQUIREMENTS DIRECTORATE

ROMERO, MICHAEL A., *Identifying and Assessing Effective Mechanisms for Technology Transfer*. AFIT/GRD/ENV/07-M6. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFRL/XR.

AFRL: SPACE VEHICLES DIRECTORATE

EASLEY, SHAUN M., *Anisotropy in the South Atlantic Anomaly*. AFIT/GAP/ENP/07-02. Faculty Advisor: LtCol Christopher G. Smithro. Sponsor: AFRL/VS.

GARGASZ, MICHAEL LUKE, *Optimal Spacecraft Attitude Control Using Aerodynamic Torques*. AFIT/GA/ENY/07-M08. Faculty Advisor: LtCol Nathan A. Titus. Sponsor: AFRL/VSES.

GRAY, THOMAS E., *Investigation of Gate Current in Neutron Irradiated $Al_xGa_{1-x}N$ /GaN Heterogeneous Field Effect Transistors Using Voltage and Temperature Dependence*. AFIT/GNE/ENP/07-02. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFRL/VS and AFOSR.

MCLAUGHLIN, ANNIE, B., JESSE T. MCLAUGHLIN, JASON S. PRITCHETT, JOHN H. STONE and GREGORY K. VAN DYK. *Protection of a High-Valued Space Asset*. AFIT/GSE/ENY/07M-04. Dr. Richard Cobb. AFRL/VS.

MCLAUGHLIN, JESSE T., see MCLAUGHLIN, ANNIE B.

MONTIMINY, DAVID P., *Using Relocatable Bitstreams for Fault Tolerance*. AFIT/GCE/ENG/07-09. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/VSSE.

NAFF, JEFFREY E., *Quick-Turn Finite Element Analysis for Plug-and-Play Satellite Structures*. AFIT/GA/ENY/07-M15. Maj Eric D. Swenson. Sponsor: AFRL/VSSV.

POMAGER, JOSEPH C., *Parametric Reliability of Space-Based Field Programmable Gate Arrays*. AFIT/GE/ENG/07-19. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/VSEE.

PRICHETT, JASON S., see MCLAUGHLIN, ANNIE B.

STEENBURGH, ROBERT A., *Holes: Ionospheric Scintillation GPS and Imputation*. AFIT/GAP/ENP/07-06. Faculty Advisor: LtCol Christopher G. Smithro. Sponsor: AFRL/VS.

STONE, JOHN H., see MCLAUGHLIN, ANNIE B.

VANDYK, GREGORY K., see MCLAUGHLIN, ANNIE B.

WERNER, JOSHUA T., *Assessment of the Impact of Various Ionospheric Models on High-Frequency Signal Raytracing*. AFIT/GAP/ENP/07-07. Faculty Advisor: LtCol Christopher G. Smithro. AFRL/VS.

4.2.6. AIR MOBILITY COMMAND

POLOMSKY, ROBERT D., *Air Mobility Command's En Route Support Infrastructure: a Construct of Aircraft Type and Geographic Location Utilized to Assess En Route Aircraft Logistics Support*. AFIT/GIR/ENV/07-J2. Faculty Advisor: Maj Sharon G. Heilmann. Sponsor: HQ AMC/A49.

4.2.7. AIR FORCE SPACE COMMAND

MCDONALD, GAVAIN K., *Work-Home Conflict: A Study of the Impact of Role Conflict on U.S. Air Force Company Grade Officer Turnover Intentions*. AFIT/GLM/ENV/07-M4. Faculty Advisor: Maj Sharon Heilmann. Sponsor: 30 SW/CC.

RASHASH, SANDRA M., *Radar Orbit Analysis Tool Using Least Squares Estimator*. AFIT/GSS/ENV/07-S01. Faculty Advisor: Dr. William Wiesel. Sponsor: HQ AFSPC/XPY.

4.2.8. USAF FIELD OPERATING AGENCIES

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE

FALCONE, JEFFREY T., *Using Value-Focused Thinking to Evaluate the Use of Innovative Stormwater Management Technologies on Air Force Installations*. AFIT/GEM/ENV/07-M5. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: AFCEE.

POWELL, WILLIAM C., *Development of a Screening Model for Design and Costing of an Innovative Tailored Granular Activated Carbon Technology to Treat Perchlorate-Contaminated Water*. AFIT/GEM/ENV/07-M12. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: AFCEE/TD.

SECODY, ROLAND E., *Modeling In Situ Bioremediation of Perchlorate-Contaminated Groundwater*. AFIT/GEM/ENV/07M-13. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: AFCEE/TD.

VALENCIA, VHANCE V., *A Project Manager's Personal Attributes as Predictors for Success*. AFIT/GEM/ENV/07-M16. Faculty Advisor: LtCol Daniel T. Holt. Sponsor: AFCEE.

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

DALBY, TIMOTHY D., *Quantification of Risk for USAF Fire and Emergency Services Flights as a Result of Shortages in Manpower*. AFIT/GEM/ENS/07-02. Faculty Advisor: Maj Shane Knighton. Sponsor: AFCESA/CEXF.

DIAZ, DANIEL, JR., *Diffusion of Innovation: Factors Promoting Interest in Solar Photovoltaic Generation Systems within Air Force Installations*. AFIT/GEM/ENV/07-M3. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCESA.

MCCOURT, MICHAEL J., *A Decision Model for Selecting Energy Efficient Technologies for Low-Sloping Roof Tops Using Value-Focused Thinking*. AFIT/GEM/ENS/07-03. Faculty Advisor: LtCol Jeffery Weir. Sponsor: AFCESA/CESC.

SPEER, BENJAMIN G., *A Value-Focused Thinking Model for the Selection of the Best Rigid Pavement, Partial-Depth Spall Repair Material*. AFIT/GEM/ENS/07-04. Faculty Advisor: Maj Shane Knighton. Sponsor: HQ/AFCESA.

AIR FORCE COMMUNICATIONS AGENCY

ALSOP, ALAN S., *Beyond Passwords: Usage and Policy Transformation*, AFIT/GIR/ENV/07-M1. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: AFCA/ECAI

BRAULT, GREGORY J., *Multi-Dimensional Range Querying Using a Modification of the Skip Graph*. AFIT/GE/ENG/07-04. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFCA/ENAN.

MACDONALD, JASON E., *Use of Tabu Search in a Solver to Map Complex Networks onto Emulab Testbeds*. AFIT/GCE/ENG/07-07. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFCA/ENAN.

ROBERTS, DANIEL K., *Performance Analysis and Comparison of Multiple Routing Protocols in a Large-Area High-Speed Mobile Node Ad Hoc Network*. AFIT/GE/ENG/07-28. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFCA/EN.

AIR FORCE COST ANALYSIS AGENCY

FUERING, JEFFERY C., *The Impact of Human Capital on the Cost of Air Force Acquisition Programs*. AFIT/GCA/ENV/07-M5. Faculty Advisor: LtCol Jeffrey S. Smith. Sponsor: AFCAA.

AIR FORCE TECHNICAL APPLICATION CENTER

HARR, LOGAN J., *Precise Calculation of Complex Radioactive Decay Chains*. AFIT/GNE/ENP/07-03. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: Air Force Technical Applications Center.

AF GEOGRAPHICAL INFORMATION SYSTEMS SUPPORT CENTER (AF GISSC)

BRYANT, SCOTT A., *Geospatial Informational Security Risks and Concerns of the U.S. Air Force GeoBase Program*. AFIT/GEM/ENV/07-M1. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: USAF GIS Support Center.

AIR FORCE TEST PILOT SCHOOL (AF TPS)

DOTTER, JASON D., *An Analysis of Aircraft Handling Quality Data Obtained from Boundary Avoidance Tracking Flight Test Techniques*. AFIT/GAE/ENY/07-M24. Faculty Advisor: Maj Paul Blue. Sponsor: USAF Test Pilot School.

4.2.9. DEPARTMENT OF DEFENSE

DEFENSE LOGISTICS AGENCY (DLA)

BUCK, JESSICA L., *Class VIIIA Materiel: What Problems were Encountered Transiting OIF Air Transshipment Nodes?* AFIT/GLM/ENS/07-02. Faculty Advisor: Dr. Alan Johnson. Sponsor: DLA/MS.

DEFENSE THREAT REDUCTION AGENCY

CARLSON, LONNIE, *Cobalt Doping of Semiconducting Boron Carbide using Cobaltocene*. AFIT/GNE/ENP/07-01. Faculty Advisor: LtCol David LaGrafte. Sponsor: DTRA/CS.

JONES, CHRISTOPHER P., *High Resolution Mesoscale Weather Data Improvement to Spatial Effects for Dose-Rate Contour Plot Predictions*. AFIT/GNE/ENP/07-04. Faculty Advisor: LtCol Steven T. Fiorino. Sponsor: DTRA/AFIT.

KLING, JOSEPH A., *The Sensitivity of RDD Contamination Predictions to Source Term Parameters*. AFIT/GNE/ENP/07-05. Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: DTRA/TD.

LUNDIN, MICHAEL A., *Passive Detection of Uranyl Compounds*. AFIT/GAP/ENP/07M-05. Faculty Advisor: LtCol Matthew J. Bohn. Sponsor: DTRA.

MAAS, MICHAEL R., *Directional Detection of Scattered Gamma Spectra by a Portable High Purity Germanium Detector*. AFIT/GNE/ENP/07-06. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: DTRA/AFIT.

HIGH ENERGY LASER JOINT TECHNOLOGY OFFICE (HELJTO)

RODGERS, LUKE P., *Collision Broadening Using Alkali-Filled, Hollow Core Fibers*. AFIT/GAP/ENP/07-S01. Faculty Advisor: Maj Timothy Russell. Sponsor: HELJTO.

OFFICE OF THE SECERETARY OF DEFENSE

ORTH, DAVID F., *An Infrared Camera Simulation for Estimating Spatial Temperature Profiles and Signal-to-Noise Ratios of an Airborne Laser-Illuminated Target*. AFIT/GEO/ENP/07-01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: DETEC (OSD).

UNITED STATES STRATEGIC COMMAND

NYSETH, NATHAN E., *Classifying Failing States*. AFIT/GOR/ENS/07-19. Faculty Advisor: Dr. Richard Deckro. Sponsor: USSTRATCOM /GISC.

ROBINSON II., PAUL D., *Patterns of War Termination: A Statistical Approach*. AFIT/GOR/ENS/07-23. Faculty Advisor: Dr. Richard Deckro. Sponsor: USSTRATCOM /GISC.

UNITED STATES TRANSPORTATION COMMAND

JACKSON JR., WILLIAM L., *The Viability of the Air Mobility Command Pure Pallet Program for U.S. Army Repairable Retrograde Shipments*. AFIT/GLM/ENS/07-05. Faculty Advisor: Dr. William Cunningham, III. Sponsor: USTRANSCOM J5/J4.

4.2.10. UNITED STATES ARMY

JORDAN, JEREMY D., *Updating Optimal Decisions Using Game Theory and Exploring Risk Behavior Through Response Surface Methodology*. AFIT/GOR/ENS/07-13. Faculty Advisors: Dr. Marcus Perry & Dr. Sharif Melouk. Sponsor: Department of Army.

NEWKIRK, M. C., *Process Improvements for the AH-64 Tail Rotor Vibration Analysis*. AFIT/GAE/ENY/07-J15. Faculty Advisor: Dr. Donald Kunz. Sponsor: AMRDEC.

4.2.11. UNITED STATES NAVY

HUDOCK, DAVID M., *Biofiltration as a Viable Alternative for Air Pollution Control at Department of Defense Surface Coating Facilities*. AFIT/GES/ENV/07-M3. Faculty Advisor: LtCol David A. Smith. Sponsor: CNAF.

SCURLOCK, ANTONIO J., *Strategic Planning to Conduct Joint Force Network Operations: A Content Analysis of NETOPS Organizations Strategic Plans*. AFIT/GIR/ENV/07-M18. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: DONCIO.

4.2.12. DEPARTMENT OF ENERGY

MAGALLANEZ JR., RAYMOND. *Surrogate Strategies for Computationally Expensive Optimization Problems with CPU-Time Correlated Functions*. AFIT/GOR/ENC/07-01. Faculty Advisor: LtCol Mark Abramson. Sponsor: Los Alamos National Lab.

4.2.13. OTHER FEDERAL AGENCIES

ENVIRONMENTAL PROTECTION AGENCY (EPA)

DIETZ, JOHN M., *Microbial Degradation of Fuel Oxygenates under Aerobic Conditions*.

AFIT/GES/ENV/07-M1. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: USEPA National Risk Management Research Laboratory.

GRACE, STEPHEN T., *The Effect of Orthophosphate as a Copper Corrosion Control Inhibitor in High Alkalinity Drinking Water Systems*. AFIT/GES/ENV/07-M2. Faculty Advisor: Dr. Mark N. Goltz.

Sponsor: USEPA Office of Research and Development.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

BRYANT, ADAM R., *Developing a Framework for Evaluating Organizational Information Assurance Metrics Programs*. AFIT/GIR/ENV/07-M5, Faculty Advisor: Dr. Michael R. Grimaila. Sponsor:

NASA JPL.

NATIONAL GEOSPATIAL INTELLIGENCE AGENCY (NGA)

RICHARDS, EDWARD F., *Commercial PC Wireless for Tactical Operations*. AFIT/GSS/ENV/07-M02.

Faculty Advisor: LtCol Kerry Hicks. Sponsor: NGA/IIG.

NATIONAL PARKS SERVICE (NPS)

KWAN, KELLY E., *Selecting Electricity Generation Sources in Remote Locations*. AFIT/GEM/ENV/07-

M7. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: National Park Service.

NATIONAL SECURITY AGENCY

CHAPLA, ERIK A., *Statistical Machine Translation of Japanese*. AFIT/GE/ENG/07-06. Faculty Advisor: Dr. Steven C. Gustafson. Sponsor: NSA.

HAAG, CHARLES R., *An Artificial Immune System-Inspired Multiobjective Evolutionary Algorithm With Application to the Detection of Distributed Computer Network Intrusions*. AFIT/GCS/ENG/07-05.

Faculty Advisor: Dr. Gary B. Lamont. Sponsor: NSA/NCSC.

4.3. GRADUATE RESEARCH PAPERS

Note: Students in non-thesis graduate program at AFIT may write graduate research papers.

4.3.1. HQ UNITED STATES AIR FORCE

BENNETT JR. EARL R., CARL D. HUTCHERSON and ANTHONY L. PUENTE. *Change Management Barriers and Successful Strategies for ERP Implementation in Highly Regulated Industries: A Meta-Synthesis and Field Case Study*. AFIT/ILM/ENS/07-01. Faculty Advisor: Maj Barry Brewer. Sponsor: HAF/A4IT.

FALARDEAU, LARA L., *Downsizing Triage: Do the Survivors of the Recent AF Downsizing Intend to Stay?* Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: HQ USAF/A1.

GORDON, CAROL and JEFFREY R. KRUSINSKI. *Assessing Personnel Transformation Implementation to Established Change Management Standards*. AFIT/ILM/ENS/07-03. Faculty Advisor: Dr. William Cunningham, III. Sponsor: HQ USAF/A1X.

HUTCHERSON, CARL D. See BENNETT JR. EARL R.

KRUSINSKI, JEFFREY R. See GORDON, CAROL.

PHILLIPS, IAN D., *Tactical Relay Mirror System Integration in Base Defense*. AFIT/IOA/ENS/07-02. Faculty Advisor: Dr. John Miller. Sponsor: IDA, OSD/OFT, HAF/A8X & AFSFC/FPB.

PUENTE, ANTHONY L. See BENNETT JR. EARL R.

SLAUGHTER, DWAIN A., See CORAL, CEIR.

WYLIE, ALEXANDER M., *Optimization of Rated Officer Staff Assignments*. AFIT/IOA/ENS/07-03. Faculty Advisor: Maj Shane Hall. Sponsor: HAF/A1/AFPC/DPAOS.

4.3.2. OFFICE OF THE SECRETARY OF THE AIR FORCE

BARNHART, BRADLEY W. and FREDRICK W. WAINWRIGHT. *The Current State of Biometrics to Enhance Network Information Assurance for Air Force Networks*. AFIT/IC4/ENG/07-02. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: SAF/XC.

HILL, WILLIAM R., II, MICHAEL E. PHILLIPS, BRANDON J. ROBINSON and RAINIER TANGLAO. *Managing the Force Development of the AF Communications Officer into the Future*. Faculty Advisor: Col Robyn M. King. Sponsor: SAF/XC.

PHILLIPS, MICHAEL E., See HILL, WILLIAM R.

ROBINSON, BRANDON J., See HILL, WILLIAM R.

TANGLAO, RAINIER, See HILL, WILLIAM R.

WAINWRIGHT, FREDRICK W. See BARNHART, BRADLEY W.

4.3.3. AIR COMBAT COMMAND

DIETRICH III, GEORGE T. M., *The Future of Cargo Airdrop Rigging: A Logistical Support Analysis*. AFIT/IMO/ENS/07-02. Faculty Advisor: Dr. James Moore. Sponsor: AEFC.

MATHES, MICHAEL N., *Concepts for Defeating Pro-Nav Air to Air Missiles*. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: NASIC.

SEIBERT, HARRY L., JR., *A-10 Realignment: Factors Affecting Future Sortie Production at Davis-Monthan Air Force Base*. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: 355th AMXS.

4.3.4. AIR EDUCATION AND TRAINING COMMAND

OLIVER, BRADLEY R., *Optimizing the Undergraduate Pilot Training Scheduling Process*. AFIT/IOA/ENS/07-01. Faculty Advisor: Maj August Roesener. Sponsor: AETC & AFPC

19TH AIR FORCE

SCHMIDT, LANCE E., *Rethinking MC-130H Pilot Training: Applying AFISO21 to Formal School Training*. AFIT/IMO/ENS/07-14. Faculty Advisor: Dr. Alan Heminger. Sponsor: 19 AF/CV.

AIR FORCE INSTITUTE OF TECHNOLOGY

NOTE: Although no external sponsor is identified, in most cases, AFIT faculty sponsored the below projects due to their relevance to current or future USAF, DoD and/or Homeland Security requirements.

BROOKS, JEFFERY L., ELBERT L. COLEMAN JR., and GLEN M. GENOVE. *Investigating Air Operations Center (AOC) Knowledge Management Requirements*. Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: N/A.

COLEMAN, ELBERT L., JR., See BROOKS, JEFFERY L.

CONNOLLY, MICHAEL W., *Managing Airspace Deconfliction in a Robust Unmanned Aerial Vehicle Environment*. Faculty Advisor: Lt Col Patrick D. Kee. Sponsor: N/A.

DOWNS, ROBERT O., JON T. HANNAH, and MICHAEL J. KARDOES. *Mitigation of Residual Bias in the Missile Defense Agency Tracking System*. AFIT/IC4/ENG/07-06. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: N/A.

DUNKLEE, DAVID R., *Improving Air Force Active Network Defense Systems through an Analysis of Intrusion Detection Techniques*. AFIT/IC4/ENG/07-05. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

FAUTH, RODNEY L., JR., *Ethics in the Military: A Study of Major Themes in Recent Professional Writing*. Faculty Advisor: Dr. Kirk A. Vaughan. Sponsor: N/A.

GENOVE, GLEN M., See BROOKS, JEFFERY L.

HAYDEN, JEFFREY D. and SCOTT A. VAUGHAN. *United States Air Force Fuels Program: An Analysis of Automatic Data Collection Initial Investments*. AFIT/ILM/ENS/07-04. Faculty Advisor: Maj Barry Brewer. Sponsor: N/A.

HANNAH, JON T. See DOWNS, ROBERT O.

HOLT, JEFFREY D. and TIMOTHY M. TELEGA. *A Study of Optimal Commander Tour Length*, Faculty Advisor: Col Robyn M. King. Sponsor: N/A.

HUISS, RANDALL S. *The Impact of Closing the C-17 Production Line on the C-17 Supplier Base*. AFIT/IMO/ENS/07-06. Faculty Advisor: Dr. Alan Johnson. Sponsor: N/A.

HUNT, FREDERICK A., JR., *Managing Airspace Deconfliction in a Robust Unmanned Aerial Vehicle Environment*. Faculty Advisor: Lt Col Patrick D. Kee. Sponsor: N/A.

HURST, BRITT K. and MARK D. ORIELLY. *Comparing the Combat Readiness of the Objective Wing and Combat Wing Organizational Structures*. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: N/A.

KARDOES, MICHAEL J. See DOWNS, ROBERT O.

KOCH, RICHARD T., *Managing Airspace Deconfliction in a Robust Unmanned Aerial Vehicle Environment*. Faculty Advisor: Lt Col Patrick D. Kee. Sponsor: N/A.

KOTKIN, JEREMY S., *A Historical Analysis of Western Intervention in the Middle East to Provide a Way Ahead for the Iraq War and Middle Eastern Policy*. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

ORIELLY, MARK D., See HURST, BRITT K.

POLLOCK, PETER M., *Relationship Between Duty History and Selection for In-residence PME (IDE specific)*. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

TELEGA, TIMOTHY M., See HOLT, JEFFERY D.

TREAT, TIMOTHY J., *The Way Ahead for Cyberspace Operations: A JCIDS Analysis*. AFIT/IC4/ENG/07-08. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

VILLELLA, MATTHEW C., *The Attributes of Appropriate Close Air Support Ordinance*. Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

VAUGHAN, SCOTT A. See HAYDEN, JEFFREY D.

WOLLARD, JASON Z., *Inferences Concerning Junior Officers' Abilities and Traits Based on United States Air Force Officer Evaluation Reports*. Faculty Advisor: Daniel T. Holt. Sponsor: N/A.

4.3.5. AIR FORCE MATERIEL COMMAND

CAMPBELL, JASON L., *A Qualitative Analysis of the Possible Effects of "The New Process-Aligned Logistics Readiness Squadron" Structure on Heavily Contracted Logistics Readiness Organizations*. Faculty Advisor: Maj Sharon G. Heilmann. Sponsor: AFMC/A4R and 88ABW, Logistics Readiness Division.

PHILLIPS, IAN D., *Tactical Relay Mirror System Integration in Base Defense*. AFIT/IOA/ENS/07-02. Faculty Advisor: Dr. John Miller. Sponsor: IDA, OSD/OFT, HQ AF/A8X & AFSFC/FPB.

JONES, ROY A., III and RANDAL D. WALKER. *Validation of Air Force Change Education and Management Processes*. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: AFMC/A8C.

WALKER, RANDAL D., See JONES, ROY A., III.

AIR FORCE RESEARCH LABORATORY

CHAVASSE, NICHOLAS H., III, MATTHEW T. FRITZ and BRIAN F. ZANE. *Evaluating of a Non-Traditional Element Detection Device*. Faculty Advisor: Maj Sonia E. Leach. Sponsor: AFRL.

FRITZ, MATTHEW T., See CHAVASSE, NICHOLAS H., III.

ZANE, BRIAN F., See CHAVASSE, NICHOLAS H., III.

AERONAUTICAL SYSTEMS CENTER

CORAL, CEIR and DWAIN A. SLAUGHTER. *F-16 Aircraft Common Configuration Implementation Program (CCIP): A Modernization Program Effects Case Study*. AFIT/ILM/ENS/07-02. Faculty Advisor: Maj Barry Brewer. Sponsor: ASC/312 AESG/DC.

USAF TEST PILOT SCHOOL (TPS)

BIERYLA, JAMES J., *Processor Requirements for a Reconfigurable Airborne Sensor Pod*. AFIT/IES/ENG/07-01. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: USAF/TPS.

4.3.6. AIR MOBILITY COMMAND

BUSCHUR, WILLIAM C., *An Analysis of the C-17 Two Expeditionary Airlift Squadron System*. AFIT/IMO/ENS/07-01. Faculty Advisor: Dr. James Moore. Sponsor: 437 OG/CD.

HESELTINE JR., BRUCE P., *KC-135R Fuel Savings*. AFIT/IMO/ENS/07-04. Faculty Advisor: Dr. Alan Heminger. Sponsor: AMC/DA3

JULIAN, JON T., *Distinguished Visitor Airlift Defensive Systems: Applying LEAN Principles to Minimize Transloading in the USCENTCOM AOR*. AFIT/IMO/ENS/07-07. Faculty Advisor: Lt Col Donald Duckro. Sponsor: AMC A3/MA.

KNACK, JOHN T., *Determination of Fabrication Repair Capability to Enable Aircraft Maintenance Regionalization*. AFIT/IMO/ENS/07-08. Faculty Advisor: Lt Col Bradley Anderson. Sponsor: AMC/A4.

MARTIN, TIM D., *AFSO 21 and the JA/ATT System*. AFIT/IMO/ENS/07-10. Faculty Advisor: Dr. Alan Heminger. Sponsor: AMC/DA3.

MCCRAY, GERALD R., *Implementation of Centralized Maintenance Management for Air Mobility Command Aircraft*. AFIT/IMO/ENS/07-11. Faculty Advisor: Dr. Alan Heminger. Sponsor: AMC/DA3.

PETERSON, EDWARD H., *Cargo Command and Control: Refining Mode Selection and Cross-Docking in the Military Air Cargo Distribution System*. AFIT/IMO/ENS/07-12. Faculty Advisor: Dr. William Cunningham, III. Sponsor: HQ AMC/A4.

SCHLICHENMEYER, PATRICK L., *Air Force Manpower Reduction Analysis*. AFIT/IMO/ENS/07-13. Faculty Advisor: Dr. Michael Hicks. Sponsor: AMC/A9

18th AIR FORCE

GITTNER, AARON W., *Intra-Theater Airlift Efficiency*. AFIT/IMO/ENS/07-03. Faculty Advisor: Dr. James Moore. Sponsor: 18 AF/CC.

SINDEL, COLIN J., *Leveraging Expeditionary Combat Support Operations: A Critical Look at Standardizing the Base Opening Concept*. AFIT/IMO/ENS/07-15. Faculty Advisor: Dr. William Cunningham, III. Sponsor: 18 AF/21 EMTF.

WILSON, CHRISTOPHER W., *KC-X Airlift Role; What Should It Be?* AFIT/IMO/ENS/07-16. Faculty Advisor: Dr. James Moore. Sponsor: 18th AF/CC.

4.3.7. AIR FORCE SPACE COMMAND

HOLBEIN, BRIAN K., *An Analysis of the Satellite Command and Control Operator Training System*.
Faculty Advisor: Dr. Michael T. Rehg. Sponsor: AFSPC.

4.3.8. UNITED STATES AIR FORCES IN EUROPE

LAMBERT, CHRISTOPHER L., *Transforming Mobility Airlift Forces: Analysis of Air Mobility Platform Requirements for United States Air Forces in Europe*. AFIT/IMO/ENS/07-09. Faculty Advisor: Dr. James Moore. Sponsor: USAFE/A5/8/9.

4.3.9. DEPARTMENT OF DEFENSE

ARWOOD, SAM, *Cyberspace as a Theater of Conflict: Federal Law, National Strategy, and the Departments of Defense and Homeland Security*. AFIT/IC4/ENG/07-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: Joint Staff/J6.

5. ACADEMIC DEPARTMENT PUBLICATIONS AND FUNDING INFORMATION

5.1. DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

Access Phone: 937-255-3069, DSN 785-3069

Fax: 937-656-7621, DSN 986-7621

Homepage: <http://www.afit.edu/en/eny/>

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5.1.1. DOCTORAL DISSERTATIONS

DREHER, PETER, A., *Dynamic Response of a Collidant Impacting a Low Pressure Airbag*. AFIT/DS/ENY/07-09. Faculty Advisor: Dr. Robert A. Canfield. Sponsor: N/A.

IRVIN JR., DAVID J., *Optimal Control Strategies for Constrained Relative Orbits*. AFIT/DS/ENY/07-03. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/VS.

JORRIS, TIMOTHY, R., *Common Aero Vehicle Autonomous Reentry Trajectory Optimization Satisfying Waypoint and No-Fly Zone Constraints*. AFIT/DS/ENY/07-04. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: AFRL/VS.

SCHULZ, CHRISTOPHER S., *Rotorcraft Smoothing Via Linear Time Periodic Methods*. AFIT/DS/ENY/07-10. Faculty Advisor: Dr. Donald L. Kunz. Sponsor: USA RDECOM.

5.1.2. MASTER'S THESES

5.1.2.1. AERONAUTICAL ENGINEERING (GAE)

ADAMS, BRANDON, J., *Structural Stability of a Joined-Wing Sensorcraft*. AFIT/GAE/ENY/07-J01. Faculty Advisor: Dr. Robert Canfield. Sponsor: AFRL

ANDERSON, WESLY S., *Design, Construction, and Validation of The AFIT Small Scale Combustion Facility and Section Model of the Ultra-Compact Combustor*. AFIT/GAE/ENY/07-M01. Faculty Advisor: Major Richard Branam. Sponsor: AFRL/PRS, and AFRL/PRTC.

ANDRUS, IONIO Q., *Comparative Analysis of a High Bypass Turbofan Using a Pulsed Detonation Combustor*. AFIT/GAE/ENY/07-M02. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/PRTA.

BACK, CHRISTOPHER A., *Effects of Prior Aging on the Creep Response of Carbon Fiber Reinforced PMR-15 Neat Resin at 288°C in an Air Environment*. AFIT/GAE/ENY/07-J02. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsors: AFOSR/NL and AFRL/MLBCM.

BATCHELOR, RYAN G., *Fuel Spray Analysis of the F-22 Augmentor Pilot Fuel Injector*. AFIT/GAE/ENY/07-S01. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/PRTC.

BRAUN, JASON C., *Effects of Temperature and Environment on Creep Behavior of an Oxide-Oxide Ceramic Matrix Composite*. AFIT/GAE/ENY/07-M04, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTC and AFRL/MLLN.

BURKINSHAW, MATTHEW G., *Comparative Study of Aerodynamic Interference During Aft Dispense of Munitions*. AFIT/GAE/ENY/07-J03. Faculty Advisor: LtCol Raymond C. Maple. Sponsor: AFRL/VAAL.

BURNS, BRIAN S., *Autonomous Unmanned Aerial Vehicle Rendezvous for Automated Aerial Refueling (AAR)*. AFIT/GAE/ENY/07-M05, Faculty Advisor: Maj Paul Blue. Sponsor: AFRL/VAC.

CAMERON, GREGORY J., *An Evaluation of High Velocity Wear*. AFIT/GAE/ENY/07-M06, Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFOSR/NM.

CARR, RYAN, *Quantifying Non-Equilibrium in Hypersonic Flows Using Entropy Generation*. AFIT/GAE/ENY/07-M07. Faculty Advisor: Maj Richard D. Branam. Sponsor: AFRL/VASD.

CASPERS, MATTHEW S., *CFD Investigation of Flow Past Idealized Engine Nacelle Chutter*. AFIT/GAE/ENY/07-M08 Faculty Advisor: LtCol Raymond C. Maple Sponsor: 46 TW OG.

CRIDER, KENDRA L., *Radial Diffusion Between Coaxial Cylinders*. AFIT/GAE/ENY/07-M09. Faculty Advisor: Dr. Paul I. King. Sponsor: NASIC/ADNA.

CROUSE, JOSHUA D., *Development of Cursor-on-Target Control for Semi-Autonomous Unmanned Aircraft Systems*. AFITGAE/ENY/07-J04. Research Advisor: Maj Paul Blue. Sponsor: N/A.

DENISON, NICHOLAS A., *Automated Carrier Landing of an Unmanned Combat Aerial Vehicle Using Dynamic Inversion*. AFIT/GAE/ENY/07-J06. Faculty Advisor: Maj Christopher Shearer. Sponsor: N/A.

DEVUONO, AMANDA J., *Flight Dynamic Response of HALE Aircraft to KC-135 Flowfield*. AFIT/GAE/ENY/07-S06. Faculty Advisor: Major Christopher Shearer. Sponsor: N/A.

DILLSAVER, MATTHEW, J., *Experimental Investigation of Oblique Wing Aerodynamics at Low Speed*. AFIT/GAE/ENY/07-M10. Faculty Advisor: Dr. Milton Franke. Sponsor: AFRL/VAAA.

DOTTER, JASON D., *An Analysis of Aircraft Handling Quality Data Obtained from Boundary Avoidance Tracking Flight Test Techniques*. AFIT/GAE/ENY/07-M24. Faculty Advisor: Maj Paul Blue. Sponsor: USAF Test Pilot School.

ETTER, ROBERT B., *CFD Investigation of Effect of Depth to Diameter Ratio on Dimple Flow*. AFIT/GAE/ENY/07-J07. Faculty Advisor: LtCol Raymond Maple. Sponsor: N/A.

FRANKE, C.J., *Aircraft Engine Cycle Optimization for the Next Generation Theater Transport*. AFIT/GAE/ENY/07-M11. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/VAOT.

HAN, SEJIN, *Finite Element Analysis of Lamb Waves Acting within a Thin Aluminum Plate*. AFIT/GAE/ENY/07-S02. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/VASA.

HARDER, ADAM D., *Experimental Characterization of Turbulent Flow around Cylinder Arrays*. AFIT/GAE/ENY/07-M12. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: 46TW/OG.

HOFFMAN, DAVID A., *Experimental Investigation of Turbojet Thrust Augmentation Using an Ejector*. AFIT/GAE/ENY/07-M13. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/PRTC.

HOWELL, THOMAS G., *Catalytic Partial Oxidation Reforming of JP8 and S8*. AFIT/GAE/ENY/07-J08. Faculty Advisor: Maj Richard D. Branam. Sponsor: AFRL/PRPS.

KILLIAN, D. N., *The Aerodynamic Performance of the Houck Configuration Flow Guides*. AFIT/GAE/ENY/07-J09. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/VAAA.

KOETHER, STEPHEN J., *Validation of the AFIT Small Scale Combustion Facility and OH Laser-Induced Fluorescence of an Atmospheric Laminar Premixed Flame*. AFIT/GAE/ENY/07-S03. Faculty Advisor: Dr. Paul King. Sponsor: AFRL/PRTC.

LADRIDO, CHRISTINE G., *Effect of Prior Aging on Fatigue Response of IM7/BMI 5250-4 at 191°C*. AFIT/GAE/ENY/07-J10. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsors: AFOSR/NE and AFRL/MLBCM.

LAFHEY, P.D., *The Effects of Environment on the Interlaminar Shear Performance of an Oxide/Oxide Ceramic Matrix Composite at Elevated Temperature*. AFIT/GAE/ENY/07-J11. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsor: AFRL/PRTC.

LINK, P. E., *High Temperature Degradation of 5250-4 Polymer Resin*. AFIT/GAE/ENY/07-J12. Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFRL/ML.

MARLIN, MICHAEL J., *Wide Area Search and Engagement Simulation Validation*. AFIT/GAE/ENY/07-M17. Faculty Advisor: Dr. David R. Jacques. Sponsor: AFRL/VAC.

MCGAHA, CHRISTOPHER C., *Filtered Rayleigh Scattering Measurements in a Buoyant Flowfield*. AFIT/GAE/ENY/07-M18. Faculty Advisor: Dr. Mark Reeder. Sponsor: N/A.

MCNIEL, CHARLES M., *Demonstration of Clean Particle Seeding for Particle Image Velocimetry in a Closed Circuit Supersonic Wind Tunnel*. AFIT/GAE/ENY/07-M19. Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/VAAI.

MENDOZA, L. L., JR., *Damage Considerations of a Flexible Micro Air Vehicle Wing Using 3-D Laser Vibrometry*. AFIT/GAE/ENY/07-J13. Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFRL/VASD.

MILLER, Z. R., *Final Development, Testing, and Flight Preparation of the Rigidizable Inflatable Get-Away-Special (RIGEX)*. AFIT/GAE/ENY/07-J14. Faculty Advisor: Dr. Richard Cobb. Sponsor: N/A.

NEWKIRK, M. C., *Process Improvements for the AH-64 Tail Rotor Vibration Analysis*. AFIT/GAE/ENY/07-J15. Faculty Advisor: Dr. Donald Kunz. Sponsor: AMRDEC.

O'NEAL, B. D., *Development and Testing of the Rigidizable Inflatable Get-Away-Special Experiment*. AFIT/GAE/ENY/07-J16. Faculty Advisor: Dr. Richard Cobb. Sponsor: N/A.

PELTIER, D. W., *Performing Particle Image Velocimetry in a Supersonic Wind Tunnel Using Carbon Dioxide as the Seed Material*. AFIT/GAE/ENY/07-J17. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/VAA.

RADTKE, J. T., *Efficiency and Pressure Loss Characteristics of an Ultra-Compact Combustor with Bulk Swirl*. AFIT/GAE/ENY/07-J18. Faculty Advisor: Dr. Paul King. Sponsor: AFRL/PRTC.

RUFA, JUSTIN, R., *Development of an Experimental Platform for Testing Autonomous UAV Guidance and Control Algorithms*. AFIT/GAE/ENY/07-M20. Faculty Advisor: Maj. Paul A. Blue. Sponsor: AFRL/VAC.

SALVIA, ROBERT A., *Effects of Prior Aging at 191°C on Creep Response of IM7/BMI 5250-4*. AFIT/GAE/ENY/07-J23. Faculty Advisors: Dr. Marina Ruggles-Wrenn. Sponsor: AFRL/MLBCM and AFOSR/NL.

SCHWENDIMAN, K.A., *Critical Life Prediction Research on Boron-Enhanced Ti-6Al-4V*. AFIT/GAE/ENY/07-J24. Faculty Advisor: Dr. Shankar Mall. Sponsor: AFRL/MLLMD.

SMITH, JEREMY J., *Simulation of the Dynamically Coupled KC-135 Tanker and Refueling Boom*. AFIT/GAE/ENY/07-M21. Faculty Advisor: Dr. Donald Kunz. Sponsor: AFRL/VACD.

SOLFELT, D. A., *CFD Analysis of a T-38 Wing Fence*. AFIT/GAE/ENY/07-J19. Faculty Advisor: LtCol Raymond Maple. Sponsor: N/A.

SUTTER, DAVID, A., *Three-Dimensional Analysis of a Composite Repair and the Effect of Overply Shape Variation on Structural Efficiency*. AFIT/GAE/ENY/07-M22. Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFRL/MLBC.

SZYMCZAK, N.R., *Compressive Creep Behavior of Nextel™ 720/Alumina Ceramic Matrix Composite at 1200°C in Air and in Steam Environment*. AFIT/GAE/ENY/07-J20. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsor: AFRL/PRTC.

TOBIAS, A. P., *Experimental Methods to Characterize Nonlinear Vibration of Flapping Wing Micro Air Vehicles*. Faculty Advisor: AFIT/GAE/ENY/07-M23. Dr. Anthony Palazotto. Sponsor: AFRL/VASD.

UMHOLTZ, M., *A Comparison of Film Cooling Techniques in a High Speed, True Scale, Fully Cooled Turbine Vane Ring*. AFIT/GAE/ENY/07-J21. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/PRF.

VANDERHYDE, MICHAEL J., *Comparison of Thermodynamic Equilibrium and Non-Equilibrium Representation of Materials*. AFIT/GAE/ENY/07-M25. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/MNAC and AFOSR.

WALKER, MICHAEL M., *The Aerodynamic Performance of the 24 Inch Houck Configuration*. AFIT/GAE/ENY/03-M30. Faculty Advisor: Dr. Mark Reeder. Sponsor: AFRL/VAAA.

WALKER, ROBERT L., *Finite Element Solution: Nonlinear Flapping Beams for Use With Micro Air Vehicle Design*. AFIT/GAE/ENY/07-M26. Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/VASD.

WESTFALL, J.T., *Structural Optimization of a Distributed Actuation System in a Flexible Inplane Morphing Wing*. AFIT/GAE/ENY/07-J22. Faculty Advisor: Dr. Robert Canfield. Sponsor: AFRL/VASA.

WHITING, BRIDGETT A., *Cyclic Creep and Recovery Behavior of NextelTM 720/Alumina Ceramic Matrix Composite at 1200 °C in Air and in Steam Environments*. AFIT/GAE/ENY/07-S05. Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTS.

ZOLLARS, MICHAEL, D., *Optimal Wind Corrected Flight Path Planning For Autonomous Micro Air Vehicles*. AFIT/GAE/ENY/07-M28. Faculty Advisor: Maj Paul A. Blue. Sponsor: AFRL/VAC.

5.1.2.2. ASTRONAUTICAL ENGINEERING (GA)

AN, YOUNG MAN., *Raman Scattering Study of Supercritical Bi-Component Mixtures Injected into a Subcritical Environment*. AFIT/GA/ENY/07-S01. Faculty Advisor: Dr. Paul I. King. Sponsor: AFRL/PRAS.

ANDREWS, JENNIFER P., *Lamb Wave Propagation in Varying Thermal Environments*. AFIT/GA/ENY/07-M01. Faculty Advisor: Dr. Anthony N. Palazotto. AFRL/VASA.

BALDWIN, JASON L., *Optimal Control of a Circular Satellite Formation Subject to Gravitational Perturbations*. AFIT/GA/ENY/07-M02. Faculty Advisor: LtCol Nathan Titus. Sponsor: N/A.

BRUNNER, ABRAHAM F., *Spacecraft Proximity Operations Used to Estimate the Dynamical & Physical Properties of a Resident Space Object*. AFIT/GA/ENY/07-M03. Faculty Advisor: Dr. William E. Wiesel. Sponsor: N/A.

CLAYCAMP, RYAN C., *Threat Modeling of Spacecraft Attitude Control Subsystem*. AFIT/GA/ENY/07-M04. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: NASIC/SMSV.

CRIDER, JEFFREY S., *Damage Detection Using Lamb Waves for Structural Health Monitoring*. AFIT/GA/ENY/07-M05. Faculty Advisor: Maj Eric D. Swenson. Sponsor: AFRL/VASA.

FRAM, BRYAN JOSHUA, *An Analysis of Operationally Responsive Space in Terms of Cost and Utility With the Use of a Hybrid Launch Vehicle*. AFIT/GA/ENY/07-M06. Faculty Advisor: Dr. Michael Heil. Sponsor: N/A.

GABRIELE, THOMAS PAUL., *Active Control of a Thin Deformable Inplane Actuated Mirror*. AFIT/GA/ENY/07-M07. Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

GARGASZ, MICHAEL LUKE, *Optimal Spacecraft Attitude Control Using Aerodynamic Torques*. AFIT/GA/ENY/07-M08. Faculty Advisor: LtCol Nathan A. Titus. Sponsor: AFRL/VSES.

GREATTING, HEATHER, *Analysis of the Feasibility of a Space-Based ICBM Interceptor and Propulsion System Trade Study*. AFIT/GA/ENY/07-M09. Faculty Advisor: Maj Richard D. Branam. Sponsor: AFRL/PRS.

GUETTLER, DAVID B., *Satellite Attitude Control Using Atmospheric Drag*. AFIT/GA/ENY/07-M10. Faculty Advisor: Dr. William E. Wiesel. Sponsor: N/A.

HAJOVSKY, BLAKE B., *Satellite Formation Control Using Atmospheric Drag*. AFIT/GA/ENY/07-M11. Faculty Advisor: Dr. William E. Wiesel. Sponsor: N/A.

HINES, MICHAEL S., *Fuel Estimation Using Dynamic Response*. AFIT/GA/ENY/07-M12. Faculty Advisor: LtCol Nathan A. Titus. Sponsor: N/A.

JANTZ, BRADLEY, *Contamination of the TacSat-2 Spacecraft Structure by a 200-Watt Hall Effect Thruster*. AFIT/GA/ENY/07-M13. Faculty Advisor: Major Richard Branam. Sponsor: AFRL/PRS.

KATWYK, DAVID W., *Tension-Compression Fatigue Behavior of a Carbon Fiber/Epoxy (IM7/EPON 862) Composite Fabricated Using Vacuum Assisted Resin Transfer Molding Process*. AFIT/GA/ENY/07-M14. Faculty Advisor: Dr. Shankar Mall. Sponsor: AFRL/MLBCO.

NAFF, JEFFREY E., *Quick-Turn Finite Element Analysis for Plug-and-Play Satellite Structures*. AFIT/GA/ENY/07-M15. Major Eric D. Swenson. Sponsor: AFRL/VSSV.

OWENS, JEREMY J., *Final Assembly, Testing and Processing of the Rigidizable Inflatable Get-Away-Special Experiment (RIGEX) for Spaceflight Qualification*. AFIT/GA/ENY/07-S02. Faculty Advisor: Dr. Richard Cobb. Sponsor: N/A.

RICHARDS, EDWARD F., *Commercial PC Wireless for Tactical Operations*. AFIT/GSS/ENY/07-M02. Faculty Advisor: LtCol Kerry Hicks. Sponsor: NGA/IIG.

SAILSMAN, JERMAINE S., *Modeling Acoustic Effects on Shear Coaxial Jet Flow Utilizing Molecular Dynamic Simulation*. AFIT/GA/ENY/07-M16. Faculty Advisor: Major Richard D. Branam. Sponsor: AFRL/AFOSR.

SUGRUE, KIMBERLY, A., *Optimal Orbital Coverage of Theater Operations and Targets*. AFIT/GA/ENY/07-M17. Faculty Advisor: Lt Col Nathan A. Titus. Sponsor: N/A.

TOMASZEWSKI, JAMES W., *Characterization of a Hall Effect Thruster Using Thermal Imaging*. AFIT/GA/ENY/07-M18. Faculty Advisor: Major Richard D. Branam. Sponsor: AFRL/PRS.

5.1.2.3. MATERIALS AND SCIENCE ENGINEERING (GMS)

BROECKERT, JOSEPH L., *Effects of Prior Aging at Elevated Temperature in Air and in Argon Environments on Creep Response of PMR15 Neat Resin*. AFIT/GMS/ENY/07-M01. Faculty Advisor: Dr. Marina Ruggles-Wrenn. Sponsor: AFOSR/NE.

SALADIN, ERIK, C., *The Effect of Microstructure on Fretting Fatigue Behavior of Nickel Alloy IN-100*. AFIT/GMS/ENY/07-M02. Faculty Advisor: Dr. Shankar Mall. Sponsor: AFOSR/NA.

5.1.2.4. SPACE SYSTEMS (GSS)

BITTLE, NICOLE, M., *Estimating the Aerodynamic and Heating Properties of an Unknown Reentry Vehicle Using Least Squares Filtering*. AFIT/GSS/ENY/07-M01. LtCol Kerry D. Hicks. Sponsor: N/A.

RASHASH, SANDRA M., *Radar Orbit Analysis Tool Using Least Squares Estimator*. AFIT/GSS/ENY/07-S01. Faculty Advisor: Dr. William Wiesel. Sponsor: HQ AFSPC/XPY.

5.1.2.5. SYSTEMS ENGINEERING (GSE)

ABBOTT, LAIRD, GARRETT KNOWLAN, CRAIG PHILLIPS and CHRISTIAN STILLINGS. *Systems Engineering Analysis for Transition of the Fleeting Target Technology Demonstrator*. AFIT/GSE/ENY/07-M03. Faculty Advisor: Dr. Richard Cobb. Sponsor: AFRL/SN.

ASHER, DOUGLAS W., MARK BLOMME, SHAWN COREY and ROBERT FILBEY. *Impact Analysis of Electronic Attack on Airborne Synthetic Aperture Radar*. AFIT/ISE/ENY/07J-03. Faculty Advisor: Dr. David Jacques. Sponsor: 659 AECS (ASC).

BERG, BRYAN, K., *The Application of System Engineering Techniques to the Integration of a Digital Nuclear Weapon Onto The F-15*. AFIT/GSE/ENY/07-M05. Faculty Advisor: Major Joerg Walter. Sponsor: 912 AESG/VA.

BLOMME, MARK, see ASHER, DOUGLAS W.

BOND, MATTHEW S., JAMES A. RODRIGUEZ and HIEU T. NGUYEN. *A Systems Engineering Process for an Integrated Structural Health Monitoring System*. AFIT/GSE/ENY/07M-02. Faculty Advisor: Dr. Som R. Soni. Sponsor: N/A.

CAMPBELL, JOSHUA S., STANLEY L. COOLEY, MATTHEW F. DURKIN, and BRIAN K. MADDOCKS. *Investigating Hastily-Formed Collaborative Networks*. AFIT/GSE/ENY/07-M01. Faculty Advisor: LtCol John M. Colombi. Sponsor: AFRL/AFOSR.

COREY, SHAWN, see ASHER, DOUGLAS W.

FILBEY, ROBERT, see ASHER, DOUGLAS W.

GEMAS, DAVID L., *A Systems Engineering Approach to Analyzing Weather Input Sensitivities of the Joint Precision Air Drop System*. AFIT/GSE/ENY/07J-01. Faculty Advisor: LtCol Steven T. Fiorino.

KNOWLAN, GARRET, see ABBOTT, LAIRD

MCLAUGHLIN, ANNIE, B., JESSE T. MCLAUGHLIN, JASON S. PRITCHETT, JOHN H. STONE, GREGORY K. VAN DYK. *Protection of a High-Valued Space Asset*. AFIT/GSE/ENY/07M-04. Dr. Richard Cobb. AFRL/VS.

MCLAUGHLIN, JESSE T., see MCLAUGHLIN, ANNIE B.

PHILLIPS, CRAIG, see ABBOTT, LAIRD

PRICHETT, JASON S., see MCLAUGHLIN, ANNIE B.

STILLINGS, CHRISTIAN, see ABBOTT, LAIRD

STONE, JOHN H., see MCLAUGHLIN, ANNIE B.

VANDYK, GREGORY K., see MCLAUGHLIN, ANNIE B.

5.1.3. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

BLUE, PAUL A., Maj,

“Planning, Guidance and Control for Multiple UAV Cooperative Operations.” Sponsor: AFRL/VA.
Funding: \$30,000. [ANT]

BRANAM, RICHARD D., Maj,

“Coaxial Rocket Injection Instability.” Sponsor: AFOSR. Funding: \$57,020.

“Development of Continuum Onset Criteria with Direct Simulation Monte-Carlo using Boltzmann’s H-Theory.” Sponsor: AFRL/VA. Funding: \$3,171.

“Error Estimation in CFD Models Based on DSMC Non-Equilibrium Modeling.” Sponsor: AFRL/VA.
Funding: \$7,500.

CANFIELD, ROBERT A.,

“Continuous Sensitivity Equations and Multi-Point Approximations for Coupled Aero-Structural Systems.”
Sponsor: AFOSR. Funding: \$27,306.

“Nonlinear Gust Response via Direct, Least-Squares Formulation.” Sponsor: AFRL/VA. Funding:
\$19,112.

COBB, RICHARD G.,

“Element Set Generation Using a Commercial Telescope.” Sponsor: NASIC. Funding: \$3,000. [CSSR]

“Innovative Space Missions.” Sponsor: AFRL/VS. Funding: \$59,000. [CSSR/CSE]

COLOMBI, JOHN M., Lt Col,

“Human Systems Interface Research.” Sponsor: AFRL/HE. Funding: \$10,000. [CSE]

HAVLICEK, JEFFREY D., Maj,

“Resourcing Global Strike or Global Persistent Attack Architecture.” Sponsor: ACC. Funding: \$50,150.
[CSE]

JACQUES, DAVID R.,

“Cooperative Control, Optimization and System Design for Autonomous Munitions.” Sponsor: AFRL/MN.
Funding: \$25,000.

“Counter-Improvised Explosive Device (C-IED) Effort Analysis.” Sponsor: ACC. Funding: \$50,000.
[CSE]

“Space Systems Engineering Case Studies.” Sponsor: SAF. Funding: \$60,000. [CSE]

KING, PAUL I.,

“Experimental Investigation of Pylons and Cavities for Scramjet Combustors.” Sponsor: AFRL/PR.
Funding: \$7,500.

KUNZ, DONALD L.,

“Dynamics Modeling and Simulation of Automated Aerial Refueling.” Sponsor: AFRL/VA. Funding: \$25,000.

“Fastrope Modeling for CV-22 Special Operations.” Sponsor: US ARMY RDECOM. Funding: \$9,444.

“High-Fidelity Aeroelastic Analysis for Flexible-Wing MAV’s.” Sponsor: AFOSR. Funding: \$18,576.

“Performance Prediction Tools for CSAR-X.” Sponsor: ASC/SOFSG. Funding: \$9,546.

MALL, SHANKAR

“Fretting Fatigue Behavior of Ti06Al-4V under Variable Contact Load.” Sponsor: AFOSR. Funding: \$29,039.

“Investigation into Geopolymer’s Suitability for Space Based Mirrors.” Sponsor: SAF. Funding: \$80,419.

“Nanocomposites as Lightweight Electronic Enclosures for Satellites.” Sponsor: SAF. Funding: \$94,869. [CSSR]

“Thermo-mechanical Characterization of Ceramics Matrix Composites in Combustion Environments of Gas Turbine Engines.” Sponsor: DAGSI. Funding: \$15,997.

MAPLE, RAYMOND C., Lt Col,

“Fluid-Structure Interaction in Low Reynolds Number Flapping Flight.” Sponsor: AFRL/VA. Funding: \$16,595.

“Support for the Beggar Flow Solver.” Sponsor: 46 SK/DKF. Funding: \$14,960.

PALAZOTTO, ANTHONY N.,

“Development of a New Technique for Determining the Strain Dependent Damping and Stiffness Characteristics of Hard Coatings.” Sponsor: AFRL/PR. Funding: \$13,000.

“Effects of High Energy Impact.” Sponsor: AFRL/MN. Funding: \$12,500.

“Evaluation of Nonlinear Movement in Micro Air Vehicles.” Sponsor: AFRL/VA. Funding: \$18,700.

“Functionally Graded Material (FGM).” Sponsor: AFRL/VA. Funding: \$15,000.

“Hypervelocity Impact Gouge Mitigation and Wear Predication.” Sponsor: AFOSR. Funding: \$95,000.

“Investigation of the Response of Functionally Graded Plates and Shells Subject to High-Velocity Impact Events in Extreme Environments.” Sponsor: DAGSI. Funding: \$20,160.

“Thermal Evaluations of Polymers.” Sponsor: AFRL/ML. Funding: \$5,000.

REEDER, MARK F.,

“Characterization of Flapping-Wing Micro Air Vehicle Kinematics.” Sponsor: AFRL/VA. Funding: \$30,000.

“Continued Investigation of ‘Clean Seeding’ Methods for Particle Imaging Velocimetry in Closed Circuit Wind Tunnels. Sponsor: AFRL/VA. Funding: \$12,500.

“Feasibility of Using Dry Ice for Seed Particles in Closed Circuit Wind Tunnels.” Sponsor: AFRL/VA. Funding: \$12,500.

“Turbine Blade Heat Transfer Characteristics.” Sponsor: AFRL/PR. Funding: \$4,000.

RUGGLES-WRENN, MARINA B.,

“Effect of Aging on Creep Behavior of a High-Temperature Polymer at 288° C.” Sponsor: AFRL/ML. Funding: \$7,000.

“Effect of Monazite Coating on Creep Behavior of Two Oxide-Oxide Ceramic Composites at Elevated Temperatures.” Sponsor: AFRL/PR. Funding: \$6,966.

“Effects of Physical Aging and Chemical Degradation on Mechanical Behavior of High-Temperature Polymer Matrix Composites.” Sponsor: AFOSR. Funding: \$32,022.

“Evaluation of Discontinuities in Functionally Graded Structures.” Sponsor: AFRL/VA. Funding: \$2,500.

SHEARER, CHRISTOPHER M., Maj,

“Flight Dynamics and Control of High Altitude Long Endurance Sensorcraft.” Sponsor: AFRL/VA. Funding: \$10,000. [ANT]

SONI, SOM R.,

“Assessment of Nondestructive Signal Responses from Damaged Materials.” Sponsor: DAGSI. Funding: \$20,160.

“F-15 Bulkhead FEA for Failure Predictions.” Sponsor: AFRL/ML. Funding: \$50,000.

WALTER, JOERG D., Maj,

“F-15 E/System 2 Nuclear Weapon Integration Architecture.” Sponsor: F15SG. Funding: \$9,898.

“Impacts of Uninhabited Operation on Long-Range Strike Aircraft.” Sponsor: AFRL/VA. Funding: \$15,000. [CSE]

5.1.4. FUNDED EDUCATIONAL PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

WALTER, JEORG, Maj

“SENG 585NC.” Sponsor: AFOTEC. Funding: \$49,725. [CSE]

5.1.5. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

BLACK, JONATHAN T.

Black, J. T., Leifer, J., DeMoss, J. A., and Walker, E. N., "Experimental and Numerical Correlation of Gravity Sag in Solar Sail Quality Membranes," *Journal of Spacecraft and Rockets*, Vol. 44, No. 3, May-June 2007, pp. 522-527.

CANFIELD, ROBERT A.,

Lee, H.A., Kim, Y.I., Park, G.J., Kolonay, R.M., Blair, M., and Canfield, R.A., "Structural Optimization of a Joined Wing Using Equivalent Static Loads," *Journal of Aircraft*, Vol. 44, No. 4, July-Aug. 2007, pp.1302-1308.

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R. Vanderwaker, A. Palazotto and R. Cobb," Damage Detection Through Analysis of Modes and Partially Constrained Plates", *J. Aerospace Engineering, ASCE*, Vol. 20, No. 2, April 2007, pp. 90-94.

FRANKE, MILTON E.

Wierschke, K. W., Franke, M. E., Watts, R., and Ponnappan, R., "Heat Dissipation with Pitch-Based Carbon Foams and Phase-Change Materials." *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 20, No. 4, October-December 2006, pp. 865-870.

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Smith, A.L. and Kunz, D.L., "Dynamic Coupling of the KC-135 Tanker and Boom for Modeling and Simulation," *Journal of Aircraft*, Vol. 44, No. 3, May-June 2007, pp. 1034-1039.

Leigh, E.J. and Kunz, D.L., "Simulation of a Moving Elastic Beam Using Hamilton's Weak Principle," *AIAA Journal*, Vol. 45, No. 2, February 2007, pp. 471-476.

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Wang, R. H., Jain, V. K., Mall, S. and Sabelkin, V., "Enhancement of Fretting Fatigue Strength through Stress-Relieving Slot", *Mechanics Based Design of Structures and Machines*, 34, 113-138, 2006.

Ruggles-Wrenn, M. B., Musil, S. S., Mall, S. and Keller, K. A., "Creep-Rupture Behavior of NextelTM610/ Monazite/Alumina Composite at Elevated Temperatures", *Composites Science and Technology*, Vol. 66, 2089-2099, 2006.

- Ruggles-Wrenn, M. B., Mall, S., Eber, C. A. and Harlan, L. B., "Effects of Steam Environment on High-Temperature Mechanical Behavior of Nextel™720/ Alumina (N720/A) Continuous Fiber Ceramic Composite", *Composites Part A: Applied Science and Manufacturing*, Vol. 37, 2029-2040, 2006.
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MAPLE, RAYMOND C., LtCol,

- Parker, G. H., Maple, R. C., and Beran, P. S., "Computational Aeroelastic Analysis of Store-Induced Limit-Cycle Oscillation", *Journal of Aircraft* 44(1): 48-59, Jan-Feb 07.

PALAZOTTO, ANTHONY N.

- Cinnamon, J. and A. Palazotto, "Further Validation of a General Approximation for Impact Penetration Depth Considering Hypervelocity Gouging Data", *Intl Journal of Impact Engineering*, Vol 34, pp 1307-1326, 2007.
- Pai, F. and A. Palazotto, "Two Dimensional Sublamination Theory for Analysis of Functionally Graded Plates", *Journal of Sound and Vibration*, Vol. 308, pp 164-189, 2007.
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REEDER, MARK F.

- Gebbie, D., Reeder, M.F, Tyler, C., Fonov, V., and Crafton, J., 'Lift and Drag Characteristics of a Blended Wing Body Aircraft', *AIAA Journal of Aircraft*, Vol. 44, No. 5, pp. 1409-1421, September 2007.

RUGGLES-WRENN, MARINA B.

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- Ruggles-Wrenn, M.B., Hetrick, G., and S. S. Baek, "Effects of Frequency and Environment on Fatigue Behavior of an Oxide-Oxide Ceramic Composite at 1200 °C", *International Journal of Fatigue*, in press, available on journal website 27 April 2007.
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SHEARER, CHRISTOPHER M., Maj,

Shearer, C.M. and Cesnik, C.E.S., "Nonlinear Flight Dynamics of Very Flexible Aircraft", *AIAA Journal of Aircraft* 44(5):1528-1545, September-October 2007.

TORVIK, PETER J.

Torvik, P. J. and B. Runyon, "Modifications to the Method of Modal Strain Energy for Improved Estimates of Loss Factors for Damped Structures," *Shock and Vibration*, Vol. 14, No. 5, pp. 339-353, September 2007.

Torvik, P. J. and B. Runyon, "Estimating the Loss Factors of Plates with Constrained Layer Damping," *AIAA Journal*, Vol. 45, No. 7, pp.-1492-1500, July 2007.

Torvik, P. J., "Analysis of Free-layer Damping Coatings," *Key Engineering Materials*, Vol. 333, pp, 195-214, 2007.

5.1.6. REFEREED CONFERENCES

Note: Research Center affiliations are listed in [] if applicable.

CONFERENCE PAPERS ACCEPTED ON THE BASIS OF FULL PAPER REVIEW

BLUE, PAUL A., Maj,

Burns, B., Blue, P., and M. Zollars: "Autonomous Control for Automated Aerial Refueling with Minimum-time Rendezvous", Proceedings of the AIAA Guidance, Navigation, and Control Conference, Hilton Head, SC, August 2007. [ANT]

Zollars, M., Blue, P., and B. Burns: "Optimal Wind Corrected Flight Path Planning for Micro Air Vehicles with a Dual Sensor Configuration", Proceedings of the AIAA Guidance, Navigation, and Control Conference, Hilton Head, SC, August 2007. [ANT]

COBB, RICHARD G.

Shepherd, M.J., Cobb, R.G., Palazotto, A.N. , and Baker, W. P., "Scaling Analysis for Large Membrane Optics ," IEEE Aerospace Conference, Big Sky MT, Mar 2007. [CSSR]

HICKS, KERRY D., LtCol,

Richards, E.F., Temple, M.A., and Hicks, K.D., "Commercial 802.11 Wireless Link for Tactical Air-to-Ground Military Communications," 2007 Military Communications Conference (MILCOM 2007), Orlando, FL, 29-31 October 2007.

RUGGLES-WRENN, MARINA B.

Siegert, G.T., Ruggles-Wrenn, M.B., and S.S. Baek, "Effects of Environment on Creep Behavior of an Oxide-Oxide Ceramic Composite with $\pm 45^\circ$ Fiber Orientation at 1200 °C", Proceedings of the 31st International Cocoa Beach Conference & Exposition on Advanced Ceramics & Composites, Daytona Beach FL, January 2007.

Hetrick, G., Ruggles-Wrenn, M.B., and S.S. Baek, "Effects of Frequency on Fatigue Behavior of an Oxide-Oxide Ceramic Composite at 1200 °C", Proceedings of the 31st International Cocoa Beach Conference & Exposition on Advanced Ceramics & Composites, Daytona Beach FL, January 2007.

Mehrman, J.M., Ruggles-Wrenn, M.B. and S.S. Baek, "Effect of Hold Times on Fatigue Behavior of NextelTM720/Alumina (N720/A) Ceramic Matrix Composite at 1200 °C in Air and in Steam Environment", Proceedings of the Materials Science and Technology (MS&T) 2006 Conference and Exhibition, Cincinnati, OH, October 2006, Vol. 1, pp. 17-28.

TORVIK, PETER J.

Torvik, P., R. Willson and J. Hansel, "Influence of a Viscoelastic Surface Infiltrate on the Damping Properties of Plasma Sprayed Alumina Coatings Part I: Room Temperature," *Proceedings, Materials Science & Technology 2007 Conference and Exhibit (MS&T '07)*, Detroit, September 16-20, 2007.

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CONFERENCE PAPERS ACCEPTED ON THE BASIS OF REVIEWED ABSTRACT

BLACK, JONATHAN T.

Black, J., Smith, S.W., Leifer, J., and L. Bradford, "Experimental Characterization and Modeling of Global Behavior of Semi-Rigid Thin Film Polyimide Panels," 48th AIAA/ASME/ASCE/AHS/ASC Conference on Structures, Structural Dynamics and Materials, 8th Gossamer Spacecraft Forum, Waikiki, HI, April 2007, AIAA Paper 2007-1833.

BLUE, PAUL A.,

Burns, B., Blue, P., and M. Zollars: "Simulation of a Real-time Trajectory Generator for Automated Aerial Refueling with a Required Time of Arrival", Proceedings of the AIAA Modeling and Simulation Technologies Conference, Hilton Head, SC, August 2007. [ANT]

Zollars, M., Blue, P., and B. Burns: "Wind Corrected Flight Path Planning for Autonomous Micro Air Vehicles Utilizing Optimization Techniques", Proceedings of the AIAA Atmospheric Flight Mechanics Conference, Hilton Head, SC, August 2007. [ANT]

BRANAM, RICHARD D., Maj

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FRANKE, MILTON E.

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KUNZ, DONALD L.

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TORVIK, PETER J.

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WIESEL, WILLIAM E.

Wiesel, W. E., "Earth Satellite Orbits as KAM Tori", AAS paper 07-423. Presented at the AAS/AIAA Astrodynamics Specialist Conference, Mackinac Island, MI, August 2007.

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5.1.7. BOOKS AND CHAPTERS IN BOOKS**CANFIELD, ROBERT A.**

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5.1.8. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES**BLACK, JONATHAN T.**

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BLUE, PAUL A., Maj,

Zollars, M. and P. Blue: "Optimal Wind Corrected Flight Path Planning", AIAA Dayton-Cincinnati Aerospace Science Symposium, Dayton, Ohio, March 2007.

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COBB, RICHARD G.

Session Chair: 32nd Dayton-Cincinnati Aerospace Sciences Symposium

Technical Paper Referee: AIAA Journal and AIAA Journal of Spacecraft and Rockets

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KUNZ, DONALD L.

Kunz, D.L., "Coupled Equations of Motion for the KC-135 Refueling Boom," Air Force Institute of Technology, AFIT/EN/TR-07-01, December 2006.

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MAPLE, RAYMOND C., LtCol,

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McClung, A., Maple, R.C., and Beren, P., "A Comparison of Overset Methods and Unstructured Remeshing for Modeling Large Rigid Body Motion," AIAA 2007-0327, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007

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Andrews, J. and Palazotto, A.N., "Lamb Wave Propagation in Varying Thermal Environments", presented at the 32nd Annual Dayton-Cincinnati Aerospace Science Symposium, March 6, 2007.

TORVIK, PETER J.

Torvik, P. J., and J., Hansel "Experimental and Analytical Determinations of the Damping of VEM Filled Blades," *Proceedings: Propulsion-Safety and Affordable Readiness (P-SAR) Program Review*, San Diego, CA, March 13-15, 2007. (Limited Distribution).

Torvik, P. J., *Material Properties of Plasma Sprayed Alumina-NiCrAlY Coatings*, AFRL WS-07-0362, Universal Technology Corporation, (28 pages), December 2006.

RUGGLES-WRENN, MARINA B.

Ruggles-Wrenn, M.B., Koutsoukos, P. and S.S. Baek, "Effects of Environment on Creep Behavior of Two Oxide-Oxide Ceramic Matrix Composites at 1200 °C", Invited Plenary Lecture presented at the Third Key Euro-USA Conference *Stretching the Endurance Boundary of Composite Materials: Pushing the Performance Limit of Composite Structures*, Madeira, Portugal, September 23-28, 2007.

WIESEL, WILLIAM E.

Secretary, Honors Society of Metropolitan Dayton. Made two presentations to area high school students, served as corporation secretary.

5.2. DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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5.2.1. DOCTORAL DISSERTATIONS

EDGE, KENNETH S., *A Framework for Analyzing and Mitigating the Vulnerabilities of Complex Systems via Attack and Protection Trees*. AFIT/DS/ENG/07-13. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SNT.

FORMWALT, BYRON P., *Modeling, Simulation, and Estimation of Optical Turbulence*, AFIT/DS/ENG/07-04. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/SNJM.

JOHNSON, PETER M., *Phase Diversity and Polarization Augmented Techniques for Active Imaging*. AFIT/DS/ENG/07-05. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/DESA.

MANN, CHRISTOPHER R., *Energy-Efficient Querying of Wireless Sensor Networks*. AFIT/DS/ENG/07-19. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/IFSC.

NGUYEN, THAO Q., *Efficient GPS Position Determination Algorithms*. AFIT/DS/ENG/07-09. Faculty Advisor: Dr. Meir Pachter. Sponsor: N/A.

OCHOA, EDWARD M., *Hybrid Micro-Electro-Mechanical Tunable Filter*. AFIT/DS/ENG/07-23. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/SNDP.

SALLBERG, SCOTT A., *Sampled-Data Kalman Filtering and Multiple Model Adaptive Estimation for Infinite-Dimensional Continuous-Time Systems*. AFIT/DS/ENG/07-08. Faculty Advisor: Dr. Peter S. Maybeck. Sponsor: AFRL/ISN.

SISKANINETZ, WILLIAM J., *Bipolar Cascade Vertical-Cavity Surface-Emitting Lasers for RF Photonic Link Applications*. AFIT/DS/ENG/07-22. Faculty Advisor: Lt Col James A. Fellows. Sponsor: AFRL/SNDP.

STRONG, DAVID M., *Polarimeter Blind Deconvolution Using Image Diversity*. AFIT/DS/ENG/07-23. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/DESA.

5.2.2. MASTER'S THESES

5.2.2.1. AERONAUTICAL ENGINEERING (GAE)

BARBA-SORRA, VICTOR M., *Controller Design for Accurate Antenna Pointing Onboard a Spacecraft*. AFIT/GAE/ENG/07-03. Faculty Advisor: Dr. Meir Pachter. Sponsor: SAF.

JAMES, STEVEN A., *A Small Scale Imaging Platform for Algorithm Performance Evaluation*. AFIT/GAE/ENG/07-01. Faculty Advisor: Dr. Guna S. Seetharaman. Sponsor: N/A.

ROSARIO, ROLAND A., *Optimal Sensor Threshold Control and the Weapon Operating Characteristic for Autonomous Search and Attack Munitions*. AFIT/GAE/ENG/07-02. Faculty Advisor: Dr. Meir Pachter. Sponsor: AFRL/VA.

5.2.2.2. APPLIED PHYSICS (GAP)

ROCHE, JAMES F., *Performance of Airborne Tactical High Energy Laser Arrays With Non-Redundant Autocorrelations Through Turbulence*. AFIT/GAP/ENG/07-01. Faculty Advisor: Capt Jason D. Schmidt. Sponsor: N/A.

5.2.2.3. COMPUTER ENGINEERING (GCE)

BIRRER, BOBBY D., *Metamorphic Program Fragmentation as a Software Protection*. AFIT/GCE/ENG/07-01. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SNT.

BRAKUS, BRIAN M., *A Modular Mixed-Signal VLSI Design Approach for Digital Radar Applications*. AFIT/GCE/ENG/07-02. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/SND.

CORYELL, CHRISTOPHER E., *Using Concept Maps to Efficiently Build Information Models for SAVANT*. AFIT/GCE/ENG/07-03. Faculty Advisor: Lt Col Timothy J. Halloran. Sponsor: NASIC/SC.

HART, SAMUEL A., *APHID: Anomaly Processor in Hardware for Intrusion Detection*. AFIT/GCE/ENG/07-03. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SNTA.

HUDSON, SEAN W., *Identifying Bot Infections on Air Force Networks using Advanced Methodologies*. AFIT/GCE/ENG/07-05. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: N/A.

KOPERSKI, CHOYONG G., *Multi-Robot FastSLAM for Large Domains*. AFIT/GCE/ENG/07-06. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/SNRN.

MACDONALD, JASON E., *Use of Tabu Search in a Solver to Map Complex Networks onto Emulab Testbeds*. AFIT/GCE/ENG/07-07. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFCA/ENAN.

MEDLEY, DOUGLAS P., *Virtualization Technology Applied to Rootkit Defense*. AFIT/GCE/ENG/07-08. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SN.

MONTIMINY, DAVID P., *Using Relocatable Bitstreams for Fault Tolerance*. AFIT/GCE/ENG/07-09. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/VSSE.

NERENBERG, DANIEL D., *A Study of Rootkit Stealth Techniques and Associated Detection Methods*. AFIT/GCE/ENG/07-10. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SNTA.

5.2.2.4. COMPUTER SCIENCE/COMPUTER SYSTEMS (GCS)

- ABAN, EDMUND D., *Adaptive Gravitational Gossip in Monitoring the Joint Battlespace Infosphere*, AFIT/GCS/ENG/07-01. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.
- DEFREITAS, ADRIAN A., *Developing Parallel Ant Colony Synchronization Strategies*. AFIT/GCS/ENG/07-15. Faculty Advisor: Maj Christopher B. Mayer. Sponsor: AFRL/IFS.
- DRIES, ERIK J., *Scaling Ant Colony Optimization with Hierarchical Reinforcement Learning Partitioning*. AFIT/GCS/ENG/07-16. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: N/A.
- FLETCHER, JORDAN L., *Real-Time GPS-Alternative Navigation Using Commodity Hardware*. AFIT/GCS/ENG/07-02. Faculty Advisor: Maj Michael J. Veth. Sponsor: AFRL/MN.
- GARNER, ROGER L., *Heuristically Driven Search Methods for Topology Control in Directional Wireless Hybrid Networks*. AFIT/GCS/ENG/07-03. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.
- GORSUCH, ROGER L., *Analysis of Routing Worm Propagation on an IPv4 Network*. AFIT/GCS/ENG/07-04. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: N/A.
- GRAHAM, DANIEL F., *On-Demand Key Distribution for Mobile Ad-Hoc Networks*. AFIT/GCS/ENG/07-12. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR.
- HAAG, CHARLES R., *An Artificial Immune System-Inspired Multiobjective Evolutionary Algorithm With Application to the Detection of Distributed Computer Network Intrusions*. AFIT/GCS/ENG/07-05. Faculty Advisor: Dr. Gary B. Lamont. Sponsor: NSA/NCSC.
- HAYDEN, WALTER J., *Locating Encrypted Data Hidden Among Non-Encrypted Data Using Statistical Tools*. AFIT/GCS/ENG/07-06. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/SNTA.
- HYLAND, MATTHEW T., *Performance Evaluation of Ad-Hoc Routing Protocols in a Swarm of Autonomous Unmanned Aerial Vehicles*. AFIT/GCS/ENG/07-07. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: N/A.
- PARK, HEUNG SOON, *Effective Mobile Routing Through Dynamic Addressing*. AFIT/GCS/ENG/07-09. Faculty Advisor: Maj Scott R. Graham. Sponsor: AFOSR.
- PATTERSON, CHRISTOPHER A., *Multi-Objective Optimization for Speed and Stability of a Sony AIBO Gait*. AFIT/GCS/ENG/07-17. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/SNRN.
- SEYBA, JASON R., *Voice and Video Capacity of a Secure Wireless System*. AFIT/GCS/ENG/07-14. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFRL/HE.
- SHAW, ALFRED K., *A Model for Performing Mission Impact Analysis of Network Outages*. AFIT/GCS/ENG/07-10. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 8th AF/AFNOC.
- WOOLLEY, BRIAN G., *Unified Behavior Framework for Reactive Control in Real-Time Systems*. AFIT/GCS/ENG/07-11. Faculty Advisor: Dr. Gilbert L. Peterson. Sponsor: AFRL/SNRN.

5.2.2.5. ELECTRICAL ENGINEERING (GE)

- ALBAIRAT, OUAIL, *Multi-Dimensional Classification Algorithm for Automatic Modulation Recognition*. AFIT/GE/ENG/07-01. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/SNR.

BARTON, RICHARD J., *Design and Analysis of a Compact Passive Ultra-Wideband Hexagonal Spiral Array Antenna*. AFIT/GE/ENG/07-02. Faculty Advisor: Dr. Andrew J. Terzuoli. Sponsor: AFRL/SNR.

BELLOTT, MARK M., *Microelectro-Mechanical (MEMS) Safe and Arm Device*. AFIT/GE/ENG/07-03. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/MNMF.

BRAULT, GREGORY J., *Multi-Dimensional Range Querying Using a Modification of the Skip Graph*. AFIT/GE/ENG/07-04. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFCA/ENAN.

BUSCHELMAN, ERIC A., *Material Characterization Improvement in High Temperature Rectangular Waveguide Measurements*. AFIT/GE/ENG/07-05. Faculty Advisor: Dr. Michael J. Havrilla. Sponsor: AFRL/SNS.

CHAPLA, ERIK A., *Statistical Machine Translation of Japanese*. AFIT/GE/ENG/07-06. Faculty Advisor: Dr. Steven C. Gustafson. Sponsor: NSA.

FOWLER, JOSHUA D., *Impact of Window Selection on Zero-Doppler Clutter Estimation and Subtraction for ISAR Applications*. AFIT/GE/ENG/07-07. Faculty Advisor: Dr. Michael A. Temple. Sponsor: 46 TS/OGEE.

GIMELSHEYN, MAXIM., *Classifying Commercial Receiver Emissions Using Fisher Discriminant Analysis*. AFIT/GE/ENG/07-08. Faculty Advisor: Dr. Michael A. Temple. Sponsor: N/A.

GLAUVITZ, NATHAN E., *Toward a Flying MEMS Robot*. AFIT/GE/ENG/07-09. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/MNAV.

HAKER, MARSHALL E., *Hardware Realization of a Transform Domain Communications System*. AFIT/GE/ENG/07-10. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/SNRW.

HARMON, DUANE F., *Overcoming TCP Degradation in the Presence of Multiple Intermittent Link Failures Utilizing Intermediate Buffering*. AFIT/GE/ENG/07-11. Faculty Advisor: Maj Scott R. Graham. Sponsor: AFOSR.

HARNER, ALAN L., *Sub-Surface Navigation Using Very-Low Frequency Electromagnetic Waves*. AFIT/GE/ENG/07-12. Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/SNRP.

HOLSTON, MATTHEW E., *Moving Target Focusing, Geolocation, and Ambiguity Resolution Using Single-Channel Synthetic Aperture Radar*. AFIT/GE/ENG/07-13. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/SNAS.

LEAVER, MICHAEL D., *Signal Coexistence Study on the GPS L2 Civil Signal Broadcast From the Block IIR-M Class Satellites*. AFIT/GE/ENG/07-14. Faculty Advisor: Dr. Stewart L. DeVilbiss. Sponsor: AFRL/SNZW.

LLEWELLYN, LARRY C., II, *Distributed Fault-Tolerant Quality of Service Routing in Hybrid Directional Wireless Networks*. AFIT/GE/ENG/07-15. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: AFOSR and AFRL.

MAJUMDER, UTTAM K., *Point Spread Function Characterization of a Radially Displaced Scatterer Using Circular Synthetic Aperture Radar*. AFIT/GE/ENG/07-26. Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/SNAS.

MAYHEW, OSCAR C., *RADAR System Characterization Extended to Hardware-in-the-Loop Simulation for the Lab-Volt System*. AFIT/GE/ENG/07-29. Faculty Advisor: Maj Michael A. Saville. Sponsor: AFRL/SN.

- MILLER, VIRGINIA, *Conceptual MEMS Devices for a Redeployable Antenna*. AFIT/GE/ENG/07-30. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/MNMF.
- MONTIMINY, MYRNA B., *Passive Geolocation of Low-Power Emitters in Urban Environments Using TDOA*. AFIT/GE/ENG/07-16. Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFRL/SNRW.
- MOTT, STEPHEN D., *Hardware-Based Primitives to Enhance Parallel Security Monitoring in a Novel Computing Architecture*. AFIT/GE/ENG/07-17. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/SNTA.
- PAUL, JASON V., *Anti-Tamper Method for Field Programmable Gate Arrays Through Temporal Decoy Circuits*. AFIT/GE/ENG/07-18. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/SNTA.
- PEREZ, SERGIO P., *Amplitude Comparison Method to Determine Direction of Arrival for RF Communication*. AFIT/GE/ENG/07-27. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/SNAT.
- POMAGER, JOSEPH C., *Parametric Reliability of Space-Based Field Programmable Gate Arrays*. AFIT/GE/ENG/07-19. Faculty Advisor: Dr. Yong C. Kim. Sponsor: AFRL/VSEE.
- ROBERTS, DANIEL K., *Performance Analysis and Comparison of Multiple Routing Protocols in a Large-Area High-Speed Mobile Node Ad Hoc Network*. AFIT/GE/ENG/07-28. Faculty Advisor: Dr. Barry E. Mullins. Sponsor: AFCA/EN.
- SCHWENN, KARL R., *Biological Cell Identification by Integrating Micro-Fluids, Electrical Impedance Spectroscopy and Stochastic Estimation*. AFIT/GE/ENG/07-20. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFRL/HEPB.
- SILVA, RYAN J., *Implementation and Optimization of the Advanced Encryption Standard Algorithm on an 8-Bit Field Programmable Gate Array Hardware Platform*. AFIT/GE/ENG/07-21. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/SNTA.
- SPENCER, JAMES H., *Optical Tracking for Relative Positioning in Automated Aerial Refueling*. AFIT/GE/ENG/07-22. Faculty Advisor: Lt Col Matthew Goda. Sponsor: AFRL/VACC.
- STUCKEY, NATHAN C., *Stochastic Estimation and Control of Queues Within a Computer Network*. AFIT/GE/ENG/07-24. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: AFOSR.
- VELOTTA, JAMIE S., *Navigation Using Orthogonal Frequency Division Multiplexed Signals of Opportunity*. AFIT/GE/ENG/07-31. Faculty Advisor: Dr. Richard K. Martin. Sponsor: AFRL/SNRN.
- WINNINGHAM, BRYAN W., *Characterization of Intercalated Graphite Fibers for Microelectromechanical Systems (MEMS) Applications*. AFIT/GE/ENG/07-25. Faculty Advisor: Maj LaVern A. Starman. Sponsor: AFRL/IFTA.

5.2.2.6. ELECTRO OPTICS (GEO)

- ALLARD, MARK E., *Characterization of a Polymer-Based MEMS Pyroelectric Infrared Detector*. AFIT/GEO/ENG/07-01. Faculty Advisor: Lt Col James A. Fellows. Sponsor: AFRL/MLPJF.
- ELLIS, TROY R., *Airborne Laser Tracking Signal Degradation From Wave Optics Simulation of Propagation Through Computational Fluid Dynamics Models of Aero-Optics*. AFIT/GEO/ENG/07-02. Faculty Advisor: Capt Jason D. Schmidt. Sponsor: N/A.
- JOHNSON, MATTHEW T., *Thermally Activated, Variable Blazed Grating for Coherent Beam Steering*. AFIT/GEO/ENG/07-04. Faculty Advisor: Dr. Guna S. Seetharaman. Sponsor: N/A.

SEAL, MICHAEL D., *Nonlinear Time-Variant Response in an Avalanche Photodiode Array Based Laser Detection and Ranging System*. AFIT/GEO/ENG/07-03. Faculty Advisor: Dr. Stephen C. Cain. Sponsor: AFRL/SNJM.

5.2.2.7. INFORMATION ASSURANCE (GIA)

BENSON, JOSHUA A., *Software Protection Against Reverse Engineering Tools*. AFIT/GIA/ENG/07-01. Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/SNTA.

COATES, GREGORY M., *Collaborative, Trust-Based Security Mechanisms for a National Utility Intranet*. AFIT/GIA/ENG/07-05. Faculty Advisor: Dr. Kenneth M. Hopkinson. Sponsor: N/A

FRANZ, TIMOTHY P., *IO Foundations to Cyberspace Operations*. AFIT/GIA/ENG/07-02. Faculty Advisor: Dr. Richard A. Raines. Sponsor: N/A.

STEVENS, MICHAEL R., *Use of Trust Vectors in Support of the CyberCraft Initiative*. AFIT/GIA/ENG/07-03. Faculty Advisor: Maj Paul D. Williams. Sponsor: AFRL/IFGB.

TODD, ADAM D., *Network Intrusion Detection System Evasion*. AFIT/GIA/ENG/07-04. Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SN.

5.2.2.8. INFORMATION RESOURCE MANAGEMENT (GIR)

SMITH, TIFFINYS., *In Pursuit of an Aptitude Test for Potential Cyberspace Warriors*. AFIT/GIR/ENG/07-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 315 IOS/CC.

5.2.2.9. SPACE SYSTEMS (GSS)

DAINTY, BENJAMIN G., *Use of Two-Way Time Transfer Measurements to Improve Geostationary Satellite Navigation*. AFIT/GSS/ENG/07-01. Faculty Advisor: Dr. John F. Raquet. Sponsor: SAF.

5.2.3. GRADUATE RESEARCH PAPERS

5.2.3.1. COMMAND, CONTROL, COMMUNICATIONS, COMPUTER, AND INTELLIGENCE SYSTEMS (IC4)

ARWOOD, SAM., *Cyberspace as a Theater of Conflict: Federal law, National Strategy, and the Departments of Defense and Homeland Security*. AFIT/IC4/ENG/07-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: Joint Staff/J6.

BARNHART, BRADLEY W., *The Current State of Biometrics to Enhance Network Information Assurance for Air Force Networks*. AFIT/IC4/ENG/07-02. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: SAF/XC.

DOWNS, ROBERT O., *Mitigation of Residual Bias in the Missile Defense Agency Tracking System*. AFIT/IC4/ENG/07-06. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: N/A.

DUNKLEE, DAVID R., *Improving Air Force Active Network Defense Systems Through an Analysis of Intrusion Detection Techniques*. AFIT/IC4/ENG/07-05. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

HANNAH, JON T. See DOWNS, ROBERT O.

KARDOES, MICHAEL J. See DOWNS, ROBERT O.

TREAT, TIMOTHY J., *The Way Ahead for Cyberspace Operations: A JCIDS Analysis*. AFIT/IC4/ENG/07-08. Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

WAINWRIGHT, FREDRICK W. See BARNHART, BRADLEY W.

5.2.3.2. ELECTRICAL SCIENCE (IES)

BIERYLA, JAMES J., *Processor Requirements for a Reconfigurable Airborne Sensor Pod*. AFIT/IES/ENG/07-01. Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: USAF/TPS.

5.2.4. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

CAIN, STEPHEN C.,

“3-D LADAR Resolution Enhancement.” Sponsor: AFRL/SN. Funding: \$6,000.

“Detection of Obscured Targets Using a FLASH LADAR System.” Sponsor: AFOSR. Funding: \$27,391.

“Synthetic Aperture Image Reconstruction for Next Generation Laser Imaging and Ranging Systems: Building True Synthetic Apertures.” Sponsor: SAF. Funding: \$34,684.

COLLINS, PETER J.,

“Technical Support: RCS Methodology.” Sponsor: 746 TSS/XP. Funding: \$25,000.

HAVRILLA, MICHAEL J.,

“Electromagnetic Analysis and Design of Non-Destructive Evaluation Systems.” Sponsor: AFRL/ML. Funding: \$140,000.

“Electromagnetic Analysis and Design of the Thiele Half-Width Leaky Wave Antenna.” Sponsor: AFRL/SN. Funding: \$20,000.

HOPKINSON, KENNETH M.,

“An Investigation into the Required Middleware Interface Between Net-Centric Infrastructure and its Operators.” Sponsor: AFRL/IF. Funding: \$50,000.

“Effective Utilization of a Hybrid Communication Network.” Sponsor: SAF. Funding: \$46,595.

“HPCMP Summer Intern Support.” Sponsor: AFOSR. Funding: \$51,020.

KURKOWSKI, STUART H., Maj,

“An Interactive Visualization Approach to Interface Network Centric Operators with Dynamic Network Infrastructure.” Sponsor: AFOSR. Funding: \$27,906.

“Toolkit for Visualizing Situation Scope.” Sponsor: AFRL/IF. Funding: \$54,810.

LAMONT, GARY B.,

“Optimal Wavelet Coefficient Determination with Genetic Algorithms.” Sponsor: AFRL/IF. Funding: \$25,000.

MARTIN, RICHARD K.,

“Infrastructure Cost for ANT Center: Navigation using Multicarrier Signals of Opportunity.” Sponsor: AFRL/SN. Funding: \$24,250. [ANT]

“Technical Support: Cognitive Radio Research.” Sponsor: AFRL/SN. Funding: \$10,000.

MILLS, ROBERT F.,

“Insider Threat Research Laboratory and Ongoing Research of Investigating Methods, Algorithms and Approaches to Reduce the Risk of the Insider Threat Problem.” Sponsor: NSA. Funding: \$10,000. [CCR]

“Technical Support, Information/Cyber Operations: Sensing Applications.” Sponsor: AFIOC/IO. Funding: \$15,000. [CCR]

MULLINS, BARRY E.,

“Air Force Communications Systems Modeling.” Sponsor: AFCA. Funding: \$64,000. [CCR]

PACHTER, MEIR,

“Cooperative Control and Estimation.” Sponsor: AFOSR. Funding: \$43,282.

“Feasibility Study of In-Situ Plant Dynamics Identification for a Satellite Payload System.” Sponsor: SAF. Funding: \$40,000.

“Planning, Guidance, and Control for Multiple UAV Cooperative Operations.” Sponsor: AFRL/VA. Funding: \$10,000.

PETERSON, GILBERT L.,

“Biologically Motivated Autonomous Navigation and Cooperative Control.” Sponsor: DAGSI. Funding: \$20,160. [ANT]

“CANIS-Related Navigation Research Projects for the ANT-Laboratory.” Sponsor: AFRL/SN. Funding: \$50,000. [ANT]

RAINES, RICHARD A.,

“AFIT Transformation Chair.” Sponsor: SECDEF. Funding: \$166,700. [CCR]

“Target Discovery, Sensor Fusion, and Mitigation Analysis.” Sponsor: AFRL/SN. Funding: \$225,000. [CCR/COA]

RAQUET, JOHN F.,

“ANT Center and Laboratory Support.” Sponsor: AFRL/SN. Funding: \$242,000. [ANT]

“Development of High Accuracy TSPI Systems.” Sponsor: 746th Test Squadron. Funding: \$45,900. [ANT]

“Indoor Navigation Using Signals of Opportunity Integrated with Other Sensors.” Sponsor: DARPA. Funding: \$68,750. [ANT]

“Overcoming Geometric Deficiencies in Pseudolite Navigation.” Sponsor: AFOSR. Funding: \$99,855. [ANT]

“Sub-Surface Navigation.” Sponsor: AFRL/SN. Funding: \$31,250. [ANT]

“Transition to Laboratory Testing of Two-Way Time Transfer Measurements for Navigation.” Sponsor: SAF. Funding: \$16,061. [ANT]

SAVILLE, MICHAEL, A., Capt,

“In-house Support for Program ECM Technique Generator.” Sponsor: AFRL/IF. Funding: \$10,000.

SCHMIDT, JASON D., Capt,

“Atmospheric Propagation of High Energy Lasers: Modeling, Simulation, Tracking, and Control.” Sponsor: AFRL/DE. Funding: \$19,111.

“Mitigating Atmospheric Turbulence through Robust Laser Beam Tilt Control.” Sponsor: AFRL/DE. Funding: \$25,000. [CDE]

SEETHARAMAN, GUNA S.,

“Image Registration and Spatio-Temporal Assimilation for Persistent Surveillance.” Sponsor: AFRL/SN. Funding: \$50,000.

TEMPLE, MICHAEL A.,

“Continuation Project: Detection, Characterization, Location of Spurious Receiver Emissions.” Sponsor: SAF. Funding: \$44,361.

“Phase II Technical Support for RF Sensor Technology.” Sponsor: AFRL/SN. Funding: \$15,000.

“Technical Support: RF-EW Systems.” Sponsor: AFRL/SN. Funding: \$100,000.

“Technical Support: RF Geolocation Systems.” Sponsor: AFRL/SN. Funding: \$50,000.

TERZUOLI, ANDREW J. JR.,

“ECM Against Passive Radar.” Sponsor: AFRL/SN. Funding: \$20,000.

“Remote Sensing and Communications for MASINT.” Sponsor: NASIC. Funding: \$150,000.

VASQUEZ, JUAN R., Lt Col,

“Target Tracking and Data Communication for Angel Fire.” Sponsor: AFRL/SN. Funding: \$89,042. [ANT]

“Target Tracking for the Missile Defense Agency.” Sponsor: MDA. Funding: \$50,000.

VETH, MICHAEL J., Maj,

“Synchronized Image-Inertial Data Collection and Processing System.” Sponsor: NGA. Funding: \$50,000. [ANT]

WILLIAMS, PAUL D., Maj,

“AFIT Support for AFRL Cybercraft Project.” Sponsor: AFOSR. Funding: \$40,000.” [CCR]

“Development of an Air Force Cyber Warfare Realistic Training Model.” Sponsor: AFRL/HE. Funding: \$25,000. [CCR]

5.2.5. FUNDED EDUCATIONAL PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

RAINES, RICHARD A.,

“Anti-Tamper Software Protection Initiative Education, Outreach, and Research.” Sponsor: AFRL/SN.
Funding: \$75,000. [CCR]

“Development of a Federal Cyber Force at the Air Force Institute of Technology.” Sponsor: NSF. Funding: \$510,710. [CCR]

“Tuition and Resource Support for AFIT Center for Information Security Education and Research.” Sponsor: NSA. Funding: \$317,448. [CCR]

5.2.6. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

BALDWIN, RUSTY O.,

K. S. Edge, R. A. Raines, R. O. Baldwin, M. R. Grimaila, R. W. Bennington, and C. E. Reuter, “Analyzing Security Measures for Mobile Ad Hoc Networks Using Attack and Protection Trees,” *Journal of Information Warfare*, August 2007, Vol. 6, No. 2, pp. 25-38. [CCR]

V. P. Hubenko, Jr., R. A. Raines, R. F. Mills, R. O. Baldwin, B. E. Mullins and M. R. Grimaila, “Improving Satellite Multicast Security Scalability by Reducing Re-keying Requirements,” *IEEE Network Special Issue on Advances in Network Systems Architecture*, July/August 2007, pp. 51-56. [CCR]

G. R. Roelke, R. O. Baldwin, B. E. Mullins and Y. C. Kim, “A Cache Architecture for Extremely Unreliable Nanotechnologies,” *IEEE Transactions on Reliability*, June 2007, Vol. 56, No. 2, pp. 182-197. [CCR]

S. D. Bass and R. O. Baldwin, “A Model for Managing Decision-Making Information in the GIG-Enabled Battlespace,” *Air & Space Power Journal (ASPJ)*, Summer 2007, Vol. 21, No. 2, pp. 100-108. [CCR]

G. R. Roelke, R. O. Baldwin, and D. Bulutoglu, “Analytical Models for the Performance of von Neumann Multiplexing,” *IEEE Transactions on Nanotechnology*, January 2007, Vol. 6, No. 1, pp. 75-89. [CCR]

R. O. Baldwin, B. S. Peterson, and R. F. Mills, “Using Playing Cards to Estimate Interference in Frequency-Hopping Spread Spectrum Radio Networks,” *Journal of Systems and Software*, December 2006, Vol. 79, No. 12, pp. 1782-1788. [CCR]

D. J. Chaboya, R. A. Raines, R. O. Baldwin, and B. E. Mullins, “Network Intrusion Detection: Automated and Manual Methods Prone to Attack and Evasion,” *IEEE Security and Privacy*, November/December 2006, Vol. 4, No. 6, pp. 36-43. [CCR]

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CAIN, STEPHEN C.,

A. Macdonald and S. Cain, “Parameterized Blind Deconvolution of Laser Radar Imagery using an Anisoplanatic OTF,” *Optical Engineering*, vol. 45, no. 11, 116001, November 2006.

A. Macdonald, S. Cain and M. Oxley, “Binary Weighted Averaging of an Ensemble of Coherently Collected Image Frames,” *IEEE Transactions on Image Processing*, pp. 1085-1100, April 2007.

DAVIS, NATHANIEL J. IV.,

“Mobile Host-Based Intrusion Detection and Attack Identification,” Grant A. Jacoby and Nathaniel J. Davis IV, *IEEE Wireless Communications Magazine*, Volume 14, Number 4, August 2007, pp. 53-60.

GUSTAFSON, STEVEN C.,

Gustafson, S.C., Parker, D.R., and Martin, R.K., "Cardinal Interpolation," *IEEE Trans. Pattern Analysis Machine Intelligence*, Vol. 29, No. 9, pp. 1538 - 1545, September 2007.

HAVRILLA, MICHAEL J.,

G. Zelinski, G. Thiele, M. Hastriter, M. Havrilla and A. Terzuoli, “Half-width Leaky Wave Antennas,” *IET Proceedings - Microwaves, Antennas and Propagation*, vol. 1, no. 2, pp. 341-348, April 2007.

J. Luminati, T. Hale, M. Temple, M. Havrilla and M. Oxley, “Cross-range Aliasing Reduction in SAR Imagery Using Stepped-frequency Waveforms,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 43, no. 1, pp. 163-175, January 2007.

J. Stewart and M. Havrilla, “Electromagnetic Characterization of a Magnetic Material Using an Open-ended Waveguide Probe and a Rigorous Full-wave Multimode Model,” *Journal of Electromagnetic Waves and Applications*, vol. 20, no. 14, pp. 2037-2052, December 2006.

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Giovanini, R., Hopkinson, K. M., Coury, D. V. and Thorp, J. S., “A Primary and Backup Cooperative Protection System Based on Wide Area Agents,” *IEEE Transactions on Power Delivery*, 21(3):1222-1230 (2006).

Hopkinson, K., Wang, X., Giovanini, R., Thorp, J., Birman, K. and Coury, D., “EPOCHS: A Platform for Agent-based Electric Power and Communication Simulation Built from Commercial Off-The-Shelf Components,” *IEEE Transactions on Power Systems*, 21(2):548-558 (2006).

MARTIN, RICHARD K.,

Martin, R. K. “Joint Blind Adaptive Synchronization and Channel Shortening,” *IEEE Transactions on Signal Processing*, vol. 54, no. 11, November 2006, pp. 4194-4203.

Martin, R. K., “Fast-converging Blind Adaptive Channel Shortening and Frequency-domain Equalization,” *IEEE Transactions on Signal Processing*, vol. 55, no. 1, January 2007, pp. 102-110.

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MAYER, CHRISTOPHER B., Maj,

Lina Peng, K. Selçuk Candan, Christopher Mayer, Kyung D. Ryu and Karamvir S. Chatha., “Optimization of Media Processing Workflows with Adaptive Operator Behaviors,” *Multimedia Tools and Applications*: 33(3): 245–272, June 2007.

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Franz, T.P., Durkin, M., Williams, P.D., Raines, R.A., and Mills, R.F., "Defining IO Forces," *Air and Space Power Journal*, Vol. XXI, No. 2, AFRP 10-1, Summer 2007, pp. 53-66. [CCR]

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PACHTER, MEIR

G. Gu, P. Chandler, C. Shumacher, A. Sparks and M. Pachter: "Optimal Cooperative Sensing Using a Team of UAVs," *IEEE Trans. on Aerospace and Electronic Systems*, Vol. 42, No 4, October 2006, pp. 1446-1458.

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5.2.10. PATENTS

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Martin, R. K., Balakrishnan, J., Sethares, W. A., Chung, W., and Johnson, Jr., C. R., “Methods and system for equalizing data in multicarrier receiver systems,” United States Patent #7,230,984, granted on June 12, 2007.

5.2.11. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

Note: Research Center affiliations are listed in [] if applicable.

PUBLICATIONS AND PRESENTATIONS

COLLINS, PETER J.,

Collins, Peter J., “AFIT HPC Site Review: Computational Electromagnetic Project,” Status briefing presented to the DoD High Performance Computing Office, 6 Jun 2007.

FELLOWS, JAMES A., Lt Col

Fellows, James A., “The Vital Role of Nano & Bio Technological Systems by 2025,” invited seminar, Air Education & Training Command Symposium, San Antonio, TX, 6 Sep 2007.

B. P. Feller, J. A. Fellows, D. A. Cardimona, “Voltage-Tunable Infrared Detector Design,” NATO Working Group for Space-based Infrared Sensing, Florence, Italy, 14-15 May 2007.

KURKOWSKI, STUART H., LtCol,

Kurkowski, Stuart H., "Toolkit for Visualizing Situation Scope," *Cyber Defense Conference*, Rome, NY. May 22, 2007 [CCR].

LAMONT, GARY B.,

Lamont, Gary B., "Multiobjective Evolutionary Algorithms In The Design Of Network-Centric Applications," *4th Int'l Conference on Evolutionary Multi-Criterion Optimization*, Matsushima, Japan, March, 2007. Keynote Address

MENDENHALL, MICHAEL J., Maj,

M. Mendenhall, P. Williams, and R. Raines, "Cyber Kill Chain", *Cyber Defense Conference 2007*, Rome NY, 2007.

MILLS, ROBERT F.

Mills, R.F., "Information Operations and Cyberspace", *Air Education and Training Command Symposium*, San Antonio, TX, 5-7 Sep 2007. [CCR]

Mills, R.F., Lacey, T.H., and Grimaldi, M.R., "A Framework for Cyberspace Situational Awareness", *Cyber Defense Conference*, Griffiss Institute, Rome NY, 22-24 May 2007. [CCR]

Mills, R.F., "Trends in Communications/Radar Technologies: Challenges for the Intelligence Community" to National Air and Space Intelligence Center (NASIC) Workshop on Disruptive

Lacey, T., Mills, R., Mullins, B., and Raines, R., "The Morphing of a Cyber Operations Curriculum at AFIT", *IANewsletter, Information Assurance Technology Analysis Center*, Vol 10, Number 1, Spring 2007, pp 26-30. [CCR]

Wieser, T.L., Miller, G.J., Piepkorn, A., Kennedy, J., Mills, R.F., and Colombi, J.M., "Heuristics for Joint Architecting," *Defense AT&L Magazine*, Nov-Dec 2006, pp 44-48. [CSE]

Jones, C.O., Mills, R.F., and Raines, R.A., "Removing Security through Obscurity from Software Watermarking," *IANewsletter, Information Assurance Technology Analysis Center*, Vol 9, Number 2, Fall 2006, pp 14-17. [CCR]

MULLINS, BARRY E.

Augeri, C. J., Mullins, B. E., Baird, L. C., Bulutoglu, D. A. and Baldwin, R. O., "Determining a Canonical Graph Isomorph Using Lexicographic Sorting," presented at the *Discrete Mathematics Seminar*, Department of Mathematics, Wright State University, Dayton, OH, 25 April 2007.

Lacey, T., Mills, R., Mullins, B., and Raines, R., "The Morphing of a Cyber Operations Curriculum at AFIT", *IANewsletter, Information Assurance Technology Analysis Center*, Vol 10, Number 1, Spring 2007, pp 26-30. [CCR]

PACHTER, MEIR

Pachter, Meir, "INS Aiding Using Bearings-Only Measurements of Known Ground Objects," Tel Aviv University, Tel Aviv, Israel, June 18, 2007, and Israel Institute of Technology, Haifa, Israel, June 20, 2007.

Pachter, Meir, "Cooperative Control and Estimation: Good and Good Lookin," AFOSR Contractors Meeting, August 9, 2007, Long Beach, CA.

PETERSON, GILBERT L.

Karrels, D., Peterson, G.L., and Williams, P., "Architecture for Deploying Lightweight Cybercraft," presented at the Cyber Defense Workshop, Rome, NY, April 2007. [CCR]

RAINES, RICHARD A.,

Cyberwarrior Training in Progress," *Defense Systems* interview, Sept/October 2007, pp. 12-16.

"Cyberspace Challenges: Present and Future," presented at the *AETC Symposium*, San Antonio, Texas, 6-7 September 2007.

"Education Opportunities Expand with Cyber Command," Air Force Times interview, July 16, 2007.

"Air Force Cyber Education," presented at the *Cyber Academics Thought Leadership Forum*, Omaha, Nebraska, June 2007.

"Cyber Threats and Challenges," 30 minute radio discussion presented on Clear Channel Radio, FM 93.3, Dayton, Ohio, May 20, 2007

"Cyber Threats, Challenges, and Future Technologies," presented at the *Future Technologies for the Warfighter Workshop*, Air Command and Staff College, Montgomery AL, April 2007.

"The Center for Cyberspace Research," presented to Mr. Michael J. Wynne, Secretary of the Air Force, Wright Patterson AFB OH, March 2007.

RAQUET, JOHN F.,

Raquet, J. and K. Cook, "Using Two-Way Time Transfer to Improve GPS Positioning Accuracy," presented at 2007 Joint Navigation Conference, Orlando, FL, April 2007. [ANT Center]

Amt, J. and J. Raquet, "High Precision Positioning Using Pseudolites at Non-GPS Frequencies," presented at 2007 Joint Navigation Conference, Orlando, FL, April 2007. [ANT Center]

SEETHARAMAN, GUNA

Seetharaman, Guna, "Nano Sensors and MEMS Technology Enabled Challenges in The Applications of Distributed Sensor Networks," Distinguished Colloquium Series of the Department of Mathematics, Wright State University, June 1, 2007.

Seetharaman, Guna, "MEMS Enabled Opportunities in Distributed Sensor Networks," IEEE Local Chapter, Invited Lecture, May 15, 2007.

Seetharaman, Guna, "A Scan-adapted Tree Representation for Adaptive Pyramid Analysis of Images," Department of Computer and Information Science and Engineering (CISE) - Gainesville, Florida. October 30, 2006.

STARMAN, LaVERN A., Maj

Starman, LaVern A., "Optothermally actuated microwings for an autonomous flying microrobot," invited talk, SPIE Great Lakes Photonics Symposium, Dayton OH, 12 Jun 2006.

TEMPLE, MICHAEL A.,

V.D. Chakravarthy, A.K. Shaw, **M.A. Temple**, A.S. Nunez, and J.P. Stephens, "Adaptive Waveforms Having Spectral Sharing Capability," *AFRL Technology Horizons*[®], Vol. 7, No. 5, Oct 2006, pp. 8-11.

J. McEllroy, J.F. Raquet, and **M.A. Temple**, "Opportunistic Navigation: Finding Your Way with AM Signals of Opportunity," *GPS World*, July 2007.

WILLIAMS, PAUL D. Maj

Maj Paul Williams, Dr. Rick Raines, Dr Bob Mills, Dr. Mike Temple, Dr. Mike Grimaila, Dr. Barry Mullins, NSA LTS invited talk "Security Focused Computing Architectures: Hardware Primitives for Runtime Security Monitoring," Aug 07, [CCR/ENG]

Maj Paul Williams, Invited Talk to Intel Corporation, "Security Focused Computing Architectures: Hardware Primitives for Runtime Security Monitoring," Aug 07 [CCR]

Maj Paul Williams, AFOSR Software and Systems and Security Program Review, Invited Talk, "CyberCraft Support," Syracuse NY, June 07 [CCR]

Maj Paul Williams, Dr. Rick Raines, Invited talk at USSTRATCOM/Omaha Chamber of Commerce, "USAF Needs for Cyber Education," June 07, [CCR/ENG/HAF]

Maj Paul Williams, Mr. Al-Nat Tuting, AFRL/IF Cyber Defense Conference, Invited Talk, "Computing Architectures for Better Security," Rome, NY, May 07 [CCR]

Maj Paul Williams, AFRL/IF Cyber Defense Conference, Invited Talk, "Air Force Cyber Education Summit Overview," Rome, NY, May 07 [CCR]

Maj Andy Hansen, Maj Paul Williams, AFRL/IF Cyber Defense Conference, Invited Talk, "Realistic Training in Cyberspace," Rome, NY, May 07 [CCR]

Lt Rich Dill, Maj Paul Williams, AFRL/IF Cyber Defense Conference, Invited Talk, "Built-in 'Seeds of Destruction,'" Rome, NY, May 07 [CCR]

Maj Mike Mendenhall, Maj Paul Williams, AFRL/IF Cyber Defense Conference, Invited Talk, "Cyber Kill Chain," Rome, NY, May 07 [CCR]

Lt Dan Karrels, Dr. Bert Peterson, Maj Paul Williams, AFRL/IF Cyber Defense Conference, Invited Talk, "Architecture for Deploying Lightweight CyberCraft," Rome, NY, May 07 [CCR]

Maj Paul Williams, AFRL/IF, CyberCraft Workshop, Invited Talk, "Use of Trust Vectors for CyberCraft and the Limits of Usable Data History for Trust Vectors," Colorado Springs, CO, Apr 07 [CCR]

Maj Paul Williams, Dr. Rick Raines, Presentation to SECAF, "AFIT's Contributions to Cyber Warfare Briefing," AFIT, Mar 07 [CCR/ENG]

Maj Paul Williams, Dr. Bob Mills, Dean Thomas, "USAF Scientific Advisory Board for Cyber Defense," 8AF, Barksdale, LA, Feb 07 [CCR]

Maj Williams, Paul D., Dr. Rick Raines, Dr. Bob Mills, Consultations at AU about how to best incorporate cyber warfare into AU PME, Jan 07 [CCR]

Maj Williams, Paul D., Dr. Robert Mills, Short course, "Introduction to Cyber Warfare," Lackland AFB, TX, Nov 06 [CCR] Maj Paul Williams, NSA Cyber Defense Workshop, "CuPIDS: Parallel-based Security Architectures", Dec 06 [CCR]

Maj Paul Williams, Dr. Rick Raines, "AFIT/AFRL Research Relationship Building," Rome NY, Oct 06
[CCR]

PROFESSIONAL ACTIVITIES

BALDWIN, RUSTY O.,

Faculty Advisor: Local Chapter of Eta Kappa Nu Honor Society

Reviewer: *IEEE Computer*; *International Conference on Computer Communications and Networks*; *The Journal of Systems and Software*; and *Transactions on Mobile Computing*

CAIN, STEPHEN C.,

Session Chair for the 2006 IEEE Aerospace Conference

Session Organizer for the 2007 IEEE Aerospace Conference

COLLINS, PETER J.,

Chair: AFIT/ENG Low Observables Curriculum Committee

Reviewer: *IEEE Transactions on Antennas and Propagation*, and *IEEE Transactions on Instrumentation and Measurement*

FELLOWS, JAMES A., Lt Col

Consultant: Nanotechnology SME to "Horizons 21" Air War College study group

GUSTAFSON, STEVEN C.,

Chair: ENG Curriculum Committee

Representative: EN Curriculum Development and Requirements Committee

Technical Paper Referee: IEE Electronics Letters, Optical Engineering

HAVRILLA, MICHAEL J.,

AFIT Electromagnetics Curriculum Chair

AFIT Faculty Search Committee, Member

AFIT/AFRL Planning Committee for Partnership in a \$30M World Class Scattering Facility

Acquisition of a \$250K Near Field Scanner through AFRL Materials Directorate collaborations.

Invited Session Chair, "Electromagnetic Materials," Antennas and Propagation Conference, Honolulu, Hawaii, June 2007

Reviewer for the Applied Computational Electromagnetics Society Conference, Verona, Italy, March 2007.

Invited Session Chair, "Computational Methods for NDE and Materials Characterization," Applied Computational Electromagnetics Society Conference, Verona, Italy, March 2007.

Session Chair, “Material Design, Measurement and Instrumentation”, Antenna Measurement Techniques Association (AMTA) Conference, Austin, TX, October 2006.

Session Organizer, “Material Characterization” for the Antenna Measurement Techniques Association (AMTA) Conference, Austin, TX, October 2006.

Technical Review Committee, Antenna Measurement Techniques Association (AMTA) Conference, Austin, TX, October 2006.

Reviewer for IEEE Transactions on Antennas and Propagation

Reviewer for IEEE Transactions on Instrumentation and Measurement

Reviewer for Journal of Electromagnetic Waves and Applications

Member on the Scitech Publishing Editorial Board

Consultant to the Air Force Research Laboratories (AFRL) Materials and Sensors Directorates

Co-organized a “Low Observables Short Course”, AFIT/AFRL, September 2006.

HOPKINSON, KENNETH M.,

Program Committee Member for the IEEE International Conference on Web Services (ICWS), Salt Lake City, Utah, July 9-13, 2007

Reviewer: AFOSR Proposal

KIM, YONG C.,

Review Committee Member: IEEE International Symposium on Circuits and Systems (ISCAS)

Reviewer: IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems; IEEE Transactions on VLSI Systems; and International Symposium on VLSI Design

KURKOWSKI, STUART H., LtCol,

Journal Referee: Mobile Computing and Communications Review (MC²R).

Reviewer: International Symposium on Collaborative Technologies and Systems (CTS), International Conference on Distributed Computing Systems (ICDCS), and International Conference on AD-HOC Networks and Wireless (AdHocNow).

LAMONT, GARY B.,

Member: Executive Committee, AFIT Tau Beta Pi Executive Committee 1992 to present

Journal of Evolutionary Computation, MIT Press 2001 to present

IEEE Transactions on Evolutionary Computation, 2000 to present

MARTIN, RICHARD K.,

Technical Paper Referee: *IEEE Transactions on Signal Processing*; *IEEE Signal Processing Letters*; *IEEE Transactions on Communications*; *IEEE Transactions on Wireless Communications*; *IEEE Communications Letters*; *IEEE Transactions on Circuits and Systems II*; *European Transactions on*

Telecommunications; The 2007 IEEE Int. Conf. on Comm.; The Spring 2007 IEEE Vehicular Tech. Conf.; a chapter submitted to Adaptive Signal Processing for Wireless Channels (CRC Press, 2008); and Speech Dereverberation (book proposal, Springer UK)

MAYBECK, PETER S.,

Member: AFIT/EN Academic Rank Promotion and Tenure Committee; AFIT/ENG Steering Committee; AFIT/ENG Faculty Search Committee; AFIT/EN Scheduling/Registration Faculty Committee; AFIT/EN Academic Support Committee; and AFIT/EN Classified Research at AFIT Committee

Chair: AFIT/ENG Academic Rank Promotion and Tenure Committee, and AFIT/ENG Guidance and Control Curriculum Committee

Representative: AFIT/EN Doctoral Council, AFIT/ENG

MAYER, CHRISTOPHER B., Maj

Reviewer: *2007 IEEE Swarm Intelligence Symposium*

Reviewer: *2007 Information Resource Management Association International Conference*

MCDONALD, J. TODD, Lt Col

Reviewer: *International Journal of Network Security*

MILLS, ROBERT F.,

Reviewer: *IEEE Transactions on Communications, IET Communications, Hawaii International Conference on System Sciences, International Conference on Information Warfare*

MULLINS, BARRY E.,

Technical Paper Referee: *IEE Electronics Letters; Information Sciences, Elsevier Publishers; Military Communications Conference (MILCOM).*

Proposal Reviewer: AFOSR (Software and Systems Program)

Member: Advisory Board for the Department of Electrical Engineering and Computer Science, University of Evansville.

Member: AFIT/EN Awards Committee

Chairman, GCE Program Assessment

Chairman, AFIT/ENG Computer Networks Sequence

GCE-09M Class Advisor (11 students)

GCE-08M Class Advisor (9 students)

Consultant: National Air and Space Intelligence Center (NASIC)

PACHTER, MEIR

Faculty Research Council.

DAGSI Program Coordinating Committee (Control and Signal Processing)

Associate Editor of the Journal of Optimization Theory and Applications

Session Chairman: American Control Conference, July 11-13, 2007, New York, NY.

Member of the following professional societies: IEEE, AIAA and ION; member of the IEEE committee "Engineers at Risk".

Reviewer for IEEE Transactions on Automatic Control

Reviewer for AIAA J. of Guidance, Control and Dynamics

Reviewer for International Journal of Control

AFIT liaison to AFRL/VA

Member of AFOSR Review Panel

Consultant to AFRL/VACA, AFRL/SNAT and AFRL/SNRP

Member of AFRL/VACA AFOSR *Star Team*

AFIT NRC Postdoctoral Advisor

Associate Fellow of the AIAA

Fellow of the IEEE

PETERSON, GILBERT L.,

Reviewer: IFIP WG 11.9 Digital Forensics; IFIP WG 11.10 Critical Infrastructure Protection ;Digital Forensic Research Workshop (DFRWS); IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS); *IEEE Transactions on Systems, Man, and Cybernetics - Part B; Information Sciences; IEEE Transactions on Signal Processing; IEEE Transactions on Evolutionary Computation, IEEE Transactions on Systems, Man, and Cybernetics, Information Sciences*

Session Chair: IFIP WG 11.0 Digital Forensics

Co-Chair: Special Topic on Information Hiding and Steganography at the IEEE Systems, Man, and Cybernetics Conference

Program Committee: Mobile Multimedia/Image Processing for Military and Security Applications of the SPIE Symposium on Defense and Security

RAINES, RICHARD A.,

Technical Paper Referee, *41st Hawaii International Conference on System Sciences* (3 papers)

Session Chair, *IEEE International Communications Conference (ICC 2007)*

Technical Paper Referee, *40th Hawaii International Conference on System Sciences* (3 papers), 2006

Technical Paper Referee, *IEEE Information Assurance Workshop, 2006*

Technical Paper Referee, *10th Colloquium for Information Systems Security Education (CISSE), 2006*

Member, Program Committee, *10th Colloquium for Information Systems Security Education (CISSE)*

Panel Member, Scholarship for Service Proposal Review, National Science Foundation, 2006

RAQUET, JOHN F.,

Session chair: *ION GNSS-2007, 2006 Joint Navigation Conference, 2007 ION National Technical Meeting*

Reviewer: *IEEE Transactions on Aerospace Electronics Systems; NAVIGATION, GPS Solutions*

Executive Secretary: Satellite Division of the Institute of Navigation

SAVILLE, MICHAEL A., Maj,

Reviewer: *IET Electronic Letters*

SCHMIDT, JASON D., Capt,

Session Chair for the 2007 IEEE Aerospace Conference

Session Organizer for the 2008 IEEE Aerospace Conference

Reviewer: *Journal of Directed Energy*

SEETHARAMAN, GUNA

Charter Member: Team CajunBot, a finalist in DARPA Grand Challenge, October 2005. Phase III – Urban Challenge, Nov 2007.

Member: Steering Committee and Program Committee, IEEE Eighth International Workshop on Computer Architecture for Machine Perception and Sensing (CAMPS); Second International Workshop on Realtime Applications of Distributed Sensor Networks IRADSN-07; and, IEEE SUTC08.

Reviewer for the following journals: The IEEE Transactions on Computer; Intl Journal of Distributed Parallel Computing; Photogrammetry and Remote Sensing, Journal of Supercomputing, and, Optics Express.

TEMPLE, MICHAEL A.,

Reviewer: *IEEE Journal in Selected Areas of Communications; IEEE Communications Letters; IEE Electronic Letters; and IEEE Journal in Selected Areas of Communications*

Member: AFRL Technology Review Board (TRB), Senior Member of IEEE

TERZUOLI, ANDREW J., Jr

Chair: Local Chapter, Joint IEEE Societies Antennas and Propagation Society (APS), Microwave Theory and Techniques (MTT), Geoscience and Remote Sensing (GRS)

Technical Paper Referee: *IEEE Transactions, IEE Proceedings*

Dayton Development Coalition (DDC) Sensors Task Force

Steering Committee: WPAFB MASINT Development Consortium

VASQUEZ, JUAN R., LtCol,

Co-Chair for SPIE *Signal and Data Processing of Small Targets Conference*

Co-Chair for SPIE *Acquisition, Tracking, and Pointing Conference*

VETH, MICHAEL J., Maj,

Session chair: *ION GNSS-2007, 2007 ION Annual Meeting, 2007 Joint Navigation Conference, 2007 ION National Technical Meeting*

Reviewer: *IEEE Transactions on Aerospace Electronics Systems; Journal of Embedded Systems*

Vice-President: Institute of Navigation, Dayton Chapter

5.3. DEPARTMENT OF ENGINEERING PHYSICS

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5.3.1. DOCTORAL DISSERTATIONS

ADAMSON, PAUL E., *A General Quantum Mechanical Method to Predict Positron Spectroscopy*. AFIT/DS/ENP/07-04. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: AFOSR/NL.

BECK, ERIC V., *A Multireference Density Functional Approach to the Calculation of the Excited States of Uranium Ions*. AFIT/DS/ENP/07-01. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: Department of Energy, Idaho Operations Office.

DISHAW, JAMES R., *Time Dependent Discrete Ordinates Neutron Transport Using Distribution Iteration in XYZ Geometry*. AFIT/DS/ENP/07-S01. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: Air Force Technical Applications Center.

GROSS, KEVIN C., *Phenomenological Model for Infrared Emissions from High-Explosive Detonation Fireballs*. AFIT/DS/ENP/07-03. Faculty Advisor: Dr. Glen P. Perram. Sponsor: SAF and NASIC/DE.

TERRY, NATHAN B., *Raman Fiber Lasers and Amplifiers Based on Multimode Graded-Index Fibers and Their Application to Beam Cleanup*. AFIT/DS/ENP/07-02. Faculty Advisor: Lt Col Thomas G. Alley. Sponsor: AFRL/DE.

5.3.2. MASTER'S THESES

5.3.2.1. APPLIED PHYSICS (GAP)

BAIRD, C. JAMES., *Direct Diode Pumped Raman Amplified Based on a Multimode Graded Index Fiber*. AFIT/GAP/ENP/07-01. Faculty Advisor: Lt Col Thomas G. Alley. Sponsor: AFRL/DE.

EASLEY, SHAUN M., *Anisotropy in the South Atlantic Anomaly*. AFIT/GAP/ENP/07-02. Faculty Advisor: Lt Col Christopher G. Smithtro. Sponsor: AFRL/VS.

GAMBOA, OMAR., *Stimulated Brillouin Scattering Beam Cleanup and Beam Phasing Through Two Passive Channels*. AFIT/GAP/ENP/07-03. Faculty Advisor: Major Timothy H. Russell. Sponsor: AFRL/DE.

JONES, DAVID A., *Portable Diode Pumped Femtosecond Lasers*. AFIT/GAP/ENP/07-04. Faculty Advisor: Lt Col Matthew J. Bohn. Sponsor: AFRL/SN.

LUNDIN, MICHAEL A., *Passive Detection of Uranyl Compounds*. AFIT/GAP/ENP/07M-05. Faculty Advisor: Lt Col Matthew J. Bohn. Sponsor: DTRA.

RODGERS, LUKE P., *Collision Broadening Using Alkali-Filled, Hollow Core Fibers*. AFIT/GAP/ENP/07-S01. Faculty Advisor: Major Timothy Russell. Sponsor: HELJTO.

SPANGLER, BRETT R., *Characterizing the Solar Wind Using DMSP Ion Drift Data*. AFIT/GAP/ENP/07-J01. Faculty Advisor: Lt Col Christopher G. Smithtro. Sponsor: AFRL/VS.

STEENBURGH, ROBERT A., *Holes: Ionospheric Scintillation GPS and Imputation*. AFIT/GAP/ENP/07-06. Faculty Advisor: Lt Col Christopher G. Smithtro. Sponsor: AFRL/VS.

WERNER, JOSHUA T., *Assessment of the Impact of Various Ionospheric Models on High-Frequency Signal Raytracing*. AFIT/GAP/ENP/07-07. Faculty Advisor: Lt Col Christopher G. Smithtro. AFRL/VS.

5.3.2.2. ELECTRO-OPTICS (GEO)

ORTH, DAVID F., *An Infrared Camera Simulation for Estimating Spatial Temperature Profiles and Signal-to-Noise Ratios of an Airborne Laser-Illuminated Target*. AFIT/GEO/ENP/07-01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: DETEC (OSD).

WISDOM, BRETT W., *Assessment of Optical Turbulence Profiles Derived from Probabilistic Climatology*. AFIT/GEO/ENNNP/07-02. Faculty Advisor: Lt Col Steven T. Fiorino. Sponsor: AFRL/DE.

5.3.2.3. NUCLEAR ENGINEERING (GNE)

CARLSON, LONNIE, *Cobalt Doping of Semiconducting Boron Carbide using Cobaltocene*. AFIT/GNE/ENP/07-01. Faculty Advisor: LTC David LaGraffe. Sponsor: DTRA/CS.

GRAY, THOMAS E., *Investigation of Gate Current in Neutron Irradiated $Al_xGa_{1-x}N/GaN$ Heterogeneous Field Effect Transistors Using Voltage and Temperature Dependence*. AFIT/GNE/ENP/07-02. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFRL/VS and AFOSR.

HARR, LOGAN J., *Precise Calculation of Complex Radioactive Decay Chains*. AFIT/GNE/ENP/07-03. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: Air Force Technical Applications Center.

JONES, CHRISTOPHER P., *High Resolution Mesoscale Weather Data Improvement to Spatial Effects for Dose-Rate Contour Plot Predictions*. AFIT/GNE/ENP/07-04. Faculty Advisor: Lt Col Steven T. Fiorino. Sponsor: DTRA/AFIT.

KLING, JOSEPH A., *The Sensitivity of RDD Contamination Predictions to Source Term Parameters*. AFIT/GNE/ENP/07-05. Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: DTRA/TD

MAAS, MICHAEL R., *Directional Detection of Scattered Gamma Spectra by a Portable High Purity Germanium Detector*. AFIT/GNE/ENP/07-06. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: DTRA/AFIT.

5.3.2.4. ELECTRICAL ENGINEERING (GE)

HARKISS, SAMUEL I., *A Study of Bi-Directional Reflectance Distribution Functions and their Effect on Infrared Signature Models*. AFIT/GE/ENP/07-01. Faculty Advisor: Dr. Michael A. Marciniak. Sponsor: AFRL/SN.

5.3.2.5. MATERIALS SCIENCES (GMS)

SHELL, SCOTT A., *Optical Parametric Oscillation in Orientation-Patterned Gallium Arsenide*. AFIT/GMS/ENP/07-01. Faculty Advisor: Lt Col Thomas G. Alley. Sponsor: AFRL/SN.

5.3.3. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

ALLEY, THOMAS G., Lt Col,

“Nonlinear Optical Effects in Fibers and Their Application to High Energy Lasers.” Sponsor: AFRL/DE. Funding: \$10,000.

BURRGRAF, LARRY W.,

“Role of Water in Heat Inactivation of Bacillus Anthracis Spores and Spores of Related Organisms.” Sponsor: AFNWCA. Funding: \$105,000.

CUSUMANO, SALVATORE J.,

“2007 Directed Energy Summer Intern Program: Introducing DoD DE to College Undergraduates. Sponsor: HELJTO. Funding: \$38,922. [CDE]

“Airborne Aero-Optic Laboratory.” Sponsor: HELJTO. Funding: \$114,825. [CDE]

“Delivered Irradiance Assessment Tool (DIAT).” Sponsor: DETEC. Funding: \$103,000. [CDE]

“High Energy Laser Modeling and Simulation Program: TAWG Product Development.” Sponsor: AFRL/DE. Funding: \$400,000. [CDE]

FIORINO, STEVEN T., Lt Col,

“Probabilistic HELEEOS Atmospheric Information for AFRL Weather Impact Analysis.” Sponsor: AFRL/VA. Funding: \$18,467 [CDE]

LAGRAFFE, DAVID A., LTC,

“DTRA-AFIT Nuclear Partnership.” Sponsor: DTRA. Funding: \$90,000.

MARCINIAK, MICHAEL A.,

“Time-resolved Luminescence Spectroscopy to Determine Carrier Dynamics in Mid-infrared Semiconductor Quantum Well Optoelectronic Devices for Air Force Applications.” Sponsor: AFOSR. Funding: \$54,563.

MATHEWS, KIRK A.,

“AFTAC/TM-AFIT/ENP Support 2007.” Sponsor: AFTAC. Funding: \$50,000.

NIDAY, THOMAS A., Maj,

“Modeling and Simulation of the Dynamics and Applications of Light Filaments.” Sponsor: AFOSR. Funding: \$11,391.

PERRAM, GLEN P.,

“AFOSR Center of Excellence in High Power Gas Phase Electric and Hybrid Laser Kinetics and Spectroscopy.” Sponsor: AFOSR. Funding: \$89,746. [CDE]

“Characterization of Excited Atomic Oxygen in RF and Microwave Discharges.” Sponsor: AFRL/DE. Funding: \$37,500. [CDE]

“Countering the IED Threat with Infrared Signatures.” Sponsor: SAF. Funding: \$100,000. [CMSR]

“Cryo-Cooled Ti-Sapphire Laser to be used in DPAL Experiments.” Sponsor: AFRL/DE. Funding: \$106,464. [CDE]

“High Power Diode Pumped Alkali Vapor Lasers and Analog Systems.” Sponsor: HELJTO. Funding: \$176,450. [CDE]

“Measure High Priority Kinetic Rates for DPALS.” Sponsor: AFRL/DE. Funding \$56,250. [CDE]

“Optical Diagnostics for the Production of Carbon Nanotubes from PLD.” Sponsor: AFOSR. Funding: \$43,205.

“Technical and Administrative Support for the AFOSR Center of Excellence in High Power Gas Phase and Electric Lasers.” Sponsor: AFRL/DE. Funding: \$103,000.

PETROSKY, JAMES C.,

“Analysis of Residual Memory Effects in Military Memory Systems.” Sponsor: AFRL/SN. Funding: \$32,240. [CMSR]

“Radiation Damage to Electronic Devices and Circuits: Point Defects in AlGaIn/GaN HFETS.” Sponsor: AFOSR. Funding: \$27,000.

“Radiation Effects Studies on Wide Band-Gap Devices for Use in Space Borne Platforms.” Sponsor: AFRL/VS. Funding: \$41,000.

“Support Activities to Homeland Security: Portal Scintillation.” Sponsor: DHS. Funding: \$75,000.

“Support Activities to Homeland Security: Support to NTNFC.” Sponsor: DHS. Funding: \$92,308.

RUSSELL, TIMOTHY H., Maj,

“Stimulated Brillouin Scattering Phase Conjugation in Optical Fiber.” Sponsor: HELJTO. Funding: \$69,300. [CDE]

SMITHRO, CHRISTOPHER G., Maj,

“Observation and Modeling of the Mid-Latitude E- and F-Region Ionosphere During Solar X-Ray Flares.” Sponsor: AFOSR. Funding: \$5,470.

TUTTLE, RONALD F.,

“Establishing an Expert-Defined Protocol for Analytical Tradecraft with Career Specialization in Denial and Deception.” Sponsor: NASIC. Funding: \$75,000. [CMSR]

“JWICS Connectivity Support.” Sponsor: NASIC. Funding: \$50,000. [CMSR]

YEO, YUNG KEE,

“Magnetic Properties of Mn-Implanted P- Type GaN.” Sponsor: AFOSR. Funding: \$45,000.

“Magnetic Properties of TM-Implanted Dilute Magnetic Semiconductors.” Sponsor: AFOSR. Funding: \$34,480.

5.3.4. FUNDED EDUCATIONAL PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

CUSUMANO, SALVATORE J.,

“2006 Directed Energy Summer Scholars Program, A Companion Program of the AFIT E2S2I Summer Internship Program”. Sponsor: Directed Energy Professional Society Educational Committee. Funding: \$30,000. [CDE]

PERRAM, GLEN P.,

“High Energy Laser Weapons Systems Short Course.” Sponsor: DEPS Educational Committee. Funding: \$17,500. [CDE]

TUTTLE, RONALD F.,

“Advanced Geospatial Intelligence Education.” Sponsor: NGA. Funding: \$510,000. [CMSR]

“MASINT Academic Support.” Sponsor: AFRL/SN. Funding: \$100,000. [CMSR]

5.3.5. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

CUSUMANO, SALVATORE J.,

Fiorino, S.T., R.J. Bartell, M.J. Krizo, and S.J. Cusumano, “Expected Worldwide, Low-Altitude Laser Performance in the Presence of Common Atmospheric Obscurants” *J. Dir Energy*, Vol 2, No. 4, 2007, pp. 363-375, 2007. [CDE]

BURGGRAF, LARRY

Li, G. and L.W. Burggraf, “Controlled patterning of polymer films using an AFM tip as a nano-hammer”, *Nanotechnology* 18, 245302 (8pp) (2007).

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Fiorino, S.T., R.J. Bartell, M.J. Krizo, and S.J. Cusumano, “Expected Worldwide, Low-Altitude Laser Performance in the Presence of Common Atmospheric Obscurants” *J. Dir Energy*, Vol 2, No. 4, 2007, pp. 363-375, 2007. [CDE]

Gravley, L.E., S.T. Fiorino, R.J. Bartell, G. P. Perram, M. J. Krizo, and K. B. Le, “Comparison of Climatological Optical Turbulence Profiles to Standard, Statistical, and Numerical Models Using HELEEOS” *J. Dir Energy*, Vol 2, No. 4, pp. 347-362, 2007. [CDE]

JOHN, GEORGE

B.S. Phillips,, G. John and J.S. Zabinski, “Surface chemistry of fluorine containing ionic liquids on steel substrates at elevated temperature using Mössbauer spectroscopy”, *Tribology Letters*, Vol. 26, No. 2, May 2007

LAGRAFFE, DAVID A., LTC

Ignatov, A.Yu., L. Carlson, Ya.B. Losovyj, D. LaGrafte, J.I. Brand, and P.A. Dowben, "Pairwise Cobalt Doping of Boron Carbides using Cobaltocene,” *Journal of Applied Physics* 102: 83520-83523 (2007).

Carlson, L., D. LaGrafte, Snjezana Balaz, A. Ignatov, Ya. B. Losovyj, J. Choi, P.A. Dowben, and J.I. Brand, "Doping of Boron Carbides with Cobalt, using Cobaltocene," *Applied Physics A* 89: 195-201 (2007).

HENGESOLD, ROBERT L.

Ryu, Mee-Yi, Y. K. Yeo, and R. L. Hengesold, "Implantation damage recovery and carrier activation studies of Si-implanted $\text{Al}_{0.18}\text{Ga}_{0.82}\text{N}$ by temperature dependent Hall-effect measurements," *Physica Status Solidi (c)* 4, 2613-2616 (2007).

MATHEWS, KIRK A.,

Mathews, K. and J. Dishaw, "Matrix Albedo for Discrete Ordinates Infinite-Medium Boundary Condition", Joint International Topical Meeting on Mathematics & Computation and Supercomputing in Nuclear Applications (M&C + SNA 2007). Monterey, California, April 15-19, 2007, on CD-ROM, American Nuclear Society, LaGrange Park, IL, 2007.

NIDAY, THOMAS, Maj,

Weeks, D.E., T.A.Niday, S.H.Yang (PostDoc), "Scattering Matrix Elements for the Reaction $\text{B}(^2\text{P}_{1/2}) + \text{H}_2(j = 0) \leftrightarrow \text{B}(^2\text{P}_{3/2}) + \text{H}_2(j = 0, 2, 4, 6)$," *J Chem Phys.* 125 (2006) 164301-164315.

PERRAM, GLEN P.

Dolezal, Michael W., and Glen P. Perram, "Predissociation of $\text{Bi}_2 \text{A}(0_u^+)$, $v'=21-39$ ", *Journal of Chemical Physics* 126, 084310, 1-6 (Feb 2007). [CDE]

Phelps, Charles, Carl J. Druffner, Glen P. Perram and Rand R. Biggers, "Shock Front Dynamics in the Pulsed Laser Deposition of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ ", *Journal of Physics D: Applied Physics* (2007). [CDE]

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K. C. Brown, T. H. Russell, T. G. Alley, and W. B. Roh, "Passive combination of multiple beams in an optical fiber via stimulated Brillouin scattering," *Opt. Lett.*, 32, 1047-1049, 2007. [CDE]

N. B. Terry, K. T. Engel, T. G. Alley, and T. H. Russell, "Use of a Continuous Wave Raman Fiber Laser in Graded-Index Multimode Fiber for SRS beam Combination," *Opt. Expr.*, 15, 602-607, 2007. [CDE]

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Wu, P., G. Saraf, Y. Lu, D.H. Hill, D.A. Arena, R.A. Bartynski, F. Cosandey, J.F. Al-Sharab, L. Wielunski, R. Gateau, J. Dvorak, A. Moodenbaugh, J. A. Raley, and Yung Kee Yeo, "Magnetic Properties of Fe-implanted ZnO nanotips grown by metal-organic chemical vapor deposition," *J. Electronic Materials*, 2007, Vol. 36, pp. 529-532.

5.3.6. REFEREED PRESENTATIONS

Note: Research Center affiliations are listed in [] if applicable.

BOHN, MATTHEW J., Maj,

Bohn, M.J. and M.A. Lundin, "Remote Sensing phase fluorimetry using a mercury vapor lamp," Proceedings of SPIE, Vol 6555, 27 Apr 2007. [CMSR]

CUSUMANO, SALVATORE J.

Fiorino, S.T. R.J. Bartell, M.J. Krizo, G.P. Perram, D.J. Fedyk, K.P. Moore, T.R. Harris, and S.J. Cusumano, "Worldwide Mission Planning Tool for Tactical High Energy Laser Systems Operating at Wavelengths Up to 14 μm ," (Paper AIAA-2007-7569) 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007. [CDE]

Fiorino, S.T. R.J. Bartell, M.J. Krizo, D.J. Fedyk, K.P. Moore, T.R. Harris, S.J. Cusumano, R. Richmond, and M.J. Gebhardt, "Worldwide Uncertainty Assessments of LADAR Performance for Diverse Low Altitude Atmospheric Environments at 1.064 μm and 1.557 μm ," (Paper AP02) MSS Active E-O Systems, Atlanta, GA, September 2007.[CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

FIORINO, STEVEN T., Lt Col

Fiorino, S.T. R.J. Bartell, M.J. Krizo, G.P. Perram, D.J. Fedyk, K.P. Moore, T.R. Harris, and S.J. Cusumano, "Worldwide Mission Planning Tool for Tactical High Energy Laser Systems Operating at Wavelengths Up to 14 μm ," (Paper AIAA-2007-7569) 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007. [CDE]

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Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

HENGHELD, ROBERT L.

Ryu, Mee-Yi, E. A. Moore, Y. K. Yeo, and R. L. Hengehold. "Implantation Damage Studies of Si-implanted $\text{Al}_x\text{Ga}_{1-x}\text{N}$," Presented at the International Workshop on Nitride Semiconductors held on 22-27 October 2006 in Kyoto, Japan.

Ryu, Mee-Yi, E. A. Moore, Y. K. Yeo, and R. L. Hengehold. "Activation Studies of Si-Implanted $\text{Al}_x\text{Ga}_{1-x}\text{N}$," Presented at the Korean Physical Society 2007 Spring Meeting held on 19-20 April 2007 in Peongchang, Kangwondo, Korea.

Yuldashev, Sh.U., P.K. Khabibullaev, R.A. Nusretov, I.V. Khvan, Y.K.Yeo, R.L. Hengehold, and T.W. Kang, "Electroluminescence of n- $\text{Zn}_{1-x}\text{Mg}_x\text{O}/\text{ZnO}/\text{p-Zn}_{1-x}\text{Mg}_x\text{O}$ Heterostructures Grown on Si Substrates," the 13th International Conference on II-VI Compounds, Jeju, Korea, 10-14 September 2007.

LAGRAFFE, DAVID A., LTC,

LaGraffe, D., and J. Petrosky, "Developing a Professional Science Masters Degree Program in Combating Weapons of Mass Destruction." Presented at the 2007 American Society of Engineering Education Conference, 25 Jun 2007.

PERRAM, GLEN P.

Fiorino, S.T. R.J. Bartell, M.J. Krizo, G.P. Perram, D.J. Fedyk, K.P. Moore, T.R. Harris, and S.J. Cusumano, "Worldwide Mission Planning Tool for Tactical High Energy Laser Systems Operating at Wavelengths Up to 14 μm ," (Paper AIAA-2007-7569) 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007. [CDE]

Essenhigh, Katherine and Glen Perram, "2-D Temperature and Pressure Maps by Planar Laser Induced Fluorescence of a Low Pressure Mach 2 Supersonic Nozzle Flow: Comparisons for Different Back Pressures found in Gas Dynamic Lasers" (Paper AIAA-2007-3875) 38th AIAA Plasmadynamics and Lasers Conference, Miami, FL June 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

Gallagher, Jeffrey E., Glen P. Perram, and Skip Williams, "Ultrasensitive Absorption Measurements of Metastable Species: Pressure Broadening of the $b^1\Sigma_g \rightarrow a^1\Delta_g$ (1,0) Band in Oxygen Using Off-Axis Integrated-Cavity Output Spectroscopy", 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007. Proceedings of the AIAA, AIAA-2007-1359 (2007). [CDE]

Fiorino, S.T., Richard J. Bartell, Glen P. Perram, Matthew J. Krizo, Daniel J. Fedyk, and Salvatore J. Cusumano "Worldwide Estimates & Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 24 km and Below at Wavelengths 0.355 to 14 μm " SPIE Defense & Security Symposium, Atmospheric Propagation IV, Orlando, FL, April 2007. SPIE Proceedings Vol. 6551 (2007).

Gross, Kevin C., Joseph Wymann, and Glen P. Perram, "Phenomenological Fireball Model for Remote Identification of High-Explosives" SPIE Defense & Security Symposium, Orlando, FL, April 2007. SPIE Proceedings Vol. 6551 (2007) [CMSR]

Hawks, Michael, and Glen P. Perram, "Passive Ranging of Boost Phase Missiles" SPIE Defense & Security Symposium, Acquisition, Tracking, Pointing, and Laser Systems Technologies XXI, Orlando, FL, April 2007. SPIE Proceedings Vol. 6569 (2007). [CDE]

PETROSKY, JAMES C.

Grey, T. Petrosky, J. McClory, J. "Trap Assisted Tunneling Induced Currents In Neutron Irradiated $\text{Al}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ HFETs" IEEE Paper 2007-500. Presented at the 2007, NSREC Poster Session, Waikiki, Hawaii, July 2007.

McClory, J. Petrosky, J. Sattler J. Jarzen T., "Temperature Dependent Electrical Characteristics of Neutron Irradiated Al_xGa_{1-x}N/GaN HFETs" IEEE Paper 2007-501. Presented at the 2007, NSREC Poster Session, Waikiki, Hawaii, July 2007.

McClory, J. Petrosky J. "An Analysis of the Effects of Low-Energy Electron Radiation On Al_xGa_{1-x}N/GaN HFETs." IEEE Paper 2007-502. Presented at the 2007, NSREC Poster Session, Waikiki, Hawaii, July 2007.

YEO, YUNG KEE,

Ryu, Mee-Yi, E. A. Moore, Y. K. Yeo, and R. L. Hengehold, "Implantation Damage Studies of Si-implanted Al_xGa_{1-x}N," the International Workshop on Nitride Semiconductors, Kyoto, Japan, 22-27 October 2006.

Ryu, Mee-Yi, E. A. Moore, Y. K. Yeo, and R. L. Hengehold, "Activation Studies of Si-Implanted Al_xGa_{1-x}N," the Korean Physical Society 2007 Spring Meeting, Peongchang, Kangwondo, Korea, 19-20 April 2007.

Yuldashev, Sh.U., P.K. Khabibullaev, R.A. Nusretov, I.V. Khvan, Y.K.Yeo, R.L. Hengehold, and T.W. Kang, "Electroluminescence of n-Zn_{1-x}Mg_xO/ZnO/p- Zn_{1-x}Mg_xO Heterostructures Grown on Si Substrates," the 13th International Conference on II-VI Compounds, Jeju, Korea, 10-14 September 2007.

5.3.7. SUBSTANTIAL CONSULTATIONS

Note: Research Center affiliations are listed in [] if applicable.

BURGGRAF, LARRY W.

Facilitated Positron Annihilation Lifetime Spectroscopy (PALS) technology transfer to AFRL/MNMR; students assembled PALS system at Eglin AFB.

FIORINO, STEVEN T., Lt Col

Fiorino, Steven T., "Cloud Free Line of Sight Analysis" for Dr James Horkovich and Raytheon RMS Systems Engineering, Tucson, AZ, April 2007. [CDE]

Fiorino, Steven T., "Atmospheric Effects on Low-Altitude Laser Performance Analysis" for the National Academy of Science, Board on Army Science and Technology, Washington DC, May - August 2007. [CDE]

MATHEWS, KIRK A.,

Analysis and modeling of nuclear event radiation, including source, transport, detection and data analysis of radiations that include the full spectrum of electromagnetic and nuclear radiation, with Air Force Technical Applications Command, AFTAC/TH, Patrick AFB, FL.

Analysis and modeling of nuclear fuels and fuel cycle processes, with Air Force Technical Applications Command, AFTAC/TM, Patrick AFB, FL.

MARCINIAK. MICHAEL A.

Cusumano, S.J., M.A. Marciniak, W.F. Bailey, and J.E. McCrae, "Delivered Irradiance Assessment Tool (DIAT)," Directed Energy Test and Evaluation Capability, Oct 2006-Sep 2007. [CDE]

Marciniak, M.A., "Infrared optical signature measurement research," Signature Division, Sensors Directorate, Air Force Research Laboratory (AFRL/SNS), Oct 2006-Sep 2007. [CDE]

Marciniak, M.A., "Infrared counter-countermeasure research," Sensor Materials Branch, Survivability and Sensor Materials Division, Materials and Manufacturing Directorate, AFRL (AFRL/MLPJ), Oct 2006-Sep 2007. [CDE]

Marciniak, M.A., "Time-resolved luminescence spectroscopy to determine carrier dynamics in mid-infrared semiconductor quantum well optoelectronic devices for Air Force applications," Air Force Office of Scientific Research, Oct 2006-Sep 2007.

PETROSKY, JAMES C.

Petrosky, James C., Chairman, QASPR Review Panel, NNSA, Jan-Dec 2007

Petrosky, James C., Member HEMP Review Panel, DTRA, Aug-Dec 2007.

5.3.8. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

Note: Research Center affiliations are listed in [] if applicable.

OTHER PUBLICATIONS AND PRESENTATIONS

ALLEY, THOMAS G., Lt Col,

Terry, N.B., K. Engel, T. G. Alley, T. H. Russell, and W. B. Roh, "Forward and Backward Seeded Continuous-Wave Raman Fiber Amplifiers Based on Multimode Fibers", Presented at Photonics West, 2007. San Jose, California. [CDE]

Terry, N.B., B. Flusche, K. Engel, T. G. Alley, T. H. Russell, and W. B. Roh, "Beam Cleanup and Beam Combination in Raman Fiber Amplifiers and Lasers based on Multimode Fibers", Presented at the Directed Energy Symposium, 2006. Los Angeles, California. [CDE]

BOHN, MATTHEW J., Maj,

Bohn, M.J. and M.A. Lundin, "Passive Remote Sensing of Uranyl Compounds," Advanced Signatures Technology Symposium, 18 -20 Sep 2007, NPS, Monterey, CA [CMSR]

Bohn, M.J. and M.A. Lundin, "Passive Remote Sensing of Uranyl Compounds," Advanced Signatures Technology Symposium, AFIT, Nov 2006. [CMSR]

BURGGRAF, LARRY,

Completed AU Air Force GS-15 Leadership Seminar, 25-29 Sept 2006.

Explored teaching and research collaborations with University of Cincinnati nuclear engineering faculty and students by video conference, joint with Dr. Petrosky.

CUSUMANO, SALVATORE J.,

Wisdom, B.W., S.T. Fiorino, R.J. Bartell, M.J. Krizo, and S.J. Cusumano, "Assessment of Optical Turbulence Profiles Derived from Probabilistic Climatology," 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. 9CDE)

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, M.J., J.E. McCrae, and S.J. Cusumano, "Assessment of High Energy Laser Delivered Irradiance Derived from Off-Axis Atmospheric Scatter," DEPS 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. [CDE]

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Bartell, R.J., S.T. Fiorino, G.P. Perram, M.J. Krizo, T.P. Huster, J.P. Cheney, Cusumano S.J., E.P. Magee, M.R. Whiteley, and A. Ngwele "Comparison of Peak Irradiance and Power-in-the-Bucket Predictions Among Several Scaling Law Models and WaveOptics Codes Over Diverse Low Altitude Operating Regimes" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

Fiorino, S.T., R.J. Bartell, J.D. Eckel, M.J. Krizo, S.J. Cusumano, "Application and Impacts of Ground-to-Space Cloud Free Line of Sight Probabilities to Air-to-Ground High Energy Laser Engagement Scenarios" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

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Bartell, R.J., S.T. Fiorino, G.P. Perram, M.J. Krizo, T.P. Huster, J.P. Cheney, Cusumano S.J., E.P. Magee, M.R. Whiteley, and A. Ngwele "Comparison of Peak Irradiance and Power-in-the-Bucket Predictions Among Several Scaling Law Models and WaveOptics Codes Over Diverse Low Altitude Operating Regimes" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

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Moore, E.A., Mee-Yi Ryu, Y. K. Yeo, and R. L. Hengehold. "Electrical Properties of Si-Implanted $\text{Al}_x\text{Ga}_{1-x}\text{N}$ with High Al Mole Fraction," Presented at the March 2007 Meeting of the American Physical Society held on 5-9 March 2007 in Denver, Colorado.

LAGRAFFE, DAVID A., LTC,

LaGrafte, D., J. Petrosky, and P. Coomber, "Combating Weapons of Mass Destruction Educational Programs at the Air Force Institute of Technology," *Cbt WMD Journal* **1** 11 (2007).

LaGrafte, D., "Combating Weapons of Mass Destruction Educational Programs at the Air Force Institute of Technology," at *Combating Weapons of Mass Destruction: Educating Future National Security Leaders Conference*, 3 – 4 Oct 2007, National Defense University (invited).

MARCINIAK, MICHAEL A.

Harkiss, S.I. and M.A. Marciniak, "AFIT's large commercial aircraft infrared signature tool," 2006 Advanced Signatures Technology Symposium, Wright-Patterson AFB OH, 7-9 November 2006. [CDE]

Orth, D.F., M.A. Marciniak, S.J. Cusumano and R.L. Beauchamp, "An infrared camera simulation estimating the signal-to-noise ration and spatial temperature profile of an ABL-illuminated target," 2007 Directed Energy Test & Evaluation Conference, Albuquerque, NM, 7-9 August 2007. [CDE]

Krizo, M.J., R.J. Bartell, E.P. Magee, S.T. Fiorino, R.L. Beauchamp, M.A. Marciniak, W.F. Bailey and S.J. Cusumano, "High Fidelity Simulation of a Bi-Static Measurement of Delivered Irradiance on Target," 2007 Directed Energy Test & Evaluation Conference, Albuquerque, NM, 7-9 August 2007. [CDE]

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MATHEWS, KIRK A.,

Harr, L. and Mathews, K. A., "Precise Calculation of Complex Radioactive Decay Chains", *AFTAC Sensors and Systems Meeting*, Air Force Technical Applications Command, Patrick AFB, FL, 1 May 2007.

NIDAY, THOMAS A., Maj,

Weeks, D.E. and T.A. Niday, "Feshbach Resonances in the Inelastic Collision $B(^2P_{1/2}) + H_2(j) \leftrightarrow B(^2P_{3/2}) + H_2(j')$ ", APS March Meeting, Denver, CO, March 5-9, 2007.

Niday, T., Paul Muller, and Amy Robinson, "Collapse and Instability of Nanosecond UV filaments/Evaluation of Absorbing Boundary Conditions with the Channel Packet Method", Presentation at AFOSR Nonlinear Optics Workshop, Tucson, AZ, 17 October 2006.

Weeks, D.E. and T.A. Niday, "Scattering matrix elements for the inelastic collision $B(^2P_{1/2}) + H_2(j=0) \leftrightarrow B(^2P_{3/2}) + H_2(j')$ ", Physics Department, Miami University, Oxford OH, 2007.

PERRAM, GLEN P.

Bartell, Richard, Steven Fiorino, Matthew Krizo, Glen Perram, Todd Huster, Justin Cheney, Eric Magee, Matthew Whiteley, and Amy Ngwele, "Comparison of Peak Irradiance and Power in the Bucket Predictions Among Several Scaling Law Models and Wave Optics Codes Over Diverse Low Altitude Operating Regimes", Ninth Annual Directed Energy Symposium, Albuquerque, NM, Nov 2006. [CDE]

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William, Skip, Jeffrey Gallagher and Glen Perram, “Collisional broadening coefficients of singlet ($a^1\Delta_g$) oxygen with helium”, 59th Annual Gaseous Electronics Conference, Columbus, OH, Oct 2006. [CDE]

Gross, Kevin C. and Glen P. Perram, “Developing a Phenomenological Model of Infrared Emissions from Detonation Fireballs for Explosive Identification” 8th Workshop on Infrared Remote Sensing Applications, Mont Sainte-Anne, Quebec, Canada, Oct 2006. [CMSR]

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PETROSKY, JAMES C.

LaGrafte, D., J. Petrosky, and P. Coomber, “Combating Weapons of Mass Destruction Educational Programs at the Air Force Institute of Technology,” NBC Report, Spring 2007.

RUSSELL, TIMOTHY H., Maj,

Terry, N.B., K. Engel, T. G. Alley, T. H. Russell, and W. B. Roh, “Forward and Backward Seeded Continuous-Wave Raman Fiber Amplifiers Based on Multimode Fibers”, Presented at Photonics West, 2007. San Jose, California. [CDE]

Terry, N.B., B. Flusche, K. Engel, T. G. Alley, T. H. Russell, and W. B. Roh, “Beam Cleanup and Beam Combination in Raman Fiber Amplifiers and Lasers based on Multimode Fibers”, Presented at the Directed Energy Symposium, 2006. Los Angeles, California. [CDE]

SMITHTRO, CHRISTOPHER G., Maj,

Smithtro, C., “Energy Deposition in the Upper Atmosphere During Extreme Solar Flares”, invited colloquium, Utah State University, Logan, CO, 20 March 2007.

Smithtro, C. and S. Solomon, “An improved parameterization of thermal electron heating by photoelectrons, with application to an X17 flare”, presented at the Space Weather Workshop, Boulder, CO, 26 April 2007.

Steenburgh, R. and C. Smithtro, “Ionospheric Scintillation Effects on GPS”, presented at the Space Weather Workshop, Boulder, CO, 25 April 2007.

Smithtro, Christopher G., Scientific Advisor to NASA’s Community Coordinated Modeling Center (CCMC) Steering Group, August 2005 – present.

Smithtro, Christopher G., Member of the Extreme-ultraviolet Variability Experiment (EVE) Science Team, 2002 – present.

WEEKS, DAVID E.,

Weeks, D.E. and T.A.Niday, “Feshbach Resonances in the Inelastic Collision $B(^2P_{1/2}) + H_2(j=0) \leftrightarrow B(^2P_{3/2}) + H_2(j')$ ”, APS March Meeting, Denver, CO, March 5-9, 2007.

Weeks, D.E. and T.A.Niday, “Scattering Matrix Elements for the Inelastic Collision $B(^2P_{1/2}) + H_2(j=0) \leftrightarrow B(^2P_{3/2}) + H_2(j')$ ”, Physics Department, Miami University, Oxford OH (2007).

YEO, YUNG KEE,

Moore, E. A., Mee-Yi Ryu, Y. K. Yeo, and R. L. Hengehold, "Electrical Properties of Si-Implanted $\text{Al}_x\text{Ga}_{1-x}\text{N}$ with High Al Mole Fraction," the March 2007 Meeting of the American Physical Society, Denver, Colorado, 5-9 March 2007.

PROFESSIONAL ACTIVITIES

BURGGRAF, LARRY W.,

Subject Matter Expert: Evaluated DTRA Contractor Plans and Performance, June 2007.

HENGHOLD, ROBERT L.,

Chair, Honors and Awards Committee, Ohio Region Section, American Physical Society

MATHEWS, KIRK A.,

Member: Satellite Sensor Review Panel, Air Force Technical Applications Center

Founding Member: NPP Senior Advisory Panel, Air Force Technical Applications Center

President, AFIT Doctoral Council

MARCINIAK, MICHAEL A.,

Department Instructor of the Quarter, Spring 2007 (AFIT Student Association)

PETROSKY, JAMES,

Chairman, QASPR Review Panel, NNSA, Jan-Dec 2007

Member HEMP Review Panel, DTRA, Aug-Dec 2007

RIES, HEIDI R.,

Member of OBOR Research Officers' Council, Technology Transfer Officers' Council.

Chair and primary author of advisory board report for Norfolk State University's NASA CREAM project Advisory Board (April 2007.)

Member, ASEE Engineering Research Council Strategic Plan Work Group.

Member, EMTEC Technical Steering Committee.

Consultant-Evaluator and member of the Accreditation Review Council for the Higher Learning Commission of the North Central Association.

Member, Board of Trustees, Engineering & Science Foundation of Dayton.

Laboratory Program Representative, National Research Council Research Associateship program.

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5.4.1. FUNDED RESEARCH PROJECTS

ABRAMSON, MARK A., LtCol,

“Algorithms for Blackbox Optimizations Using Surrogate Functions.” Sponsor: AFOSR. Funding: \$8,201.

BULUTOGLU, DURSUN A.,

“Algorithmic Tools for Finding Efficient Designs and Test Suites for Test and Evaluation.” Sponsor: AFOSR. Funding: \$45,774.

THORSEN, STEVEN N., Maj,

“Analysis of the Performance of Classification and Information Fusion.” Sponsor: AFOSR. Funding: \$15,004.

5.4.2. REFEREED JOURNAL PUBLICATIONS

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LAIR, ALAN V.

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NOVAK, KYLE A., Maj

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OXLEY, MARK E.

Thorsen, S. N., and Mark E. Oxley, “A Description of Competing Fusion Systems”, *International Journal of Information Fusion* 7 (2006), 347-360.

Clutz, T. C., K. W. Bauer, Jr. and M. E. Oxley, “Fault Detection Subsystem Optimization”, *Journal of Operations and Logistics* 1, Issue 1 (2007), IV.1-IV.11.

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MacDonald A., S. Cain, and M. E. Oxley, "Binary Weighted Averaging of an Ensemble of Coherently Collected Image Frames", *IEEE Transactions on Image Processing* 16, Issue 4 (2007), 1085-1100.

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WHITE, EDWARD D., III

Mangos, P. M., D. Steele-Johnson, D. LaHuis, and E. D. White, "A Multiple-Task Measurement Framework for Assessing Maximum-Typical Performance", *Human Performance* 20, No. 3 (2007), 241-258.

Monaco, J. V. and E. D. White, "Extending Cost Growth Estimation to Predict Schedule Risk", *Journal of Cost Analysis and Management*, Winter (2006), 1-13.

WOOD, AIHUA W.

Huang, J. and A. Wood, "Analysis and Numerical Solution of Transient EM Scattering from Overfilled Cavities", *Communications in Computational Physics* 1, No. 6 (2006), 1045-1055.

Li, J. and A. Wood, "Finite Element Analysis for Wave Propagation in Double Negative Metamaterials," *Journal of Scientific Computing* 82, No. 2 (2007), 263-286.

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BAKER, WILLIAM P.

Shepherd, M. J., R. G. Cobb, A. N. Palazotto, and W. P. Baker, "Scaling Analysis for Large Membrane Optics," *IEEE Aerospace Conference*, Big Sky, MT, Mar 2007. [CSSR]

FICKUS, MATTHEW C.

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OXLEY, MARK E.

Farooq, J., M. A. Temple, M. A. Saville and M. E. Oxley, “Application of Frequency Diverse Arrays to SAR Imaging”, *2007 International Conference on Electromagnetics in Advanced Applications (ICEAA)*, Torino, Italy, Sep 17-21, 2007.

Fickus, M., G. S. Seetharaman and M. E. Oxley, “Multiscale moment transforms over the integer lattice”, *Proceedings of SPIE, Wavelets XII*, Editors: D. Van De Ville, V.K. Goyal and M. Papadakis, vol. 6701, pp. 67011N, 1-8, San Diego, CA , Aug 2007.

Oxley, M. E., S. N. Thorsen and C. M. Schubert, “A Boolean Algebra of Receiver Operating Characteristic Curves”, *10th International Conference on Information Fusion*, paper 1412, Quebec City, Quebec, Canada, July 9-13, 2007.

THORSEN, STEVEN N., Maj

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5.4.4. SUBSTANTIAL CONSULTATIONS

BULUTOGLU, DURSUN A.

Bulutoglu, Dursun A., “Comparison of Factorial Designs”, Air Force Operational Test and Evaluation Center (AFOTEC), Kirtland AFB, NM, Dec 2006.

BUSH, BRETT A., Maj

Bush, Brett A. and Robert E. Neher, Jr., “Analysis of the Compatibility of the T-11 parachute and C-17 Aircraft”, Aeronautical Systems Center, WPAFB, OH, 2007.

DUCKRO, DONALD E., Lt Col

Duckro, Donald E., “Applying LEAN Principles to Minimize Transloading in the USCENTCOM AOR”, 18 AF/CR, Scott AFB, IL, Mar - Jun 2007.

Duckro, Donald E. “Global Positioning System Systems Engineering Case Study”, AF Center for Systems Engineering, WPAFB, OH, Jan – Aug 2007.

NEHER, ROBERT E. JR., Lt Col

Bush, Brett A. and Robert E. Neher, Jr., “Analysis of the Compatibility of the T-11 parachute and C-17 Aircraft”, Aeronautical Systems Center, WPAFB, OH, 2007.

5.4.5. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

ABRAMSON, MARK A., Lt Col

Referee, *Society for Industrial and Applied Mathematics (SIAM) Journal on Optimization*

Referee, *Global Optimization*

- Abramson, M. A., T. J. Asaki, J. E. Dennis, Jr., K. R. O'Reilly and R. L. Pingel, "Quantitative object reconstruction tomography by mixed variable optimization", *INFORMS Midwest Regional Conference*, Northwestern University, Evanston, Illinois, August 24-25, 2007.
- Abramson, M. A., T. J. Asaki, J. E. Dennis, Jr., K. R. O'Reilly and R. L. Pingel, "Quantitative object reconstruction via x-ray tomography, Abel transforms, and mixed variable optimization", *Second International Conference on Continuous Optimization (ICCOPT-II)*, McMaster University, Hamilton, Ontario, Canada, August 13-16, 2007.
- Abramson, M. A., "Special Topics in Optimization", Invited lecturer, *Data Sciences Summer School*, Los Alamos National Laboratory, Los Alamos, New Mexico, July 17-19, 2007.
- Walston, J., J. W. Chrissis, and M. A. Abramson, "Search techniques for multi-objective optimization of mixed-variable systems having stochastic responses", *22nd European Conference on Operational Research*, Prague, Czech Republic, July 8-11, 2007.
- Abramson, M. A., T. J. Asaki, J. E. Dennis, Jr., K. R. O'Reilly and R. L. Pingel, "Quantitative object reconstruction using x-ray tomography and mixed variable optimization", Los Alamos National Laboratory X-Ray Workshop, Boulder, Colorado, May 16-18, 2007.
- Magallanez, R., M. A. Abramson, T. J. Asaki, J. E. Dennis, Jr., and M. Sottile, "Surrogate strategies for computationally expensive optimization problems with CPU time-correlated functions", Los Alamos National Laboratory, Los Alamos, New Mexico, April 5, 2007.
- Abramson, M. A., T. J. Asaki, J. E. Dennis, Jr., K. R. O'Reilly, and R. L. Pingel, "Quantitative object reconstruction using x-ray tomography and mixed variable optimization", *AMS Sectional Meeting*, Miami University, Oxford, Ohio, March 16-17, 2007.
- Abramson, M. A., "Mesh adaptive direct search algorithms for black box constrained optimization", Brigham Young University, February 22, 2007.
- Meza, J. C., A. Garcia-Lekue, M. Abramson, and J. E. Dennis, Jr., "Surface structure determination of nanostructures using a mesh adaptive optimization method", *SIAM Conference on Computational Science and Engineering*, Costa Mesa, California, February 19-23, 2007.
- Abramson, M. A., Arantazu Garcia-Lekue, Raymond Magallanez, Juan C. Meza, and J. E. Dennis, Jr., "NOMADm: A MATLAB software package for surrogate-based black box optimization", *SIAM Conference on Computational Science and Engineering*, Costa Mesa, California, February 19-23, 2007.
- Abramson, M. A., "Mesh adaptive direct search algorithms for black box constrained optimization", Exxon-Mobil Upstream Research Company, Houston, Texas, February 9, 2007.
- Abramson, M. A., "Mesh adaptive direct search algorithms for solving nasty black box constrained optimization problems", Air Force Research Laboratory, Propulsion Directorate, Wright-Patterson AFB, Ohio, November 21, 2006.
- Garcia-Lekue, A., J. C. Meza, M. A. Abramson, J. E. Dennis, Jr., and M. V. Van Hove, "Surface structure determination using simplified physics surrogates", *Second International Workshop on Surrogate Modelling and Space Mapping for Engineering Optimization*, Technical University of Denmark, Lyngby, Denmark, November 9-11, 2006.
- Abramson, M. A., K. R. O'Reilly, T. J. Asaki, R. L. Pingel, and J. E. Dennis, Jr., "Quantitative object reconstruction using x-ray tomography and mixed variable optimization", *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 5-8, 2006.

Abramson, M. A., “Direct search methods and second-order optimality conditions”, *8th Midwest Optimization Conference*, Miami University, Oxford, Ohio, October 13-14, 2006.

BULUTOGLU, DURSUN A.

Referee, *Journal of Statistical Planning and Inference*

Referee, *Applied Mathematical Modelling Journal*

Bulutoglu, D. A., “Orthogonal arrays”, University of Memphis, May 2007.

Bulutoglu, D. A., “Classification of Orthogonal Arrays by Integer Programming”, *South Eastern Atlantic Section (SIAM) 31st Annual Meeting*, University of Memphis, May 2007.

Bulutoglu, D. A., “Classification of Orthogonal Arrays by Integer Programming”, *The 44th Midwestern Graph Theory Conference*, Wright State University, May 2007.

DUCKRO, DONALD E., Lt Col

Judge, National Defense Science and Engineering Graduate (NDSEG) Fellowships, February, 2007

FICKUS, MATTHEW C.

Referee, *Applied and Computational Harmonic Analysis*

Referee, *Advances in Computational Mathematics*

Fickus, M., “Maximally equiangular frames and finite Wigner distributions”, *Annual Meeting of the AMS, Special Session on “Frames and Wavelets in Harmonic Analysis, Geometry, and Applications”*, New Orleans, January 7, 2007.

Fickus, M., “Rotations over integer lattices,” *31st SIAM Southeastern-Atlantic Section Conference*, Special Session on “Wavelets and Frames,” Memphis, May 5, 2007.

Fickus, M., “Rotations and moments over integer lattices,” *the Norbert Wiener Center's Summertime Fourier Talks*, University of Maryland, College Park, June 11, 2007.

Fickus, M., “Multiscale moment transforms over the integer lattice,” *SPIE Optics & Photonics, Wavelets XII*, San Diego, August 29, 2007.

LAIR, ALAN V.

Reviewer, *Mathematical Reviews*

Lair, A. V., X. Wang and A. W. Wood, “Entire Positive Solutions of Elliptic Systems: Understanding the General Structure”, *AMS Fall Central Sectional Meeting*, Special Session on “Boundary Value Problems”, University of Cincinnati, Cincinnati, OH, October 2006

NEHER, ROBERT E. JR., Lt Col

Referee, *IEEE Transactions on Reliability*

NOVAK, KYLE A., Maj

Referee, *Communications in Mathematical Sciences*

OXLEY, MARK E.

Member, SPIE Conference Program Committee for *Intelligent Computing: Theory and Applications VI*, Orlando, FL, April 2007.

Reviewer, *10th International Conference on Information Fusion (FUSION 2007)*, Quebec City, Quebec, Canada

Oxley, M. E., S. N. Thorsen and C. M. Schubert, "ROC Curve Formulas for Fused Correlated Classification Systems", *Proceedings of SPIE, Signal Processing, Sensor Fusion, and Target Recognition XV*, Editor: Ivan Kadar, vol. 6567, paper 29, Orlando FL, April 9-13, 2007.

Oxley, M. E., S. N. Thorsen and C. M. Schubert, "ROC Curve Formulas for Fused Correlated Classification Systems", *Proceedings of SPIE, Signal Processing, Sensor Fusion, and Target Recognition XV*, Editor: Ivan Kadar, vol. 6567, paper 29, Orlando FL, April 9-13, 2007.

THORSEN, STEVEN N., Maj

Oxley, M. E., S. N. Thorsen and C. M. Schubert, "ROC Curve Formulas for Fused Correlated Classification Systems", *Proceedings of SPIE, Signal Processing, Sensor Fusion, and Target Recognition XV*, Editor: Ivan Kadar, vol. 6567, paper 29, Orlando FL, April 9-13, 2007.

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WHITE, EDWARD D., III

Editor, *Journal of Cost Analysis and Management*

Technical Paper Referee, *Journal of Cost Analysis and Management*

WOOD, AIHUA W.

Referee, *Institute for Electronic Technologies, Communications on Pure and Applied Mathematics, Boundary Value Problems*, and *IEEE Transactions on Antennas and Propagation*.

Established the Aihua Mathematics Scholarship at the Ocean University of China, Qingdao, China.

Lair, A. V., X. Wang and A. W. Wood, "Entire Positive Solutions of Elliptic Systems: Understanding the General Structure", *AMS Fall Central Sectional Meeting*, Special Session on "Boundary Value Problems", University of Cincinnati, Cincinnati, OH, October 2006

Wood, A. W., "EM Scattering from BOR using the Locally Corrected Nystrom Method", *Applied Computational Electromagnetics Society (ACES) Annual Conference*, Verona, Italy, March 2007.

Wood, A. W., "Topics in EM scattering analysis", *Applied Mathematics Seminar*, University of Joseph Fourier, Grenoble, France, June 2007.

WRIGHT, SAMUEL A., Maj

Wright, S. A., "The Defense of the Gungans or Using Vector Calculus to Save the Day," *Sinclair Community College Mathematics Department Fall 2006 Colloquium*, Dayton, Ohio, October 13, 2006.

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5.5.1. DOCTORAL DISSERTATIONS

CORDEIRO JR., JAMES D., *Unreliable Retrial Queues in a Random Environment*. AFIT/DS/ENS/07-03. Faculty Advisor: Dr. Jeffrey P. Kharoufeh. Sponsor: AFOSR.

SMETEK, TIMOTHY E., *Hyperspectral Imagery Target Detection Using Improved Anomaly Detection and Signature Matching Methods*. AFIT/DS/ENS/07-07. Faculty Advisor: Dr. Kenneth W. Bauer. Sponsor: SAF.

WALSTON, JENNIFER G., *Search Techniques for Multi-Objective Optimization of Mixed-Variable Systems Having Stochastic Responses*. AFIT/DS/ENS/07-06. Faculty Advisor: Dr. James W. Chrissis. Sponsor: AFRL/VASD & The National Academy of Sciences.

5.5.2. MASTER'S THESES

5.5.2.1. LOGISTICS MANAGEMENT (GLM)

BECKLY, CHRISTOPHER M., *Sizing Mobility Readiness Spares Packages for Today's Warfighting Units*. AFIT/GLM/ENS/07-01. Faculty Advisor: Lt Col Bradley Anderson. Sponsor: AFMC/A8S.

BUCK, JESSICA L., *Class VIIIA Materiel: What Problems were Encountered Transiting OIF Air Transshipment Nodes?* AFIT/GLM/ENS/07-02. Faculty Advisor: Dr. Alan Johnson. Sponsor: DLA/MSD.

BYNUM, ARNOLD R., *An Analysis of Delivering Persistent Real Time Imagery Intelligence to Combatant Commanders*. AFIT/GLM/ENV/07-M1. Faculty Advisor: Maj Sonia Leach. Sponsor: N/A.

COLACICCO, JOSEPH M., *Analysis of Army Transformation and the Effects on Customer Ordering Behavior*. AFIT/GLM/ENS/07-03. Faculty Advisor: Dr. William Cunningham, III. Sponsor: N/A.

COLE III, GEORGE P., *Feasibility Study of Variance Reduction in the Logistics Composite Model*. AFIT/GLM/ENS/07-04. Faculty Advisor: Dr. Alan Johnson. Sponsor: ASC/ENMS.

CROW, SHIRLEY D., *An Evaluation of Organizational and Experience Factors Affecting the Perceived Transfer of U.S. Air Force Basic Combat Skills Training*. AFIT/GLM/ENV/07-M2. Faculty Advisor: Maj Sharon Heilmann. Sponsor: N/A.

ELKINS, JOSEPH S., *Internal Versus External Acquisition for Small Weapons Systems*. AFIT/GLM/ENV/07-M3. Faculty Advisor: Maj Sonia Leach. Sponsor: N/A.

HENNETTE, JAY C., *AFSO 21: A Comparison of Private Sector and Air Force Practices*. AFIT/GLM/ENV/07-09. Faculty Advisor: Dr. David Vaughan. Sponsor: AF/A3.

JACKSON JR., WILLIAM L., *The Viability of the Air Mobility Command Pure Pallet Program for U.S. Army Repairable Retrograde Shipments*. AFIT/GLM/ENS/07-05. Faculty Advisor: Dr. William Cunningham, III. Sponsor: USTRANSCOM J5/J4.

JOHNSON, JOHN P., *Balanced Scorecard: Aggregating Aircraft Mission Capable Rates*. AFIT/GLM/ENS/07-06. Faculty Advisor: Dr. Alan Johnson. Sponsor: AF/A4ID.

MAYNARD, JILL L., *Commercial Firm Training Practices Versus Aerial Port Hazardous Cargo Frustration*. AFIT/GLM/ENS/07-08. Faculty Advisor: Dr. Alan Johnson. Sponsor: AFMC/LSO.

MCDONALD, GAVAIN K., *Work-Home Conflict: A Study of the Impact of Role Conflict on U.S. Air Force Company Grade Officer Turnover Intentions*. AFIT/GLM/ENV/07-M4. Faculty Advisor: Maj Sharon Heilmann. Sponsor: 30 SW/CC.

MICHALSKI, SYDNEY C., *Determining Logistics Ground Support Manpower Requirements for a Reusable Military Launch Vehicle*. AFIT/GLM/ENS/07-09. Faculty Advisor: Dr. Alan Johnson. Sponsor: AFRL/VACD.

MOON, HYOUNG-ILL, *South Korea's Current Position on FMS*. FIT/GLM/ENV/07-M5. Faculty Advisor: Maj Sonia Leach. Sponsor: N/A.

MORRIS JR., GERALD W., *The Chaos of Katrina: A Nonlinear Analysis of Federal Logistics Support During Hurricane Katrina Relief Operations*. AFIT/GLM/ENS/07-10. Faculty Advisor: Lt Col Bradley Anderson. Sponsor: N/A.

SALAVERRY JUAN A., *Predicting Argentine Jet Fuel Prices*. AFIT/GLM/ENC/07M-01. Faculty Advisor: Dr. Edward White, III. Sponsor: N/A.

TOWER, PAUL K., *An Analysis of Robust Workforce Scheduling Models for a Nurse Rostering Problem*. AFIT/GLM/ENS/07-12. Faculty Advisor: Maj Shane Knighton. Sponsor: N/A.

WALKER, S. DAVID., *The Effects of Career Broadening on Leadership Development*. AFIT/GLM/ENV/07-M6. Faculty Advisor: Lt Col Kent Halverson. Sponsor: USAF/A1DD.

WARD, CHARLES W., *Commander and User Perceptions of the Army's ITV Architecture*. AFIT/GLM/ENS/07-13. Faculty Advisor: Dr. William Cunningham, III. Sponsor: N/A.

WOLFF, JASON B., *The Perceived Effectiveness of Mentoring by Company Grade Officers in the United States Air Force*. AFIT/GLM/ENV/07-M7. Faculty Advisor: Maj Sharon Heilmann. Sponsor: N/A.

5.5.2.2. OPERATIONS RESEARCH (GOR)

BELLUCCI, JOSEPH P., *Improved Hyperspectral Image Testing Using Synthetic Imagery and Factorial Designed Experiments*. AFIT/GOR/ENS/07-01. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

CAULK, RYAN F., *Outlier Detection in Hyperspectral Imaging Using Closest Distance to Center with Ellipsoidal Multivariate Trimming*. AFIT/GOR/ENS/07-02. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

CAVALLARO, KRISTEN L., *Analyzing the Interdiction of Sea-Borne Threats Using Simulation Optimization*. AFIT/GOR/ENS/07-03. Faculty Advisor: Dr. Sharif Melouk. Sponsor: N/A.

CHO, NAM-SUK, *Critical Infrastructure Rebuild Prioritization Using Simulation Optimization*. AFIT/GOR/ENS/07-04. Faculty Advisor: Dr. Sharif Melouk. Sponsor: N/A.

CRAWFORD, BRIAN P., *Approximate Analysis of an Unreliable M/M/2 Retrial Queues*. AFIT/GOR/ENS/07-05. Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: SAF.

FENSTERER, GERALD D., *Planning and Assessing Stability Operations: A Proposed Value-Focused Thinking Approach*. AFIT/GOR/ENS/07-06. Faculty Advisor: Maj Gary Kinney. Sponsor: AFRL/IFSE.

GEFFRE, JENNIFER L., *A Layered Social and Operational Network Analysis*. AFIT/GOR/ENS/07-07. Faculty Advisor: Dr. Richard Deckro. Sponsor: NASIC/FCEB & AFRL/HECS.

GENTIL, KATHRINE J., *Developing Advanced Academic Degree Educational Profiles for Career Fields*. AFIT/GOR/ENS/07-08. Faculty Advisor: Maj Shane Knighton. Sponsor: USAF/A1XX.

HARRELL, RYAN M., *A Multivariate Magnitude Robust Control Chart for Mean Shift Detection and Change Point Estimation*. AFIT/GOR/ENS/07-09. Faculty Advisor: Dr. Marcus Perry. Sponsor: N/A.

HARTLAGE, ROBERT B., *An Efficient Metaheuristic for Dynamic Network Design and Message Routing*. AFIT/GOR/ENS/07-10. Faculty Advisor: Maj Gary Kinney. Sponsor: N/A.

HERBRANSON, TRAVIS J., *Isolating Key Players in Clandestine Networks*. AFIT/GOR/ENS/07-11. Faculty Advisor: Dr. Richard Deckro. Sponsor: N/A.

JORDAN, JEREMY D., *Updating Optimal Decisions Using Game Theory and Exploring Risk Behavior Through Response Surface Methodology*. AFIT/GOR/ENS/07-13. Faculty Advisors: Dr. Marcus Perry & Dr. Sharif Melouk. Sponsor: Department of Army

KALLEMYN, BENJAMIN S., *Prioritizing Satellite Payload Selection via Optimization*. AFIT/GOR/ENS/07-14. Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: SAF.

KERNS, DAVID A., *Automatic Target Recognition User Interface Tool*. AFIT/GOR/ENS/07-15. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

KOO, ROBERT., *Feature Extraction Using Principal and Independent Component Analysis for Hyperspectral Imagery*. AFIT/GOR/ENS/07-16. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

MAGALLANEZ JR., RAYMOND, *Surrogate Strategies for Computationally Expensive Optimization Problems with CPU-Time Correlated Functions*. AFIT/GOR/ENC/07-01. Faculty Advisor: Lt Col Mark Abramson. Sponsor: Los Alamos National Lab.

NEWLON, THOMAS M., *Mathematical Programming Model for Fighter Training Squadron Pilot Scheduling*. AFIT/GOR/ENS/07-17. Faculty Advisor: Dr. James Moore. Sponsor: AFOSR/NM.

NORSKY, PETER C., *A Technology Investment Value Model For The Air Force Research Laboratory Focused Long Term Challenges*. AFIT/GOR/ENS/07-18. Faculty Advisor: Dr. Richard Deckro. Sponsor: N/A.

NYSETH, NATHAN E., *Classifying Failing States*. AFIT/GOR/ENS/07-19. Faculty Advisor: Dr. Richard Deckro. Sponsor: USSTRATCOM /GISC.

PARK, SEUNG-BAE, *A Multi-Objective Decision-Making Model for Resources Allocation in Humanitarian Relief*. AFIT/GOR/ENS/07-20. Faculty Advisor: Maj Gary Kinney. Sponsor: N/A.

PATRASCU, ADRIAN C., *Optimizing Distributed Sensor Placement for Border Patrol Interdiction Using Microsoft Excel*. AFIT/GOR/ENS/07-21. Faculty Advisor: Dr. James Moore. Sponsor: N/A.

REYES, KEVIN B., *HSI: Outlier Detection Methods in Hyperspectral Imagery*. AFIT/GOR/ENS/0722-. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

ROBINSON II., PAUL D., *Patterns of War Termination: A Statistical Approach*. AFIT/GOR/ENS/07-23. Faculty Advisor: Dr. Richard Deckro. Sponsor: USSTRATCOM /GISC.

SEDER, JOSHUA S., *Examining Clandestine Social Networks for the Presence of Non-Random Structure*. AFIT/GOR/ENS/07-24. Faculty Advisor: Dr. Marcus Perry. Sponsor: AFRL/HECS & NASIC/FCEB.

TAITANO, YURI P., *Hyperspectral Imagery Target Detection Using the Iterative RX Detector*. AFIT/GOR/ENS/07-25. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

WILKEN, BRIAN A., *Change-Point Methods for Overdispersed Count Data*. AFIT/GOR/ENS/07-26. Faculty Advisor: Dr. Marcus Perry. Sponsor: N/A.

WILLIAMS, JASON P., *Robustness of Multiple Clustering Algorithms on Hyperspectral Images*. AFIT/GOR/ENS/07-27. Faculty Advisor: Dr. Kenneth Bauer. Sponsor: N/A.

5.5.2.3. RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)

HEUCK JR., WILLIAM D., *A Future-Based Risk Assessment for the Survivability of Long Range Strike Systems*. AFIT/GRD/ENS/07-01. Faculty Advisor: Maj Gary Kinney. Sponsor: AFRL/AOT.

5.5.2.4. ENGINEERING MANAGEMENT (GEM)

AFTANAS, JASON M., *Optimizing the Prioritization of Natural Disaster Recovery Projects*. AFIT/GEM/ENS/07-01. Faculty Advisor: Maj Shane Knighton. Sponsor: ACC/A7-2.

MCCOURT, MICHAEL J., *A Decision Model for Selecting Energy Efficient Technologies for Low-Sloping Roof Tops Using Value-Focused Thinking*. AFIT/GEM/ENS/07-03. Faculty Advisor: Lt Col Jeffery Weir. Sponsor: AFCESA/CESC.

SPEER, BENJAMIN G., *A Value-Focused Thinking Model for the Selection of the Best Rigid Pavement, Partial-Depth Spall Repair Material*. AFIT/GEM/ENS/07-04. Faculty Advisor: Maj Shane Knighton. Sponsor: HQ/AFCESA.

DALBY, TIMOTHY D., *Quantification of Risk for USAF Fire and Emergency Services Flights as a Result of Shortages in Manpower*. AFIT/GEM/ENS/07-02. Faculty Advisor: Maj Shane Knighton. Sponsor: AFCESA/CEXF.

5.5.2.5. INFORMATION RESOURCE MANAGEMENT (GIR)

BLOOD, DEBORA L., *Predicting the Benefits, Barriers, and Bridges for USAF Expeditionary Combat Support System Implementation*. AFIT/GIR/ENS/07-01. Faculty Advisor: Maj Barry Brewer. Sponsor: AF/A4IT.

5.5.3. GRADUATE RESEARCH PAPERS

5.5.3.1. GRADUATE LOGISTICS MANAGEMENT (ILM)

BENNETT JR. EARL R., CARL D. HUTCHERSON and ANTHONY L. PUENTE. *Change Management Barriers and Successful Strategies for ERP Implementation in Highly Regulated Industries: A Meta-Synthesis and Field Case Study*. AFIT/ILM/ENS/07-01. Faculty Advisor: Maj Barry Brewer. Sponsor: AF/A4IT.

CORAL, CEIR and DWAIN A. SLAUGHTER. *F-16 Aircraft Common Configuration Implementation Program (CCIP): A Modernization Program Effects Case Study*. AFIT/ILM/ENS/07-02. Faculty Advisor: Maj Barry Brewer. Sponsor: 312 AESG/DC.

GORDON, CAROL and JEFFREY R. KRUSINSKI. *Assessing Personnel Transformation Implementation to Established Change Management Standards*. AFIT/ILM/ENS/07-03. Faculty Advisor: Dr. William Cunningham, III. Sponsor: HQ USAF/A1X.

HAYDEN, JEFFREY D., and SCOTT A. VAUGHAN. *United States Air Force Fuels Program: An Analysis of Automatic Data Collection Initial Investments*. AFIT/ILM/ENS/07-04. Faculty Advisor: Maj Barry Brewer. Sponsor: N/A.

HUTCHERSON, CARL D. See BENNETT JR. EARL R.

KRUSINSKI, JEFFREY R. See GORDON, CAROL.

PUENTE, ANTHONY L. See BENNETT JR. EARL R.

SLAUGHTER, DWAIN A. See CORAL, CEIR.

VAUGHAN, SCOTT A. See HAYDEN, JEFFREY D

5.5.3.2. GRADUATE OPERATIONS ANALYSIS (IOA)

OLIVER, BRADLEY R., *Optimizing the Undergraduate Pilot Training Scheduling Process*. AFIT/IOA/ENS/07-01. Faculty Advisor: Maj August Roesener. Sponsor: AETC & AFPC.

PHILLIPS, IAN D., *Tactical Relay Mirror System Integration in Base Defense*. AFIT/IOA/ENS/07-02. Faculty Advisor: Dr. John Miller. Sponsor: IDA, OSD/OFT, HQ AF/A8X & AFSFC/FPB.

WYLIE, ALEXANDER M., *Optimization of Rated Officer Staff Assignments*. AFIT/IOA/ENS/07-03. Faculty Advisor: Maj Shane Hall. Sponsor: AFPC/DPAOS.

5.5.3.3. GRADUATE MOBILITY OPERATIONS (IMO)

BUSCHUR, WILLIAM C., *An Analysis of the C-17 Two Expeditionary Airlift Squadron System*. AFIT/IMO/ENS/07-01. Faculty Advisor: Dr. James Moore. Sponsor: 437 OG/CD

DIETRICH III, GEORGE T.M., *The Future of Cargo Airdrop Rigging: A Logistical Support Analysis*. AFIT/IMO/ENS/07-02. Faculty Advisor: Dr. James Moore. Sponsor: AFEC MOS/MORA.

GITTNER, AARON W., *Intra-Theater Airlift Efficiency*. AFIT/IMO/ENS/07-03. Faculty Advisor: Dr. James Moore. Sponsor: 18 AF/CC.

HESELTINE JR., BRUCE P., *KC-135R Fuel Savings*. AFIT/IMO/ENS/07-04. Faculty Advisor: Dr. Alan Heminger Sponsor: AMC/DA3

HILEMAN, BRANDON R., *Joint Task Force-Port Opening: Matching Capabilities to Requirements*. AFIT/IMO/ENS/07E-05. Faculty Advisor: Dr. William Cunningham, III. Sponsor: USTRANSCOM/J5J4

HUISS, RANDALL S., *The Impact of Closing the C-17 Production Line on the C-17 Supplier Base*. AFIT/IMO/ENS/07-06. Faculty Advisor: Dr. Alan Johnson. Sponsor: N/A.

JULIAN, JON T., *Distinguished Visitor Airlift Defensive Systems: Applying LEAN Principles to Minimize Transloading in the USCENTCOM AOR*. AFIT/IMO/ENS/07-07. Faculty Advisor: Lt Col Donald Duckro. Sponsor: AMC A3/MA.

KNACK, JOHN T., *Determination of Fabrication Repair Capability to Enable Aircraft Maintenance Regionalization*. AFIT/IMO/ENS/07-08. Faculty Advisor: Lt Col Bradley Anderson. Sponsor: AMC/A4

LAMBERT, CHRISTOPHER L., *Transforming Mobility Airlift Forces: Analysis of Air Mobility Platform Requirements for United States Air Forces in Europe*. AFIT/IMO/ENS/07-09. Faculty Advisor: Dr. James Moore. Sponsor: USAFE/A5/8/9.

MARTIN, TIM D., *AFSO 21 and the JA/ATT System*. AFIT/IMO/ENS/07-10. Faculty Advisor: Dr. Alan Heminger. Sponsor: AMC/DA3.

MCCRAY, GERALD R., *Implementation of Centralized Maintenance Management for Air Mobility Command Aircraft*. AFIT/IMO/ENS/07-11. Faculty Advisor: Dr. Alan Heminger. Sponsor: AMC/DA3.

PETERSON, EDWARD H., *Cargo Command and Control: Refining Mode Selection and Cross-Docking in the Military Air Cargo Distribution System*. AFIT/IMO/ENS/07-12. Faculty Advisor: Dr. William Cunningham, III. Sponsor: HQ AMC/A4.

SCHLICHENMEYER, PATRICK L., *Air Force Manpower Reduction Analysis*. AFIT/IMO/ENS/07-13. Faculty Advisor: Dr. Michael Hicks. Sponsor: AMC/A9

SCHMIDT, LANCE E., *Rethinking MC-130H Pilot Training: Applying AFSO21 to Formal School Training*. AFIT/IMO/ENS/07-14. Faculty Advisor: Dr. Alan Heminger. Sponsor: 19 AF/CV

SINDEL, COLIN J., *Leveraging Expeditionary Combat Support Operations: A Critical Look at Standardizing the Base Opening Concept*. AFIT/IMO/ENS/07-15. Faculty Advisor: Dr. William Cunningham, III. Sponsor: 21 EMTF/CC.

WILSON, CHRISTOPHER W., *KC-X Airlift Role; What Should It Be?* AFIT/IMO/ENS/07-16. Faculty Advisor: Dr. James Moore. Sponsor: 18th AF/CC.

5.5.4. FUNDED RESEARCH PROJECTS

Note: Research Center affiliations are listed in [] if applicable.

BAUER, KENNETH W. Jr.,

“Sensor Fusion for Automatic Target Recognition.” Sponsor: AFOSR. Funding: \$51,390. [COA]

“Sensor Fusion for Automatic Target Recognition.” Sponsor: ACC. Funding: \$32,000. [COA]

DECKRO, RICHARD F.,

“AFIT/ENS and AFRL/HE Human Effectiveness Directorate MOA.” Sponsor: AFRL/HE. Funding: \$25,000. [COA]

“Commander’s Predictive Environment Program: Contributors to Instability.” Sponsor: AFRL/IF. Funding: \$15,000.

“Operations Research Methodologies in Support of NSA.” Sponsor: NSA. Funding: \$20,000.

“Social Network Analysis Tool and Behavior Modeling.” Sponsor: AFRL/HE. Funding: \$30,000.

JOHNSON, ALAN W.,

“Reusable Space Vehicle Ground Operations.” Sponsor: AFRL/VA. Funding: \$35,000. [COA]

KINNEY, GARY W. Jr., Maj,

“Effects-Based Operations Research.” Sponsor: AFRL/IF. Funding: \$15,420.

KNIGHTON, SHANE A., Maj,

“Effects-Based Operations Research.” Sponsor: AFRL/IF. Funding: \$15,000.

MELOUK, SHARIF H.,

“AFIT Modeling and Simulation Support for Air Vehicles Directorate.” Sponsor: AFRL/VA. Funding: \$30,015. [COA]

MILLER, JOHN O.,

“Air Force Standard Analysis Toolkit (AFSAT) Support.” Sponsor: SAF. Funding: \$65,000. [COA]

MOORE, JAMES T.,

“Application of Metaheuristics to Air Force Problems.” Sponsor: AFOSR. Funding: \$50,000. [COA]

PERRY, MARCUS B.,

“Sensor Location Study and Data Analysis Plan.” Sponsor: AFRL/PR. Funding: \$5,000.

5.5.5. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliations are listed in [] if applicable.

BAUER, KENNETH W. Jr.,

Bednar, E.M., Bauer, K.W., and J.O. Miller, "Use of Control Variates in a Large-Scale Aggregated Combat Model", *Journal of Defense Modeling and Simulation*, Vol 4, Number 1, Jan 2007, pages 29 - 41. [COA]

Clutz, T. C., Bauer, K. W., and M. E. Oxley, "Fault Detection Subsystem Optimization", *Journal of Operations and Logistics*, Issue 1, Volume 1, 2006. [COA]

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COCHRAN, JEFFERY K.,

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COOPER, MARTHA C.,

Henrique Correa, Lisa Ellram, Annibal Scavarda, and Martha Cooper, "An Operations Management View of the Services and Goods Product Mix," *International Journal of Operations and Production Management*, Vol. 21, Iss. 5, 2007.

Griffis, Stanley E., Thomas J. Goldsby, Martha C. Cooper, and David J. Closs (2007), "Aligning Logistics Performance Measures to the Information Needs of the Firm," *Journal of Business Logistics*, Vol. 28, No. 2, pp 35-56.

DECKRO, RICHARD F.,

Edwin J. Offutt, Jeffrey P. Kharoufeh, and Richard F. Deckro, "Distorted Risk Measures with Application to Military Capability Shortfalls," *Military Operations Research*, Vol. 11, No. 4, (2006), pp. 25 - 39.

Richard K. Bullock and Richard F. Deckro, "Foundations for System Measurement", *Measurement*, Vol. 39, No. 8, (2006), pp. 701-709.

J. Todd Hamill, Richard F. Deckro, Victor D. Wiley, and Robert S. Renfro, II, "Gains, Losses, and Thresholds of Influence in Social Networks", *International Journal of Operational Research*, Vol. 2, No. 4, (2007), pp. 357 - 379.

Bullock, R. K., R. F. Deckro, and J. D. Weir, "Methodology for Competitive Strategy Development", *Computers & Operations Research*, available online 13 November 2006.

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Ford, C., J. Howe, A. Johnson, and J. Bell, 2006, "Automatic Test Systems: Unique versus Common Management", *Defense Acquisition Review Journal* Dec 06-Mar 07: 170-185. [COA]

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MATTIODA, DANIEL D., Maj

Mattioda, Daniel D., Chen, Haozhe, and Patricia J. Daugherty (2007), "Firm-Wide Integration and Firm Performance," *International Journal of Logistics Management*, Vol. 18, No. 1, pp. 5-21.

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Long, Scott N., Miller, J.O., Brigantic, R.T., and Goda, M.E. "Using Defocus to Improve Peak Irradiance for Air-to-Ground High-Energy Chemical-Oxygen Iodine Laser (COIL) Weapons," *Journal of Directed Energy*, Vol 2, pp. 189-209, Spring 2007. [COA and CDE]

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Petersen, K. J., Ogden, J. A., and Carter, P. L. (2007) "B2B E-marketplaces: An Empirical Investigation of Functionality" *International Journal of Physical Distribution and Logistics Management*, Vol. 37, No. 1, 4-18.

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5.5.6. REFEREED PRESENTATIONS

Note: Research Center affiliations are listed in [] if applicable.

BAUER, KENNETH W. Jr.,

Smetek, T.E., K.W. Bauer, "Finding Hyperspectral Anomalies Using Multivariate Outlier Detection," *Proceedings of the 2007 IEEE Aerospace Conference*, March 2007. [COA]

Friend, M. A. and K.W. Bauer, "ROC Trajectory Measures for Classifier Accuracy and Robustness," *Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2006)*, Editors: C. Dagli, D. Enke, A. Buczak, M. Embrechts, O. Ersoy, , St. Louis, MO, 5-8 November 2006. [COA]

BREWER, BARRY L., Maj

Brewer, B. "Examining the Drivers of Procurement Outsourcing." 18th Annual North American Research & Teaching Symposium on Purchasing and Supply Chain Management, March 29-31, 2007, Tempe, AZ.

Brewer, B. and Carter, P. "Taxonomy of Procurement Outsourcing." 37th Annual Meeting of the Decision Sciences Institute, November 21-23, 2006, San Antonio, TX.

CHRISSIS, JAMES W.,

Jennifer Walston, James W. Chrissis, and Mark A. Abramson, "Search Techniques for Multi-Objective Optimization of Mixed-Variable Systems Having Stochastic Responses", 22nd European Conference on Operational Research, Prague, Czech Republic, July 8-11, 2007.

Maj J. Todd Hamill, Richard F. Deckro, James W. Chrissis and Robert F. Mills, "An Interpersonal Influence Representation in Social Network Flow Modeling", *INFORMS Pittsburgh*, November 2006.

COCHRAN, JEFFERY K.,

Burdick, T.L., Cochran, J.K., Kiesel, S., and Modena, C., "Banner Health / Arizona State University Partnership in Redesigning Emergency Department Care Delivery Focusing on Patient Safety", 19th Annual IIE Society for Health Systems Conference, 8 pages on CD-ROM, New Orleans, LA (Feb 07).

Broyles, J.R. and Cochran, J.K., “Estimating Business Loss to a Hospital Emergency Department from Patient Reneging by Queuing-Based Regression”, IIE Industrial Engineering Research Conference, 6 pages on CD-ROM, Memphis, TN (May 07).

Roche, K.T. and Cochran, J.K., “Improving Patient Safety by Maximizing Fast-Track Benefits in the ED – A Queuing Network Approach”, IIE Industrial Engineering Research Conference, 6 pages on CD-ROM, Memphis, TN (May 07).

COOPER. MARTHA C.,

Francois Charvet, Martha Cooper, and John Gardner. “Empirical Study of the Relationship Between Production and Operations Management and Supply Chain Management Literatures”, 2007 POMS Conference, May 4 -7, 2007, Dallas, Texas.

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CUNNINGHAM, WILLIAM A. III,

William Jackson, William Cunningham, and Alan Johnson, “Pure Pallet Program Viability for Military Retrograde Shipments,” 18th Annual Production and Operations Management Society Annual Meeting, Dallas, TX, June 2007.

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DECKRO, RICHARD F.,

James A. Leinart, Richard F. Deckro, Marcus B. Perry, “Unrevealed Elements of Network Systems”, INFORMS Midwest Regional Conference, Northwestern University, Evanston, IL, 24-25 August 2007.

Maj. Michael J Artelli , Dr Richard F Deckro, Dr Marcus B Perry and Col. Daniel J Zalewski, “Public Resolve: The Casualty of the “Long War”, Presented in WG 8 and WG 32, 75th Military Operations Research Society Symposium, June 2007.

Capt. Jennifer L Geffre, Dr Richard F Deckro and Maj. Shane Knighton, USAF, “Risk Analysis: Critical Components in Terrorist Attacks”, Presented in WG 8, 75th Military Operations Research Society Symposium, June 2007.

Capt. Gerald Fensterer, Maj Gary Kinney, and Dr. Richard F. Deckro, “Planning and Assessing Stability Operations: A Value Focused Thinking Approach”, Presented in WG 3, WG 24 and WG28 75th Military Operations Research Society Symposium, June 2007.

Richard F. Deckro, Marcus B. Perry, Capt Jennifer L. Geffre, Capt Travis J. Herbranson and Capt Joshua S. Seder, “Social Network Analysis Research at AFIT”, Adversary Behavioral Modeling: Available Tools and Applications for the Warfighter Conference, Air War College, Maxwell AFB, March 2007.

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DONOVAN, PAMELA, Lt Col

Lt Col Pamela Donovan and Dr. Philip Evers, "A Joint Replenishment Inventory Model with Transportation Costs: A Study in the Retail Grocery Industry", Production and Operations Management Society Annual Conference, Dallas Texas, 4 May 2007.

HALL, SHANE N., Maj

Hall, S.N., Roesener, A.G., 2007, "A Survey of Heuristic Methods," 75th Military Operations Research Society Symposium, United States Naval Academy, Annapolis, MD, June 11-14, 2007.

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Kharoufeh, J.P. (2007), Analysis and optimal control of unreliable retrial queueing systems. Air Force Office of Scientific Research, Optimization and Discrete Mathematics Program Review, Arlington, VA, May 7-9, 2007.

Kharoufeh, J.P. (2006), Maximizing the availability of a periodically inspected system with hidden failures. Invited Seminar. Cincinnati-Dayton Chapter of INFORMS Business Meeting, Wright State University, November 16, 2006.

Kharoufeh, J.P. (2006), Degradation-based prognostics via phase-type approximations. Invited session, INFORMS Annual Meeting, Pittsburgh, PA, November 5-8, 2006.

Flory, J.A. and J.P. Kharoufeh (2006), Satellite payloads for inclusion on a satellite bus. Air Force Operations Research Symposium, Albuquerque, NM, October 17-20, 2006.

KINNEY, GARY W. Jr., Maj

Capt. Gerald Fensterer, Maj Gary Kinney, and Dr. Richard F. Deckro, "Planning and Assessing Stability Operations: A Value Focused Thinking Approach", Presented in WG 3, WG 24 and WG28 75th Military Operations Research Society Symposium, June 2007.

KNIGHTON, SHANE A., Maj

Gentil, Kathy and Shane A. Knighton, "Developing Advanced Academic Degree Educational Profiles for Career Fields", INFORMS International, Puerto Rico, July 2007. [COA]

Knighton, Shane. "Network Flow Model for Optimizong Fighter Squadron Selection", Royal Military Academy, Kingston, Ontario, June 07. [COA]

Capt. Jennifer L Geffre, Dr Richard F Deckro and Maj. Shane Knighton, USAF, "Risk Analysis: Critical Components in Terrorist Attacks", Presented in WG 8, 75th Military Operations Research Society Symposium, June 2007. [COA]

Gentil, Kathy and Shane A. Knighton, "Developing Advanced Academic Degree Educational Profiles for Career Fields", Decision Analysis Affinity Group, Stanford, CA, March 07. [COA]

MATTIODA, DANIEL D., Maj

Barman, Samir, Daniel D. Mattioda, and Warren F. Fisher (2006), "Effects of Controlled Release of Jobs in a Hybrid of Job and Flow Shops," Decision Science Institute Annual Conference, San Antonio, TX .

MELOUK, SHARIF H.,

Melouk, S. and P. Damodaran. (2007), "Analysis of the Passenger Security Screening Process using Simulation Optimization". Proceedings of the Sixteenth Industrial Engineering Research Conference, Nashville, TN, May 19-23. [COA]

Melouk, S. and K. Cavallaro (2007), "Analyzing the Interdiction of Sea-Borne Threats Using Simulation Optimization". Proceedings of the Sixteenth Industrial Engineering Research Conference, Nashville, TN, May 19-23. [COA]

Melouk, S., M. Perry, and M. Carras. (2006). BDA Enhancement Methodology using Situational Parameter Adjustments. INFORMS Conference, Pittsburgh, PA. November 5-8. [COA]

MILLER, J. O.,

Honabarger, Jason B. and Miller, J.O. "Modeling and Measuring Network Centric Warfare (NCW) With the System Effectiveness Analysis Simulation (SEAS)," 11th International Command and Control Research Technology Symposium, Cambridge, UK, 26-28 Sep 2006. [COA]

MOORE, JAMES T.,

Burks, Robert E. and James T. Moore, "Solving the Theater Distribution Problem with Tabu Search, Military Operations Research Society Symposium, Annapolis, MD, 12-14 Jun 2007. [COA]

Moore, James T., "Application of Metaheuristics to Air Force Problems", AFOSR Optimization and Discrete Mathematics Program Review, Arlington, VA 7-9 May 2007. [COA]

Burks, Robert E. and James T. Moore, "An Adaptive Tabu Search Heuristic for the LPDLTW with a Theater Distribution Application", Institute for Operations Research and the Management Sciences (INFORMS) Conference, Pittsburgh, PA, 5-8 Nov 2006. [COA]

Burks, Robert E. and James T. Moore, "An Adaptive Tabu Search Heuristic for the Theater Distribution Problem", Air Force Operations Research Society Symposium, Albuquerque, NM, 18-20 Oct 2006. [COA]

OGDEN, JEFFREY A.,

Ogden, J. A., Lowry, P. B., Petersen, K. J. and Carter, P. L. (2007) "E-marketplace Survival: An Empirical Investigation from a Supply Management Viewpoint" published as a full paper and presented at the 18th Annual North American Research/Teaching Symposium on Purchasing and Supply Chain Management, Tempe, Arizona, March 2007.

PERRY, MARCUS B.,

James A. Leinart, Richard F. Deckro, Marcus B. Perry, "Unrevealed Elements of Network Systems", INFORMS Midwest Regional Conference, Northwestern University, Evanston, IL, 24-25 August 2007.

Maj. Michael J Artelli , Dr Richard F Deckro, Dr Marcus B Perry and Col. Daniel J Zalewski, "Public Resolve: The Casualty of the "Long War", Presented in WG 8 and WG 32, 75th Military Operations Research Society Symposium, June 2007.

Perry, M. B. (2007), "Identifying the Time of Step Change in the Mean of a MA(1) Process," Proceedings of the 2007 Industrial Engineering Research Conference, Nashville, TN, 19-23 May.

Richard F. Deckro, Marcus B. Perry, Capt Jennifer L. Geffre, Capt Travis J. Herbranson and Capt Joshua S. Seder, "Social Network Analysis Research at AFIT", Adversary Behavioral Modeling: Available Tools and Applications for the Warfighter Conference, Air War College, Maxwell AFB, March 2007.

Perry, M. B. (2007), "Identifying the Time of Step Change in the Mean of MA(q) Processes," Invited Talk. Industrial Engineering Research Conference, 2007.

Perry, M. B. (2006). "A Change Point Model for the Exponential Family". INFORMS Annual Meeting, Pittsburgh, PA, November 5-8.

Melouk, S. H. and Perry, M. B. (2006). "BDA Enhancement Methodology Using Situational Parameter Adjustments". INFORMS Annual Meeting, Pittsburgh, PA, November 5-8.

ROESENER, AUGUST G., Maj

Hall, S. N., and Roesener, A.G., "A Survey of Heuristics," 75th Military Operations Research Society Symposium, United States Naval Academy, Annapolis, MD, June 11-14, 2007.

ZALEWSKI, DANIEL J., Col,

Maj. Michael J Artelli , Dr Richard F Deckro, Dr Marcus B Perry and Col. Daniel J Zalewski, "Public Resolve: The Casualty of the "Long War", Presented in WG 8 and WG 32, 75th Military Operations Research Society Symposium, June 2007. [COA]

5.5.7. SUBSTANTIAL CONSULTATIONS

Note: Research Center affiliations are listed in [] if applicable.

ANDERSON, BRADLEY E., Lt Col

Advisor to Army Joint Logistics Education & Development Forum, May 2007. [COA]

CUNNINGHAM, WILLIAM A. III,

Conducted study for AFLMA on transportation data needs for new Air Force ERP system (ECSS).

DECKRO, RICHARD F.,

Information Operations Joint Munitions Effectiveness Manual (PSYOP) Functional Area Meeting, John Hopkins University Applied Physics Lab, 26-27 September, 2007.

Behavioral Influences Analysis Center (BIAC) Conference, Montgomery, AL, 18 -19 September, 2007.

Attended Human Factors Integrated Process Team Quarterly Meeting, BAE Systems Herndon VA, 2-3 September 2007.

Dick Deckro, "Operational Military Operations Research", AFIT- Canadian Forces Bi-Lateral Operations Research Meeting, 19-22 June, 2007, The Royal Military College of Canada/Land Capability Development, Kingston Ont.

Invited participant in Psychological Operations (PSYOP) Community of Knowledge and Practice (CKAP) Conference on Joint PSYOP Education and Training requirements and opportunities in support of the development of CJCS' Joint PSYOP Transformation Plan at Naval Information Operations Center Norfolk, VA, 3- 5 April, 2007.

Invited participant in first Information Operations Threat Analysis Working Group (IO TAWG), hosted by the 57 ATG and the 57 Information Aggressor Squadron (57 IAS) at Nellis AFB, NV, 27-29 March, 2007.

Deckro, R. F., Perry, M. B., Herbranson, T. and Geffre, J. (2007). "Social Network Analysis Research at AFIT". Adversarial Behavioral Modeling Conference, U.S. Air Force, Maxwell AFB, AL, March 08-09.

Participant MORS Workshop, Warrior Analysts: How Can We Be Better Combat Multipliers?, 30 January - 1 February 2007, Booz Allen Hamilton, McLean, Virginia.

Dick Deckro, "Combining Operations Research and Behavioral Analysis", Behavioral Influences Analysis Mini-Elective, Air War College, October 2006.

Attended Human Factors Integrated Process Team Quarterly Meeting, U. S. Central Command, MacDill AFB, 2-3 August 2006. Member, HF-IPT Technology Committee.

JOHNSON, ALAN W.,

1FW, 1AMXS, Langley AFB VA, 30 May – 1 June 2007, F-22 Sortie generation modeling. [COA]

Johnson, A.W., Royal Military College, Kingston Ontario, 19 June 2007, "AFIT Logistics-Focused Analysis." [COA]

KNIGHTON, SHANE A., Maj

"Course of Action Selection and Assessment", AFRL Rome Laboratory, March & September 2007. [COA]

MILLER, J. O.,

AF/A9: ongoing discussions on modeling and simulation and analyst career development. [COA]

AFRL/VA: ongoing discussions on Combat Modeling with SEAS and FLAMES. [COA]

C17 SPO: ongoing discussions concerning Strategic Brigade Airdrop. [COA]

Miller, J.O. "Selected COA Research," Canadian Royal Military College and Canadian Forces Land OR Group Visit, Kingston, ON Canada, 19 Jun 2007. [COA]

PERRY, MARCUS B.,

Perry, M. B. (2007), "A Change Point Model for the Location Parameter of Exponential Family Densities". Research Seminar, Department of Industrial and Systems Engineering, Florida International University, Miami, FL.

5.5.8. BOOKS AND CHAPTERS IN BOOKS

Note: Research Center affiliations are listed in [] if applicable.

JOHNSON, ALAN W.,

Johnson, A., Brigantic, R., and Mahan, J., 2007, "Strategic Mobility and Deployment", Methods for Conducting Military Operational Analysis: Best Practices in Use Throughout the Department of Defense, L. Rainey and A. Loerch, Editors, Military Operations Research Society, Publishers, pp 281-315. [COA]

5.5.9. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

Note: This section includes Refereed Presentations based on Abstract Review and Invited Presentations.

Note: Research Center affiliations are listed in [] if applicable.

ANDERSON, BRADLEY E., Lt Col [COA]

Reviewer: Decision Sciences Institute (DSI) Journal & Journal of Applied Mathematics and Decision Sciences (JAMDS).

BAUER, KENNETH W. Jr., [COA]

QWEST member: Dr. Steve Rogers, Chief Scientist for Sensor Fusion and ATR at AFRL/SN has formed a QWEST advisory board to develop a new way to approach pattern recognition problems. The members are Dr. Rogers, Dr Matt Kabrisky (AFIT EE emeritus professor), Dr. Oxley (Mathematic Dept.), and Dr. Bauer (Operational Sciences Dept.)

CHRISSIS, JAMES W.,

Reviewer: Papers for the MDO sessions at the January 2007 AIAA Aerospace Sciences Meeting in Reno, NV; April 2007 AIAA SDM Conference/MDO Specialist Conference in Hawaii; and Military Operations Research.

Session Chair: January 2007 AIAA Aerospace Sciences Meeting in Reno, NV.

Member: MDO/TC Education Subcommittee

COCHRAN, JEFFERY K.,

Editorial Board, Computers in Industry, Journal of Design and Manufacturing Automation, International Journal of Simulation and Process Modeling, International Journal of Industrial and Systems Engineering.

Program Committee, IASTED International Conference on Modeling and Simulation.

Director, Health and Human Systems Laboratory, Ira A. Fulton School of Engineering.

Faculty Advisor and Co-Founder, ASU INFORMS Student Chapter and Omega Rho, Operations Research Honor Society Student Chapter, ASU.

Faculty Associate, Arizona Center of Integrative Modeling and Simulation.

COOPER, MARTHA C.,

"Logistics Ph.D. Hiring Survey," Martha C. Cooper and John Santosa, distributed at the Logistics Educators Conference, and at the doctoral consortium; 2006 survey distributed at San Antonio meeting and provided on Ohio State Fisher College web site: <http://www.fisher.osu.edu/logistics/survey/academic/survey.pdf>

"The Intellectual Structure of Supply Chain Management: A Bibliometric Approach," Martha Cooper, Francois Charvet, and John Gardner, Helsinki School of Economics, December 19, 2006, presentation.

"SCM As An Innovation In Business Management: Yes or No and Where Is It Going?" Martha C. Cooper, Francois F. Charvet, and John T. Gardner, SIMPOI-POMS Brazil, Rio de Janeiro, August 8-10, 2007, one of three keynote speakers. Presentation posted on SIMPOI web site.

"Future Trends Affecting SCM," part of educator panel at Procter and Gamble Supply Chain Leadership Summit, March 6, 2007, presentation.

"Future Trends of SCM and Logistics Research," Martha Cooper, Anthony Roath, Judith Whipple, 3rd Annual Supply Chain Doctoral Symposium, University of Maryland, College Park, MD, March 10, 2007.

"Women in Logistics 2006," Martha Cooper, Linda Coley, and Susan Dexter, Council of Supply Chain Management Professionals Annual Meeting, San Antonio, October 15-18, 2006, presentation.

"2006 Career Patterns of Women in Logistics," Martha C. Cooper, John Santosa, and Angela Lewis, Council of Supply Chain Management Professionals Annual Conference. Results posted on CSCMP web site: <http://www.cscmp.org/Downloads/Career/06CareerPatternsWomen.pdf>

Elected Vice President Education, SOLE – The International Society of Logistics, Dallas, August 2006, two-year term.

Associate Editor, Journal of Supply Chain Management.

Editorial Review Board for the Journal of Business Logistics, Journal of Operations Management, Journal of Physical Distribution and Logistics Management, Supply Chain Forum: An International Journal, and Journal of Transportation Management.

Editorial Advisory Board for the Supply Chain Management Review and Journal of Marketing Channels.

Paper Reviewer for: The Journal of Business Logistics, Supply Chain Forum: An International Journal, European Journal of Operations Research, International Journal of Operations and Production Management, International Journal of Physical Distribution and Logistics Management, Journal of Operations Management, CSCMP Educators' Conference, and American Marketing Association Educators' winter conference.

Reviewer for SCRMC 2006 Doctoral Dissertation Award.

Breakout session leader, College of Supply Chain Management, Austin TX, May 2007.

Co-Chair Ohio State University Campus Campaign, FAES, 2005-2007.

Outside dissertation reviewer and opponent for Helsinki School of Economics, Finland (defense December 2006).

Professional Association Membership: American Marketing Association, Association for Consumer Research, The Classification Society of North America, The Institute of Management Sciences (now INFORMS), The Council of Supply Chain Management Professionals (formerly the Council of Logistics Management), SOLE – The International Society of Logistics [Engineers] (Senior Member), and Warehouse Education and Research Council.

CUNNINGHAM, WILLIAM A. III,

Editorial Review Board for Journal of Transportation Management and Air Force Journal of Logistics.

Reviewer for Transportation, 6th ed. By Coyle, Bardi and Novack, Southwestern Publishing.

Examiner for American Society of Transportation and Logistics professional certification (CTL) exam, responsible for developing exam and study materials for the Transportation and Economics module.

DECKRO, RICHARD F.,

Judge, Decision Analysis Track, Cadet Capstone Conference, United States Military Academy, West Point, 3 May 2007.

Participant MORS Workshop, Warrior Analysts: How Can We Be Better Combat Multipliers?, 30 January - 1 February 2007, Booz Allen Hamilton, McLean, Virginia.

Editor, Military Operations Research.

Immediate Past President, Military Applications Society, INFORMS (from November 2006).

Area Editor, Service Systems, Computers & Industrial Engineering.

Member: MORS Publication Committee, Peacekeeping and Stability Operations Institute Academic Consortium, Advisory Group on Applications, GMU/CMU MURI “Computational Modeling of Cultural Dimensions in Adversary Modeling”, and PSYOP CKAP & IO CKAP.

Reviewer: Computers & Industrial Engineering, Computers & Operations Research, Journal of Business and Management, Journal of Defense Modeling and Simulation, OMEGA, and John Wiley & Sons.

DONOVAN, PAMELA, Lt Col,

Reviewer: Council of Supply Chain Management Professionals Student Papers and The Transportation Journal.

HALL, SHANE N., Maj

Reviewer: Military Operations Research Journal.

JOHNSON, ALAN W., [COA]

Session Chair, Air Force Supply Chain Analysis, INFORMS National Meeting, November 5-8, 2006, Pittsburgh.

Sessions Chair, Air Force Supply Chain Analysis, Defense Logistics Analysis, INFORMS National Meeting, November 4-7, 2007, Seattle.

Vice Chair, Space Logistics Technical Committee, American Institute of Aeronautics and Astronautics.

Council Member, Military Applications Society, INFORMS.

Member: Military Operations Research Society (MORS)/ Production and Operations Management Society (POMS).

Manuscript Reviewer: European Journal of Operational Research and Military Operations Research Journal.

KHAROUFEH, JEFFREY P.,

Associate Editor: Encyclopedia of Operations Research, by Wiley & Sons, IEEE Transactions on Reliability, and Operations Research Letters.

Elected to the Board of Directors, Operations Research Division, Institute of Industrial Engineers (IIE).

Reviewer for: Operations Research, IIE Transactions, Naval Research Logistics, Military Operations Research, and Industrial Engineering Research Conference 2007.

Session Chair: "Theory and Applications of Stochastic Processes." Operations Research Track, Industrial Engineering Research Conference, May 19-23, 2007, Nashville, TN.

Kharoufeh, J.P. (2007), A stochastic service system with disruptions and retrials. Invited Seminar. Department of Decision Sciences, Drexel University, January 26, 2007.

Kharoufeh, J.P. (2007), A mathematical framework for condition-based reliability. Invited Seminar. Department of Mechanical and Industrial Engineering, Northeastern University, January 12, 2007.

Kharoufeh, J.P. (2006), Maximizing the availability of a periodically inspected system with hidden failures. Invited Seminar. Department of Mechanical and Industrial Engineering, University of Iowa, October 19, 2006.

KNIGHTON, SHANE A., Maj, [COA]

Member, Institute for Industrial Engineers and INFORMS.

MELOUK, SHARIF H., [COA]

Dayton Area Graduate Studies Institute (DAGSI) Representative.

Special Session Organizer & co-Chair, Flexible Automation and Intelligent Manufacturing Conference, Philadelphia, PA. June 18-20, 2007.

Session Organizer & Chair, Industrial Engineering Research Conference, Nashville, TN. May 19-23, 2007.

Treasurer, INFORMS Cincinnati/Dayton Chapter, 2006-07.

Membership Committee Member, INFORMS Simulation Society, 2006-07.

Referee for: European Journal of Operational Research, International Journal of Production Economics, Proceedings of 2007, and Industrial Engineering Research Conference.

MILLER, J. O., [COA]

INFORMS Simulation Society Council Representative (elected position).

Judge for MORS Rist Prize 2006 & 2007.

Associate Editor for International Journal of Operations Research.

Journal Referee: Military Operations Research, International Journal of Logistics: Research and Applications, and The Journal of Defense Modeling and Simulation.

Member AF Modeling and Simulation Workforce Development Working Group.

MOORE, JAMES T., [COA]

Advisor to Student INFORMS chapter, MORS student chapter, and Omega Rho international operations research society.

Associate Editor for journal Military Operations Research.

Member of Editorial Board for International Journal of Operational Research.

Military Operations Research Society (MORS) Working Group 18 (Mobility and Transport of Forces) Chair.

MAS Cluster Chair and a MAS session chair for INFORMS 2007 conference.

Judge for student competition at the 2007 MORS Education Colloquium and Professional Development Conference.

Member: MORS, INFORMS, Tau Beta Phi, Omega Rho, and Phi Beta Kappa.

Referee for: IIE Transactions, Omega, and European Journal of Operational Research.

OGDEN, JEFFREY A.,

Reviewer for: Journal of Business Logistics, International Journal of Operations & Production Management, Journal of Operations Management, and Journal of Supply Chain Management.

Member: Institute for Supply Management (ISM), Decision Sciences Institute, and Council of Logistics Management.

PERRY, MARCUS B.,

Cluster Co-chair for Military Applications Track, INFORMS International, 08-11 July 2007, Puerto Rico.

Invited Editor representing Quality Engineering: Tutorial session on publishing engineering management research, 2007 Industrial Engineering Research Conference, 19-23 May, Nashville, TN.

Editorial Board Member, Quality Engineering.

Reviewer for: Military Operations Research, Computers & Industrial Engineering, International Journal of Production Research, European Journal of Operational Research, and Quality Engineering.

ROESENER, AUGUST G., Maj

Member: Military Operations Research Society and Air Force Operations Research Society.

5.6. DEPARTMENT OF SYSTEMS AND ENGINEERING MANAGEMENT

Access Phone: 937-255-2998, DSN 785-2998

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Homepage: <http://www.afit.edu/en/env/>

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5.6.1. MASTER'S THESES

5.6.1.1. COST ANALYSIS (GCA)

- BROAS, TINA M., *The Effect of Downsizing on Attrition Rates in the Department of Defense (DoD)*. AFIT/GCA/ENV/07-M1, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.
- BRYANT, MICHAEL, *Forecasting the KC-135 Cost Per Flying Hour: A Panel Data Analysis*. AFIT/GCA/ENV/07-M2, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.
- BURRELL, DERREN.P., *An Analysis of the Military Retirement System: How Does Retirement Return Influence Retention?* AFIT/GCA/ENV/07-M3. Faculty Advisor: Lt Col Jeffrey S. Smith. Sponsor: N/A.
- COLLUP, JUSTIN W., *Forecasting Demand for Civilian Pilots: A Cost Savings Approach to Managing Air Force Pilot Resources*. AFIT/GCA/ENV/07-M4. Faculty Advisor: Lt Col Jeffery S. Smith. Sponsor: N/A.
- FUERING, JEFFERY C., *The Impact of Human Capital on the Cost of Air Force Acquisition Programs*. AFIT/GCA/ENV/07-M5. Faculty Advisor: Lt Col Jeffrey S. Smith. Sponsor: AFCAA.
- GIACOMAZZI, MICHAEL P., II, *An Analysis of the Impact of Defense Acquisition Reforms and External Factors on Schedule Growth of Defense Weapon Systems*. AFIT/GCA/ENV/07-M6. Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.
- RUTER, PHILIP E., II, *Cost Growth in Weapons Systems: Re-Examining Rubber Baselines and Economic Factors*. AFIT/GCA/ENV/07-M9. Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.
- STELLY, JOHN M., *Price Vs. Performance: The Value Of Next Generation Fighter Aircraft*. AFIT/ENV/GCA/07-M10. Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

5.6.1.2. ENGINEERING MANAGEMENT (GEM)

- AFTANAS, JASON M., *Optimizing the Prioritization of Natural Disaster Recovery Projects*. AFIT/GEM/ENS/07-01. Faculty Advisor: Maj. Shane A. Knighton. Sponsor: ACC/A7-2 (CE).
- BRYANT, SCOTT A., *Geospatial Informational Security Risks and Concerns of the U.S. Air Force GeoBase Program*. AFIT/GEM/ENV/07-M1. Faculty Advisor: Dr. Michael R. Grimaia. Sponsor: USAF GIS Support Center.
- CHOI, PETER M., *The Effects of Social Network Centrality on Group Satisfaction*. AFIT/GEM/ENV/07-M2. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.
- DALBY, TIMOTHY D., *Quantification of Risk for USAF Fire and Emergency Services Flights as a Result of Shortages in Manpower*. AFIT/GEM/ENS/07-02. Faculty Advisor: Maj Shane A. Knighton. Sponsor: AFCEA/CE.
- DIAZ, DANIEL, JR., *Diffusion of Innovation: Factors Promoting Interest in Solar Photovoltaic Generation Systems within Air Force Installations*. AFIT/GEM/ENV/07-M3. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFCEA.
- DUNCAN, DAVID J., *Rapid Runway Repair (RRR): an Optimization for Minimum Operating Strip (MOS) Selection*. AFIT/GEM/ENV/07-M4. Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.
- FALCONE, JEFFREY T., *Using Value-Focused Thinking to Evaluate the Use of Innovative Stormwater Management Technologies on Air Force Installations*. AFIT/GEM/ENV/07-M5. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: AFCEE.

KWAN, KELLY E., *Selecting Electricity Generation Sources in Remote Locations*. AFIT/GEM/ENV/07-M7. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: National Park Service.

LOW, BRIAN R., *Mapping Change Management: A Co-citation Analysis*. AFIT/GEM/ENV/07-M8. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

MAIORANO, ERIKA E., *Decision Analysis with Value Focused Thinking as a Methodology to Select Buildings for Deconstruction*. AFIT/GEM/ENV/07-M9. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: WPAFB, Env. Mgt. (AFMC).

MCCOURT, MICHAEL J., *A Decision Model for Selecting Energy Efficient Technologies for Low-Sloping Roof Tops using Value-Focused Thinking*. AFIT/GEM/ENS/07-03. Faculty Advisor: Lt Col Jeffery D. Weir. Sponsor: AFCESA/CE.

POWELL, WILLIAM C., *Development of a Screening Model for Design and Costing of an Innovative Tailored Granular Activated Carbon Technology to Treat Perchlorate-Contaminated Water*. AFIT/GEM/ENV/07-M12. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: AFCEE/TD.

SECODY, ROLAND E., *Modeling In Situ Bioremediation of Perchlorate-Contaminated Groundwater*. AFIT/GEM/ENV/07M-13. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: AFCEE/TD.

SPEER, BENJAMIN G., *A Value-Focused Thinking Model for the Selection of the Best Rigid Pavement Partial-Depth Spall Repair Material*. AFIT/GEM/ENS/07-04. Faculty Advisor: Maj Shane A. Knighton. Sponsor: HQ AFCESA.

THEONY, CLIFFORD M., *The Net Effects of Social Network Density and Organizational Citizenship Behavior on Performance*. AFIT/GEM/ENV/07-M14. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.

TONEY, ROBERT P., *Management Versus Non-Management Knowledge Transfer From Training To Real Work Environments: A Meta-Analysis*. AFIT/GEM/ENV/07-M15. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: N/A.

VALENCIA, VHANCE V., *A Project Manager's Personal Attributes as Predictors for Success*. AFIT/GEM/ENV/07-M16. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: AFCEE.

WALDRON, JAMES M., *Characterization of Chlorinated Ethene Degradation in a Vertical Flow Constructed Wetland*. AFIT/GEM/ENV/07-M17. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: N/A.

5.6.1.3. ENVIRONMENTAL ENGINEERING AND SCIENCE (GES)

DIETZ, JOHN M., *Microbial Degradation of Fuel Oxygenates under Aerobic Conditions*. AFIT/GES/ENV/07-M1. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: USEPA National Risk Management Research Laboratory.

GRACE, STEPHEN T., *The Effect of Orthophosphate as a Copper Corrosion Control Inhibitor in High Alkalinity Drinking Water Systems*. AFIT/GES/ENV/07-M2. Faculty Advisor: Dr. Mark N. Goltz. Sponsor: USEPA Office of Research and Development.

HUDOCK, DAVID M., *Biofiltration as a Viable Alternative for Air Pollution Control at Department of Defense Surface Coating Facilities*. AFIT/GES/ENV/07-M3. Faculty Advisor: Lt Col David A. Smith. Sponsor: CNAF.

TY, ANTHONY R., *Aerosolization and TaqMan PCR Detection/Quantification of Bradyrhizobium japonicum USDA 110 as a Biowarfare Simulant*. AFIT/GES/ENV/07-M4. Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: N/A.

5.6.1.4. INFORMATION RESOURCE MANAGEMENT (GIR)

ALSOP, ALAN S., *Beyond Passwords: Usage and Policy Transformation*, AFIT/GIR/ENV/07-M1. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: AFCA/ECAI.

BAILEY, LANDON C., *Refinement of an Instrument to Assess Readiness for Knowledge Management*. AFIT/GIR/ENV/07-M2, Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

BLAIR, AARON M., *Assessing Perceptions of Knowledge Management Maturity/Capabilities: A Case Study of SAF/FM*. AFIT/GIR/ENV/07-M3, Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: SAF/FMP.

BOYD, EDWARD K., *Professionalism in the USAF: A Comparative Analysis of Commissioned Officers with Non-Commissioned Officers*. AFIT/GIR/ENV/07-M4, Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: AETC.

BLOOD, DEBORA L., *Predicting the Benefits, Barriers, and Bridges for USAF Expeditionary Combat Support System Implementation*. AFIT/GIR/ENS/07-01. Faculty Advisor: Lt Col Barry L. Brewer. Sponsor: HQ AF/A4IT.

BRYANT, ADAM R., *Developing a Framework for Evaluating Organizational Information Assurance Metrics Programs*. AFIT/GIR/ENV/07-M5, Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: NASA JPL.

CAIRO, LUIS N., *An Analysis of the Deployment of System Oriented Architecture Environments in Air Force Combined Air Operations Centers*. AFIT/GIR/ENV/07-M6. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: 46TS/OGEA (AFMC).

CATES, MICHAEL S., *Corporate Entrepreneurship Assessment Instrument (CEAI): Refinement and Validation of a Survey Measure*. AFIT/GIR/ENV/07-M7. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

CZUMAK, MICHAEL N., III, *Recommendations for a Standardized Program Management Office (PMO) Time Compliance Network Order (TCNO) Patching Process*. AFIT/GIR/ENV/07-M8. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFNOC/DET1 (8AF).

FOREMAN, JAMES D., *Predicting the Effect of Longitudinal Variables on Cost and Schedule Performance*. AFIT/GIR/ENC/07M-01. Faculty Advisor: Dr. Edward D. White, III. Sponsor: N/A.

FORTSON, LARRY W., JR., *Towards the Development of a Defensive Cyber Damage and Mission Impact Methodology*. AFIT/GIR/ENV-M9. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: AFRL/HEX (AFMC).

HEATH VAN HORN, MATHEW J., *An Analysis of the Balance of Management, Technical and Leadership Progression through the Three USAF Officer Tiers*. AFIT/GIR/ENV/07-M10. Faculty Advisor: Dr. Alan Heminger. Sponsor: SOC/DEO/SOS (AETC).

LUNAS, FREDERIC W., *Triangulating Social Capital Measurement for Turnover Research: Applications to the U.S. Military*. AFIT/GIR/ENV/07-M11. Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

- MARSHALL, TOMMY V., II, *A Comparative Assessment of Knowledge Management Leadership Approaches within the Department of Defense*. AFIT/GIR/ENV/07-M12. Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: N/A.
- POLOMSKY, ROBERT D., *Air Mobility Command's En Route Support Infrastructure: a Construct of Aircraft Type and Geographic Location Utilized to Assess En Route Aircraft Logistics Support*. AFIT/GIR/ENV/07-J2. Faculty Advisor: Maj Sharon G. Heilmann. Sponsor: HQ AMC/A49.
- ROEHL, JOHN M., *Internet Protocol Geolocation: Development of a Delay-Based Hybrid Methodology for Locating the Geographic Location of a Network Node*. AFIT/GIR/ENV/07-M15. Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: N/A.
- SCURLOCK, ANTONIO J., *Strategic Planning to Conduct Joint Force Network Operations: A Content Analysis of NETOPS Organizations Strategic Plans*. AFIT/GIR/ENV/07-M18. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: DONCIO.
- SIMMERS, DOUGLAS M., *Identifying Knowledge, Skill, and Ability Requirements for 33S Officers in Deployed Environments*. AFIT/GIR/ENV/07-M16. Faculty Advisor: Dr. Dennis D. Strouble. Sponsor: ACC/A600 (ACC).
- SMITH, TIFFINY S., *In Pursuit of an Aptitude Test for Potential Cyberspace Warriors*, AFIT/GIR/ENG/07-01. Faculty Advisor: Dr. Robert F. Mills. Sponsor: 315 IOS (8th Air Force).
- SPRINGS, ANITA C., *Assessing the Impact of the Work Environment on Training Transfer: An Investigation of the Air Force Acquisition Management Course*. AFIT/GIR/ENV/07-J4. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: N/A.
- WRIGHT, GARY L., *A Comparative Assessment of Knowledge Management Education Across the United States Department of Defense*. AFIT/GIR/ENV/07-M17. Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: SAF/XC.

5.6.1.5. RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)

- HEUK, WILLIAM D., *A Future-Based Risk Assessment for the Survivability of Long Range Strike Systems*. AFIT/GRD/ENS/07-01. Faculty Advisor: Maj Gary W. Kinney. Sponsor: AFRL/VA
- MITCHELL, ROBERT H., JR., *Real Options as a Strategic Management Framework: A Case Study of the Operationally Responsive Space Initiative*. AFIT/GRD/ENV/07-M2. Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A
- PARRISH, MICHAEL R., *A Meta-Analysis of Questionnaire Response Rates in Military Samples*. AFIT/GRD/ENV/07-M4. Faculty Advisor: Lt Col Kent C. Halverson. Sponsor: N/A.
- ROMERO, MICHAEL A., *Identifying and Assessing Effective Mechanisms for Technology Transfer*. AFIT/GRD/ENV/07-M6. Faculty Advisor: Dr. Alfred E. Thal, Jr. Sponsor: AFRL/XR

5.6.2. GRADUATE RESEARCH PAPERS

5.6.2.1. STRATEGIC LEADERSHIP (ISL)

BROOKS, JEFFERY L., ELBERT L. COLEMAN JR. and GLEN M. GENOVE, *Investigating Air Operations Center (AOC) Knowledge Management Requirements*. Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: N/A.

CAMPBELL, JASON L., *A Qualitative Analysis of the Possible Effects of "The New Process-Aligned Logistics Readiness Squadron" Structure on Heavily Contracted Logistics Readiness Organizations*. Faculty Advisor: Maj Sharon G. Heilmann. Sponsor: AFMC/A4R and 88ABW, Logistics Readiness Division.

CHAVASSE, NICHOLAS H., III, MATTHEW T. FRITZ and BRIAN F. ZANE, *Evaluating of a Non-Traditional Element Detection Device*. Faculty Advisor: Maj Sonia E. Leach. Sponsor: AFRL.

COLEMAN, ELBERT L. JR., See BROOKS, JEFFERY L.

CONNOLLY, MICHAEL W., FREDERICK A. HUNT JR. and RICHARD T. KOCH, *Managing Airspace Deconfliction in a Robust Unmanned Aerial Vehicle Environment*. Faculty Advisor: Lt Col Patrick D. Kee. Sponsor: N/A.

FALARDEAU, LARA L., *Downsizing Triage: Do the Survivors of the Recent AF Downsizing Intend to Stay?* Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: HQ Air Staff A-1.

FAUTH, RODNEY L., JR., *Ethics in the Military: A Study of Major Themes in Recent Professional Writing*. Faculty Advisor: Dr. Kirk A. Vaughan. Sponsor: N/A.

FRITZ, MATTHEW T., See CHAVASSE, NICHOLAS H., III.

GENOVE, GLEN M., See BROOKS, JEFFERY L.

HILL, WILLIAM R., II, *Managing the Force Development of the AF Communications Officer into the Future*. Faculty Advisor: Col Robyn M. King. Sponsor: SAF/XC

HOLBEIN, BRIAN K., *An Analysis of the Satellite Command and Control Operator Training System*. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: 50th Satellite Operations Group.

HOLT JEFFREY D., *A Study of Optimal Commander Tour Length*, Faculty Advisor: Col Robyn M. King. Sponsor: N/A.

HUNT, FREDERICK A., JR., See CONNOLLY, MICHAEL W.

HURST, BRITT K. and MARK D. ORIELLY, *Comparing the Combat Readiness of the Objective Wing and Combat Wing Organizational Structures*. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: N/A.

JONES, ROY A., III, *Validation of Air Force Change Education and Management Processes*. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: AFMC/A8C.

KOCH, RICHARD T., See CONNOLLY, MICHAEL W.

KOTKIN, JEREMY S., *A Historical Analysis of Western Intervention in the Middle East to Provide a Way Ahead for the Iraq War and Middle Eastern Policy*. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: N/A.

MATHES, MICHAEL N., *Concepts for Defeating Pro-Nav Air to Air Missiles*. Faculty Advisor: Dr. Alan R. Heminger. Sponsor: NASIC.

ORIELLY, MARK D., See HURST, BRITT K.

PHILLIPS, MICHAEL E., See HILL, WILLIAM R., II.

POLLOCK, PETER M., *Relationship Between Duty History and Selection for In-residence PME (IDE Specific)*. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: N/A.

ROBINSON, BRANDON J., See HILL, WILLIAM R., II.

SEIBERT, HARRY L., JR., *A-10 Realignment: Factors Affecting Future Sortie Production at Davis-Monthan Air Force Base*. Faculty Advisor: Dr. Michael T. Rehg. Sponsor: 355th AMXS.

TANGLAO, RAINIER, See HILL, WILLIAM R., II.

TELEGA, TIMOTHY M., *A Study of Optimal Commander Tour Length*. Faculty Advisor: Col Robyn M. King. Sponsor: N/A.

VILLELLA, MATTHEW C., *The Attributes of Appropriate Close Air Support Ordinance*. Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

WALKER, RANDAL D., *Validation of Air Force Change Education and Management Processes*. Faculty Advisor: Lt Col Daniel T. Holt. Sponsor: AFMC/A8C.

WOLLARD, JASON Z., *Inferences Concerning Junior Officers' Abilities and Traits Based on United States Air Force Officer Evaluation Reports*. Faculty Advisor: Daniel T. Holt. Sponsor: N/A.

ZANE, BRIAN F., See CHAVASSE, NICHOLAS H., III.

5.6.3. FUNDED RESEARCH PROJECTS

Note: Research Center affiliation is listed in [] if applicable.

BADIRU, ADEDEJI B.,

“Development of a Technology Based Medical Triage and Situational Awareness Tool for Use in a CBRN Contingency/Deployed Environment.” Sponsor: SAF/SG. Funding: \$335,341.

BARELKA, ALEXANDER J., Maj,

“The Influence of Pop-Culture IT.” Sponsor: AFRL/HE. Funding: \$80,000.

GOLTZ, MARK N.,

“An Evaluation of Current Mass Flux Measurement Practices and Guidelines for Their Performance.” Sponsor: EPA. Funding” \$24,749.

“Reducing Ion Exchange Treatment Costs by up to 40% using Tailored Activated Carbon.” Sponsor: Environmental Security Technology Certification Program. Funding: \$55,800.

GRIMAILA, MICHAEL R.,

“Internet Protocol Geolocation: The Determination of a Geographic Location within a Metropolitan Area.” Sponsor: NASIC. Funding: \$10,000.

“A Sensitivity Analysis of Delay-Based Internet Protocol Geolocation Methodologies.” Sponsor: NASIC. Funding: \$21,987. [CCR]

“Towards Real-Time Cyber Incident Mission Impact Assessment.” Sponsor: AFRL/HE. Funding: \$40,000. [CCR]

HICKS, MICHAEL J.,

“Cost Analysis Funding.” Sponsor: AFCAA. Funding: \$20,000.

REHG, MICHAEL T.,

“Effectiveness of the International Military Education and Training Program.” Sponsor: DISAM. Funding: \$23,000.

SHELLEY, MICHAEL L.,

“Bioremediation of Chlorinated Ethenes in Constructed Wetlands.” Sponsor: 88ABW/CE. Funding: \$3,000.

STROUBLE, DENNIS D.,

“Air Force Center for Systems Engineering A-10 Systems Engineering Case Study.” Sponsor: AFIT/SY. Funding: \$31,000.

5.6.4. REFEREED JOURNAL PUBLICATIONS

Note: Research Center affiliation is listed in [] if applicable.

BADIRU, ADEDEJI B.,

Thal, Alfred E.; A. B. Badiru; and R. Sawhney, "Distributed Project Management for New Product Development," *International Journal of Electronic Business Management*, Vol. 5, No. 2, 2007, pp. 93-104.

Omitaomu, Olufemi A. and Adedeji B. Badiru, "Fuzzy Present Value Analysis Model for Evaluating Information System Projects," *Engineering Economist*, Vol. 52, 2007, pp. 157-178.

Olufemi A. Omitaomu, Myong K. Jeong, Adedeji B. Badiru, and J. Wesley Hines (2007). "On-Line Support Vector Regression for Machine Condition Monitoring with Applications to Motor Shaft Misalignment Prediction." *IEEE Transactions on Systems, Man, and Cybernetics: Part C*, 37(5), 2007 962-970.

BLECKMANN, CHARLES A.

Wagner, A. J. , C.A. Bleckmann, R. C. Murdock, A.M. Schrand, J.J. Schlager, S. M. Hussain. 2007. "Cellular Interactions of Different Forms of Aluminum Nanoparticles in Rat Alveolar Macrophages." *Journal of Physical Chemistry B*. 111:7353-7359.

GOLTZ, MARK N.,

Goltz, M.N., S. Kim, H. Yoon, J. Park, "Review of Groundwater Contaminant Mass Flux Measurement." *Environmental Engineering Research*, 12(4):176-193, 2007.

Wood, R.C., J. Huang, M.N. Goltz, "Modeling Chlorinated Solvent Bioremediation Using Hydrogen Release Compound (HRC)." *Bioremediation Journal*, 10(3):129-141, 2006.

GRMAILA, MICHAEL R.,

V. P. Hubenko, R. A. Raines, R. O. Baldwin, B. E. Mullins, R. F. Mills, and M. R. Grimaila, "Improving Satellite Multicast Security Scalability by Reducing Re-Keying Requirements," *IEEE Network*, vol. 21, no. 4, pp. 51-56, 2007 [CCR].

M.R. Grimaila, "RFID Security Concerns," *The Information System Security Association (ISSA) Journal*, pp. 30-35, Feb. 2007 [CCR].

T. Bailey and M.R. Grimaila, "Information Technology, Terrorism, and the Transformation of the Islamic Mass-Culture in the Arab World," *Terrorism and Political Violence Journal*, Vol. 18, No. 4, pp. 523-543, Winter 2007.

V.P. Hubenko Jr., R.A. Raines, R.F. Mills, R.O. Baldwin, B.E. Mullins, and M.R. Grimaila, "Improving Global Information Grid's Performance Through Satellite Communications Layer Enhancements", *IEEE Communications*, Nov. 2006, Vol. 44, No. 11, pp. 66-72 [CCR].

HOLT, DANIEL T., LtCol,

Holt, D. T., Bartczak, S. E., Clark, S. W., & Trent, M. R. (2007). "The development of an instrument to assess readiness for knowledge management." *Knowledge Management Research & Practice*, 5(2), 75-92.

Rutherford, M. W. & Holt, D. T. (2007). "Corporate entrepreneurship: An empirical look at the innovativeness dimension and its antecedents." *Journal of Organizational Change Management*, 20(3), 429-446.

Holt, D. T., Armenakis, A. A., Harris, S. G., & Feild, H. S. (2007). "Readiness for organizational change: The systematic development of a scale." *Journal of Applied Behavioral Science*, 43(2), 232-255.

Holt, D. T., Rutherford, M. W., & Clohessy, G. R. (2007). "Corporate entrepreneurship: An empirical look at individual characteristics, context, and process." *Journal of Leadership & Organizational Studies*, 13(4), 40-54.

Holt, D. T., Rehg, M. T., Lin, J. S., & Miller, J. C. (2007). "An application of the unfolding model to explain turnover in a sample of military officers." *Human Resource Management*, 46(1), 35-49.

REHG, MICHAEL T.

Moore, T. D., Johnson, A. W., Rehg, M. T., and Hicks, M. J. 2007. "Quality assurance staffing impacts in military aircraft maintenance units.", *Journal of Quality in Maintenance Engineering*, 13(1): 33-48.

Holt, D. T., Rehg, M. T., Lin, J. S., & Miller, J. C. 2007. "An application of the unfolding model to explain turnover in a sample of military officers." *Human Resource Management*, 46(1): 35-49.

SLAGLEY, JEREMY M., Maj,

Slagley, J.M., and S.E. Guffey (2007). "Effects of Cross-sectional Partitioning on Active Noise Control in Round Ducts." *Journal of Occupational and Environmental Health*. 4(10): 751-761

Slagley, J.M., and S.E. Guffey (2007). "Effects of Diameter on Active Noise Control in Rectangular and Round Ducts." *Journal of Occupational and Environmental Hygiene*, 4(7): 492-501.

SMITH, JEFFREY S., LtCol,

Smith, J., Ken Small, and H. Semih Yildirim, "Ownership Structure and Golden Parachutes: Evidence of Credible Commitment or Incentive Alignment?", *Journal of Economics and Finance*, 31:3, Fall 2007, pp 368 – 382.

Smith, J. and M. McKee, "People vs. Prairie Chickens Revisited: Stated Preference with Explicit Non-Market Tradeoffs" *Defense and Peace Economics*, 18:3, June 2007, pp 223 – 244.

THAL, ALFRED E., Jr.

Thal, A.E., Jr., A.B. Badiru, and R. Sawhney, "Distributed Project Management for New Product Development," *International Journal of Electronic Business Management*, 5(2):93-104, 2007.

Brazel¹, Carlos, Alfred E. Thal, Jr.², and Jeffrey D. Weir, "Evaluating the Effectiveness of Utility Privatization Efforts," *Journal of Facilities Management*, 5(2):86-102, 2007.

TURNER, JASON M., Maj

Bartczak, S. E., Turner, J. M., & England, E. C. (2008). "Challenges in developing a knowledge management strategy: A case study of the Air Force Material Command." *International Journal of Knowledge Management*, 4(1): 46-50.

5.6.5. REFEREED PRESENTATIONS

BADIRU, ADEDEJI B.

Badiru, Adedeji "OR/MS Modeling for AFSSO21 Process Improvement in US Air Force," presented at INFORMS Annual Conference, Seattle, WA, Nov 7, 2007.

Thal, Al; Shahady, David; Badiru, Adedeji; and Bedingfield, John, "Incorporating Customer Values in Trade-Off Decisions," presented at INFORMS Annual Conference, Seattle, WA, Nov 7, 2007.

Badiru, Adedeji, "Communication, Cooperation, and Coordination Model for Process Improvement of C2 Projects", *Proceedings of DOD's 12th International Command and Control Research and Technology Symposium (ICCRTS)*, Newport, RI, June 18-21, 2007.

Badiru, Adedeji, Chuck Leakeas, and Sonia Leach, "MatLab-Based Modeling and Simulation of Large Project Networks," *Proceedings of 2007 Industrial Engineering Research Conference (IERC)*, Nashville, TN, May 18-21, 2007.

Badiru, Adedeji, Chuck Leakeas, and Sonia Leach, "Dynamic Cyber Systems Forecast Scenario Planning and Simulation," *Proceedings of 2007 Industrial Engineering Research Conference (IERC)*, Nashville, TN, May 18-21, 2007.

GRIMAILA, MICHAEL R.,

M.R. Grimaila, "Information Security Management: Mission Impact Assessment," Presented at the Americas Conference on Information Systems (AMCIS 2007), Keystone, CO; August 2007.

M.R. Grimaila, "Developing a Framework to Improve Information Assurance Battlespace Knowledge," Presented at the International Conference on Information Warfare and Security (ICIW 2007), Naval Postgraduate School; Monterey, CA; March 2007.

HALVERSON, KENT C., LtCol,

Halverson, K.C., Moore G., & Holt, D.T. (2007). The longitudinal effects of self-monitoring and locus of control on social network position in friendship networks. Academy of Management Annual Conference, Philadelphia, PA.

HEMINGER, ALAN R.

Budai, Kevin G., Alan R. Heminger, and Summer Bartczak, "Assessing a Knowledge Management (KM) Project Selection Framework", *Proceedings of the Southern Association for Information Systems (SAIS)*, March 2007

Harp, D., S. Bartczak, T. Peachey, and A. Heminger, "An Assessment of Topic Areas Covered in KM Journals", *Proceedings of the Information Resource Management Association*, May 2007

Balda, D., S. Bartczak, R. A. Syler, A. R. Heminger, "A Descriptive Case Study of Electronic Records Taxonomy Development at the Central Intelligence Agency", *Proceedings of the Association for Information Systems Conference of the Americas (AMCIS)*, August 2007

HOLT DANIEL T., LtCol,

Rehg, M. T., Holt, D. T., & Toney, R. P. (2007). A comparative study of factors affecting training transfer. Paper presented at the annual meeting of the Southern Management Association, Nashville, TN, November 7 – 10.

Heilmann, S. G., Holt, D. T., & Rilovick, C. (2007). Effects of career plateauing on turnover: A test of a model. Paper presented at the annual meeting of Midwestern Academy of Management, Kansas City, MO, October 4 – 6.

Holt, D. T., Rutherford, M. W., & Kuratko, D. F. (2007). F-PEC scale of family influence: A refinement. In *Proceedings of the Annual Meeting of the Academy of Management*, Philadelphia, PA, August 3 – 8.

Halverson, K. C., Moore, G. J., & Holt, D. T. (2007). Longitudinal effects of self-monitoring and locus of control on social network position. Paper presented at the annual meeting of the Academy of Management, Philadelphia, PA, August 3 – 8.

Rutherford, M. W., Kuratko, D. F., & Holt, D. T. (2007). The family business theory jungle: Competing theories on “familiness” and performance. Paper presented at the *Theories of the Family Enterprise* academic conference, Starkville, MS, May 16 – 18.

Holt, D. T., Rutherford, M. W., Davis, T. W., & Bartczak, S. E. (2007). Corporate Entrepreneurship Assessment Instrument (CEAI): A refinement for the Department of Defense. In *Proceedings of the Annual Meeting of the Western Academy of Management*, Missoula, MO, March 21 – 24.

PEACHY, TODD A., Maj

Peachey, T., Bartczak, S. and Hall, D., "Investigating knowledge transfer: A preliminary model to improve our understanding of the literature," Presented at the 13th Americas Conference on Information Systems 2007, Keystone CO, August 2007.

TURNER, JASON M., Maj

Turner, J. M.. *Towards a social affordances perspective of media capabilities and interface design*. Proceedings of the American Society for Information Science and Technology 2007 Annual Meeting, Milwaukee, WI, October 2007.

WEST, CHRISTOPHER, Lt.Col

West C. and Landaeta R. The Challenge of Studying Team Cognition in Control Center Environments. Conference Paper, American Society for Engineering Management Conference, Chattanooga, TN. November 2006.

5.6.6. SUBSTANTIAL CONSULTATIONS

BADIRU, ADEDEJI B.

Badiru, Adedeji B., “Getting Things done through project management,” Wright State University, Center for Performance Excellence, October 10, 2007.

GRMAILA, MICHAEL R.,

Grimaila, Michael, R., “Defense Advance Research Projects Agency (DARPA) Mission Assured Networking Workshop Review Group, Crystal City, VA., Sep. 2007.

Grimaila, Michael, R., “DoD Chief Information Officer (CIO) Networks and Information Integration (NII) Information Assurance Best Practices Study Group, Crystal City, VA., Aug. 2007-Present.

Grimaila, Michael, R., “Information Systems Audit and Control Association (ISACA) Security Metrics Project”, Chicago, IL, Feb. 2007-Present.

Grimaila, Michael, R., “Air Force Material Command Inspector General Inspection Database Analysis Project”, Chicago, IL, Jan. 2007-Aug.2007.

HEMINGER, ALAN R.,

“Identification and Selection of Subject Matter Experts”, for the Defense Threat Reduction Agency (DTRA), December 2006

REHG, MICHAEL T.

Rehg, M. T., Effectiveness of the International Military Education and Training (IMET) Program; Analysis of Survey data for the Defense Institute of Security Assistance Management; 1 Dec 2006 – 30 Sep 2007.

Rehg, M. T. Measurement of the ASC Balanced Scorecard for Aeronautical Systems Center/XPX. December 2006.

5.6.7. BOOKS AND CHAPTERS IN BOOKS

BADIRU, ADEDEJI B.

Badiru, Adedeji B.; Abi Badiru; Ade Badiru, *Industrial Project Management*. Boca Raton: Taylor & Francis CRC Press, 2007.

Badiru, Adedeji B. and O. A. Omitaomu, *Computational Economic Analysis for Engineering and Industry*. Boca Raton: Taylor & Francis CRC Press, 2007.

HOLT, DANIEL T., LtCol,

Holt, D. T., Armenakis, A. A., Harris, S. G., & Feild, H. S. (2007). Toward a comprehensive definition of readiness for change: A review of research and instrumentation. In W. A. Pasmore and R. W. Woodman (Eds.) *Research in Organizational Change and Development* (Vol. 16, pp. 289 – 336). Oxford, UK: Elsevier.

PEACHEY, TODD A., Maj,

Peachey, T., Hall, D., and Cegielski, C. (2007) Chapter IV: Knowledge Management Research: Are We Seeing the Whole Picture? In M. E. Jennex (Ed) *Knowledge Management in Modern Organizations* (pp. 30-50). Hershey, PA, IGI Publishing.

5.6.8. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BADIRU, ADEDEJI B.

Badiru, Adedeji B.; “Systems Engineering Approach to Global Health Care Delivery,” Keynote Address, University of Cincinnati Health Symposium, Cincinnati, OH, October 11, 2007.

Badiru, Adedeji B.; “How to Succeed in the OR/MS Academic Profession,” Invited Distinguished Panelist, 2007 INFORMS Regional Conference, Northwestern University, Evanston, IL, August 24-25, 2007.

Badiru, Adedeji B., LtCol David Smith, and Major Jeremy Slagley, “Contemporary Collaborative Research for Occupational Health,” Invited Seminar, College of Nursing, University of Tennessee, Knoxville, TN, April 20, 2007.

Badiru, Adedeji B., “Importance of Undergraduate Research in Science and Engineering Curriculum,” Invited Keynote Address, Central State University, Wilberforce, OH, April 14, 2007.

Badiru, Adedeji B., “Engineering and Enterprise Systems Management for Operational Efficiency,” Invited Seminar, Tinker Air Force Base, Oklahoma City, OK, April 12, 2007.

Badiru, Adedeji B., “OR/MS Modeling for AFSSO21 Implementation,” Invited Speech, Department of Industrial Engineering, University of Louisville, Kentucky, March 30, 2007.

Badiru, Adedeji B., “Technical Systems Project Management,” Invited Training Seminar, NASA Glenn Research Center/Ohio Aerospace Institute, Cleveland, OH, March 27, 2007.

BARELKA, ALEXANDER J., Maj,

Awarded research grant with AFRL to investigate the influence of “new media”. A project sponsored by the AFRL/HEX and funded with \$105K in 07. Work will continue until the end of CY 2009 and could reach a total value of over \$700K. Project currently completing data collection for the first of five stages.

BLECKMANN, CHARLES A.

Reviewer – *Environmental Engineering Science* (2)

Reviewer – National Institute of Standards and Technology (NIST) Advanced Technology Program Proposals

Reviewer – Environmental Security Technology Certification Program (ESTCP)

Technical Reviewer – USEPA National Risk Management Research Laboratory

GOLTZ, MARK N.,

Visiting Scholar, Stanford University, 2007.

Goltz, M.N. Waterborne CBRN Transport Modeling, AFIT/ENV CBRN Research Collaboration Symposium, Dayton OH, 6 September 2007.

Goltz, M.N., Application of Circulating Wells for *In Situ* Treatment of Contaminated Groundwater and Groundwater Contaminant Flux Quantification, Korea Advanced Institute for Science and Technology (KAIST), 5 July 2007.

Goltz, M.N., Sustainable Operations in the U.S. DoD, Korea National Defense University, Seoul, Korea, 3 July 2007.

Goltz, M.N., Modeling and Measuring the Benefits of a Groundwater Contaminant Source Remediation, Yonsei University, Seoul, Korea, 21 June 2007.

Goltz, M.N., Modeling and Measuring the Benefits of Remediating a Groundwater Contamination Source, Hanyang University, Seoul, Korea, 20 June 2007.

Mackay, D.M., M. Einarson, P. Kaiser, M. Inoue, I. Chakraborty, M. Velasco, C. Justice, S. Goyal, M. Brooks, M. Annable, S. Rao, K. Hatfield, M. Goltz, and J. Huang, Assessing Performance of Source or Plume Remediation: Evaluation of Methods, Partners in Environmental Technology Technical Symposium and Workshop, Washington DC, 28-30 November 2006.

Henderson, T., D. Liles, T. Peschman, F. Cannon, and M.N. Goltz, Demonstration Update: Tailored Granular Activated Carbon for Wellhead Perchlorate Treatment, Partners in Environmental Technology Technical Symposium and Workshop, Washington DC, 28-30 November 2006.

Wood, A.L., M. Annable, M.C. Brooks, C. Enfield, R. Falta, M.N. Goltz, J. Jawitz, and P.S.C. Rao, Field and Laboratory Evaluation of DNAPL Remedial Performance, Partners in Environmental Technology Technical Symposium and Workshop, Washington DC, 28-30 November 2006.

Goltz, M.N., J. Huang, D.E. Wagner, and J.L. Heiderscheidt, Modeling the Benefits of Groundwater Contaminant Source Remediation, Partners in Environmental Technology Technical Symposium and Workshop, Washington DC, 28-30 November 2006.

GRIMAILA, MICHAEL R.,

M.R. Grimaila and L.W. Fortson, "Towards an Information Asset-Based Defensive Cyber Damage Assessment Process," Proceedings of the 2007 IEEE Computational Intelligence for Security and Defense Applications (CISDA 2007); Honolulu, HI; April 1-5, 2007.

A.R. Bryant and M.R. Grimaila, "Developing a Framework to Improve Information Assurance Battlespace Knowledge" Proceedings of the 2007 International Conference on Information Warfare and Security; Naval Postgraduate School, Monterey, CA; Mar. 8-9, 2007.

S.A. Bryant and M.R. Grimaila, "Security Risks in USAF Geospatial Information Sharing" Proceedings of the 2007 International Conference on Information Warfare and Security (ICIW 2007); Naval Postgraduate School, Monterey, CA; Mar. 8-9, 2007.

L.W. Fortson and M.R. Grimaila, "Development of a Defensive Cyber Damage Assessment Framework," Proceedings of the 2007 International Conference on Information Warfare and Security (ICIW 2007); Naval Postgraduate School, Monterey, CA; Mar. 8-9, 2007.

K. Edge, R. Raines, M.R. Grimaila, R. Baldwin, C. Reuter, and B. Bennington, "Analyzing Security Measures for Mobile Ad Hoc Networks Using Attack and Protection Trees," Proceedings of the 2007 International Conference on Information Warfare and Security (ICIW 2007); Naval Postgraduate School, Monterey, CA; March 8-9, 2007.

M.R. Grimaila, J. Roehl, and J. Turner, "Internet Geolocation for Cyber Attack Attribution," Proceedings of the 2007 Phoenix Challenge Conference on Information Warfare and Security (ICIW 2007); Kirtland Air Force Base; Albuquerque, NM; Feb. 28-Mar. 1, 2007.

M.E. Blomme and M.R. Grimaila, "Merging Cultures: Integrating MASINT into Air Operations," Proceedings of the 2007 Phoenix Challenge Conference on Information Warfare and Security (ICIW 2007); Kirtland Air Force Base; Albuquerque, NM; Feb. 28-Mar. 1, 2007.

T. Levoy, M.R. Grimaila, and R. Mills, "A Methodology for Customizing Security Auditing Templates for Malicious Insider Detection," Proceedings of the 8th International Symposium on System and Information Security (ISSIS 2006); Sao Jose dos Campos, Sao Paulo, Brazil; Nov. 08-10, 2006.

M.R. Grimaila, "Cyber Incident Mission Impact Assessment Research Presentation," Air Force Information Operations Center, Lackland AFB; 33-IOS; San Antonio, TX; Sept. 2007.

M.R. Grimaila, "Information System Security Association (ISSA) Journal Editorial Advisory Board," 2004-Present.

M.R. Grimaila, "International Systems Security Engineering Association (ISSEA) Metrics Working Group," Jan. 2005-Oct. 2007. Contributor to ISO/IEC CD 27004 Security Metrics Standard (ISO/IEC JTC 1/SC27 N5460).

SHELLEY, MICHAEL

Amon¹, Agrawal², Shelley, Opperman³, Enright⁴, Clemmer³, Slusser⁵, Lach⁵, Sobolewski³, Gruner⁴, and Entingh⁵, "Development of a wetland constructed for the treatment of groundwater contaminated by chlorinated ethenes", *Ecological Engineering* 30 (1), pp 51-66, May 2007

McCormick-Brown, S., J.M. Slagley, and M.L. Shelley. *PBPK Model of Dermal Absorption of Aluminum Nanoparticles*. Graduate student poster presentation at the American Industrial Hygiene Conference and Exposition (AIHCE), 2-7 Jun 07, Philadelphia, PA.

SLAGLEY, JEREMY M., Maj,

McCormick-Brown, S., J.M. Slagley, and M.L. Shelley. *PBPK Model of Dermal Absorption of Aluminum Nanoparticles*. Graduate student poster presentation at the American Industrial Hygiene Conference and Exposition (AIHCE), 2-7 Jun 07, Philadelphia, PA.

Engineering Noise and Dust Controls in Underground Longwall Coal Mining National Institute for Occupational Safety and Health (NIOSH) Education and Resource Center (ERC) at University of Cincinnati (UC) Pilot Research Project (PRP) training grant

SMITH, DAVID A., LtCol,

Badiru, A.; Smith, D.; Grimaila, M.; Slagley, J.; Kee, P. and Thal, A. (2007), "IE Techniques Aid Air Force Disaster Response," Institute of Industrial Engineers, Online Digest, www.iienet.org September 18, 2007.

Smith, D. and Slagley, J. (2007). Graduate Education Opportunities at the Air Force Institute of Technology. Poster presentation at the DoD Force Health Protection Conference, 6-10 Aug, 2007, Louisville KY.

Smith, David A., Badiru A.B., Grimaila, M.R., Kee, P., Slagley, J., Thal A. Development of a Technology Based Medical triage and Situational Awareness Tool for Use in a CBRN Contingency/Deployed Environment. Funded amount: \$335,341.00, FY 2007, funded through the Air Force Surgeon General's office. Role: Co-PI (grant writer) and technical/research lead.

STROUBLE, DENNIS

A-10 Case Study for AFIT Center for Systems Engineering.

"Panel on NSA certifications" 2007 Southern Association for Information Systems, Jacksonville, FL, March, 2007.

TURNER, JASON M., Maj

Grimaila, M. R., Roehl, J., & Turner, J. (February-March 2007). *Internet Geolocation for Cyber Attack Attribution*. Proceedings of the 2007 Phoenix Challenge Information Operations Conference (PC 2007); Kirtland Air Force Base; Albuquerque, NM.

6. RESEARCH CENTER PUBLICATIONS AND FUNDING INFORMATION

The contents of this section are duplicated data, grouped by center. The information is previously listed within each project's specific department.

6.1. ADVANCED NAVIGATION TECHNOLOGY CENTER

Advanced Navigation Technology Center (ANT)

Director 255-3636 x4580

Executive Program Coordinator 255-3636 x4583

Laboratory Manager 255-3636 x4911

Homepage: <http://www.afit.edu/en/ant>

6.1.1	<u>FUNDED RESEARCH PROJECTS</u>	174
6.1.2	<u>REFEREED JOURNAL PUBLICATIONS</u>	175
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6.1.1. FUNDED RESEARCH PROJECTS

BLUE, PAUL A., Maj,

“Planning, Guidance and Control for Multiple UAV Cooperative Operations.” Sponsor: AFRL/VA.
Funding: \$30,000. [ANT]

MARTIN, RICHARD K.,

“Infrastructure Cost for ANT Center: Navigation using Multicarrier Signals of Opportunity.” Sponsor:
AFRL/SN. Funding: \$24,250. [ANT]

PETERSON, GILBERT L.,

“Biologically Motivated Autonomous Navigation and Cooperative Control.” Sponsor: DAGSI. Funding:
\$20,160. [ANT]

“CANIS-Related Navigation Research Projects for the ANT-Laboratory.” Sponsor: AFRL/SN. Funding:
\$50,000. [ANT]

RAQUET, JOHN F.,

“ANT Center and Laboratory Support.” Sponsor: AFRL/SN. Funding: \$242,000. [ANT]

“Development of High Accuracy TSPI Systems.” Sponsor: 746th Test Squadron. Funding: \$45,900. [ANT]

“Indoor Navigation Using Signals of Opportunity Integrated with Other Sensors.” Sponsor: DARPA.
Funding: \$68,750. [ANT]

“Overcoming Geometric Deficiencies in Pseudolite Navigation.” Sponsor: AFOSR. Funding: \$99,855.
[ANT]

“Sub-Surface Navigation.” Sponsor: AFRL/SN. Funding: \$31,250. [ANT]

“Transition to Laboratory Testing of Two-Way Time Transfer Measurements for Navigation.” Sponsor:
SAF. Funding: \$16,061. [ANT]

SHEARER, CHRISTOPHER M., Maj,

“Flight Dynamics and Control of High Altitude Long Endurance Sensorcraft.” Sponsor: AFRL/VA.
Funding: \$10,000. [ANT]

VASQUEZ, JUAN R., Lt Col,

“Target Tracking and Data Communication for Angel Fire.” Sponsor: AFRL/SN. Funding: \$89,042.
[ANT]

“Target Tracking for the Missile Defense Agency.” Sponsor: MDA. Funding: \$50,000.

VETH, MICHAEL J., Maj,

“Synchronized Image-Inertial Data Collection and Processing System.” Sponsor: NGA. Funding: \$50,000.
[ANT]

6.1.2. REFEREED JOURNAL PUBLICATIONS

PETERSON, GILBERT L.,

Peterson, G.L., and McBride, B.T., "Importance of Generalizability to Anomaly Detection," *Knowledge and Information Systems*. (electronic publication 24 March 2007, paper in press). [CCR]

Wardell, D.C., and Peterson, G.L., 2007, "Fuzzy State Aggregation and Policy Hill Climbing for Stochastic Environments," *International Journal of Computational Intelligence and Applications*, vol. 6:3, pp. 413-428. [ANT]

RAQUET, JOHN F.,

Veth, M. and J. Raquet, "Fusing Low-Cost Image and Inertial Sensors for Passive Navigation," *NAVIGATION: Journal of the Institute of Navigation*, Vol. 54, No. 1 (2007). [ANT]

VETH, MICHAEL J., Maj,

"Fusion of Low-Cost Inertial Systems for Precision Navigation," Veth, M.J., Raquet, J.R., *Journal of the Institute of Navigation*, Vol. 54, No. 1, pp. 11-20. [ANT]

6.1.3. REFEREED PRESENTATIONS

BLUE, PAUL A., Maj,

Burns, B., Blue, P., and M. Zollars: "Simulation of a Real-time Trajectory Generator for Automated Aerial Refueling with a Required Time of Arrival", Proceedings of the AIAA Modeling and Simulation Technologies Conference, Hilton Head, SC, August 2007. [ANT]

Zollars, M., Blue, P., and B. Burns: "Wind Corrected Flight Path Planning for Autonomous Micro Air Vehicles Utilizing Optimization Techniques", Proceedings of the AIAA Atmospheric Flight Mechanics Conference, Hilton Head, SC, August 2007. [ANT]

PETERSON, GILBERT L.

Woolley, B. and Peterson, G.L., Genetic Evolution of Hierarchical Behavior Structure, *GECCO 2007*, London, July 2007. (accepted March 2007). [ANT]

RAQUET, JOHN F.,

Dainty, B., J. Raquet, and R. Beckman, "Use of Two-Way Time Transfer Measurements to Improve Geostationary Satellite Navigation," *Proceedings of ION GNSS-2007*, Fort Worth, TX, Sep 2007. [ANT]

Raquet, J., M. Miller, and T. Nguyen, "Issues and Approaches for Navigation Using Signals of Opportunity," *Proceedings of 2007 National Technical Meeting of the Institute of Navigation*, San Diego, CA, Jan 2007. [ANT]

Amt, J. and J. Raquet, "Flight Testing of a Pseudolite Navigation System on a UAV," *Proceedings of 2007 National Technical Meeting of the Institute of Navigation*, San Diego, CA, Jan 2007. [ANT]

VETH, MICHAEL J., Maj,

Veth, M., "Fusing Imaging and Inertial Systems for Passive Navigation", presented at the *NASIC Disruptive Digital Conference*, Dayton, OH, October 2006. [ANT]

Fletcher, J. and Veth, M., “Real-Time Fusion of Image and Inertial Sensors for Navigation”, presented at the *2007 ION Annual Meeting*, Cambridge, MA, April 2007. [ANT]

Veth, M. and Pachter, M., “Correspondence Search Mitigation Using Feature Space Anti-Aliasing”, presented at the *2007 ION Annual Meeting*, Cambridge, MA, April 2007. [ANT]

Ebcin, S. and Veth, M., “Tightly-Coupled Image Aided Navigation Using the Unscented Kalman Filter”, presented at the *2007 ION GNSS Meeting*, Ft. Worth, TX, September 2007. [ANT]

6.1.4. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

RAQUET, JOHN F.,

Raquet, J. and K. Cook, “Using Two-Way Time Transfer to Improve GPS Positioning Accuracy,” presented at 2007 Joint Navigation Conference, Orlando, FL, April 2007. [ANT]

Amt, J. and J. Raquet, “High Precision Positioning Using Pseudolites at Non-GPS Frequencies,” presented at 2007 Joint Navigation Conference, Orlando, FL, April 2007. [ANT]

VETH, MICHAEL J., Maj,

Fletcher, J. and Veth, M., “Real-Time Fusion of Inertial and Imaging Sensors for Navigation”, presented at the *2007 Joint Navigation Conference*, Orlando, FL, April 2007. [ANT]

6.2. CENTER FOR DIRECTED ENERGY

Center for Directed Energy [CDE]

Director 255-3636 x7294

Program Coordinator 255-3636 x4706

Homepage: <http://www.afit.edu/de/>

6.2.1	<u>FUNDED RESEARCH PROJECTS</u>	178
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6.2.6	<u>SUBSTANTIAL CONSULTATIONS</u>	183

6.2.1. FUNDED RESEARCH PROJECTS

CUSUMANO, SALVATORE J.,

“2007 Directed Energy Summer Intern Program: Introducing DoD DE to College Undergraduates. Sponsor: HELJTO. Funding: \$38,922. [CDE]

“Airborne Aero-Optic Laboratory.” Sponsor: HELJTO. Funding: \$114,825. [CDE]

“Delivered Irradiance Assessment Tool (DIAT).” Sponsor: DETEC. Funding: \$103,000. [CDE]

“High Energy Laser Modeling and Simulation Program: TAWG Product Development.” Sponsor: AFRL/DE. Funding: \$400,000. [CDE]

FIORINO, STEVEN T., Lt Col,

“Probabilistic HELEEOS Atmospheric Information for AFRL Weather Impact Analysis.” Sponsor: AFRL/VA. Funding: \$18,467 [CDE]

PERRAM, GLEN P.,

“AFOSR Center of Excellence in High Power Gas Phase Electric and Hybrid Laser Kinetics and Spectroscopy.” Sponsor: AFOSR. Funding: \$89,746. [CDE]

“Characterization of Excited Atomic Oxygen in RF and Microwave Discharges.” Sponsor: AFRL/DE. Funding: \$37,500. [CDE]

“Countering the IED Threat with Infrared Signatures.” Sponsor: SAF. Funding: \$100,000. [CMSR]

“Cryo-Cooled Ti-Sapphire Laser to be used in DPAL Experiments.” Sponsor: AFRL/DE. Funding: \$106,464. [CDE]

“High Power Diode Pumped Alkali Vapor Lasers and Analog Systems.” Sponsor: HELJTO. Funding: \$176,450. [CDE]

“Measure High Priority Kinetic Rates for DPALS.” Sponsor: AFRL/DE. Funding \$56,250. [CDE]

“Optical Diagnostics for the Production of Carbon Nanotubes from PLD.” Sponsor: AFOSR. Funding: \$43,205.

“Technical and Administrative Support for the AFOSR Center of Excellence in High Power Gas Phase and Electric Lasers.” Sponsor: AFRL/DE. Funding: \$103,000.

RUSSELL, TIMOTHY H., Maj,

“Stimulated Brillouin Scattering Phase Conjugation in Optical Fiber.” Sponsor: HELJTO. Funding: \$69,300. [CDE]

SCHMIDT, JASON D., Capt,

“Mitigating Atmospheric Turbulence through Robust Laser Beam Tilt Control.” Sponsor: AFRL/DE. Funding: \$25,000. [CDE]

6.2.2. FUNDED EDUCATIONAL PROJECTS

CUSUMANO, SALVATORE J.,

“2006 Directed Energy Summer Scholars Program, A Companion Program of the AFIT E2S2I Summer Internship Program”. Sponsor: Directed Energy Professional Society Educational Committee. Funding: \$30,000. [CDE]

PERRAM, GLEN P.,

“High Energy Laser Weapons Systems Short Course.” Sponsor: DEPS Educational Committee. Funding: \$17,500. [CDE]

6.2.3. REFEREED JOURNAL PUBLICATIONS

CUSUMANO, SALVATORE J.,

Fiorino, S.T., R.J. Bartell, M.J. Krizo, and S.J. Cusumano, “Expected Worldwide, Low-Altitude Laser Performance in the Presence of Common Atmospheric Obscurants” *J. Dir Energy*, Vol 2, No. 4, 2007, pp. 363-375, 2007. [CDE]

FIORINO, STEVEN T., Lt Col

Fiorino, S.T., R.J. Bartell, M.J. Krizo, and S.J. Cusumano, “Expected Worldwide, Low-Altitude Laser Performance in the Presence of Common Atmospheric Obscurants” *J. Dir Energy*, Vol 2, No. 4, 2007, pp. 363-375, 2007. [CDE]

Gravley, L.E., S.T. Fiorino, R.J. Bartell, G. P. Perram, M. J. Krizo, and K. B. Le, “Comparison of Climatological Optical Turbulence Profiles to Standard, Statistical, and Numerical Models Using HELEEOS” *J. Dir Energy*, Vol 2, No. 4, pp. 347-362, 2007. [CDE]

MILLER, J. O.,

Long, Scott N., Miller, J.O., Brigantic, R.T., and Goda, M.E. “Using Defocus to Improve Peak Irradiance for Air-to-Ground High-Energy Chemical-Oxygen Iodine Laser (COIL) Weapons,” *Journal of Directed Energy*, Vol 2, pp. 189-209, Spring 2007. [COA and CDE]

PERRAM, GLEN P.,

Dolezal, Michael W., and Glen P. Perram, “Predissociation of $\text{Bi}_2 \text{A}(0_u^+)$, $v'=21-39$ ”, *Journal of Chemical Physics* 126, 084310, 1-6 (Feb 2007). [CDE]

Phelps, Charles, Carl J. Druffner, Glen P. Perram and Rand R. Biggers, “Shock Front Dynamics in the Pulsed Laser Deposition of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ ”, *Journal of Physics D: Applied Physics* (2007). [CDE]

Gravley, L.E., S.T. Fiorino, R.J. Bartell, G. P. Perram, M. J. Krizo, and K. B. Le, “Comparison of Climatological Optical Turbulence Profiles to Standard, Statistical, and Numerical Models Using HELEEOS” *J. Dir Energy*, Vol 2, No. 4, pp. 347-362, 2007. [CDE]

RUSSELL, TIMOTHY H., Maj,

K. C. Brown, T. H. Russell, T. G. Alley, and W. B. Roh, “Passive combination of multiple beams in an optical fiber via stimulated Brillouin scattering,” *Opt. Lett.*, 32, 1047-1049, 2007. [CDE]

N. B. Terry, K. T. Engel, T. G. Alley, and T. H. Russell, "Use of a Continuous Wave Raman Fiber Laser in Graded-Index Multimode Fiber for SRS beam Combination," *Opt. Expr.*, 15, 602-607, 2007. [CDE]

6.2.4. REFEREED PRESENTATIONS

CUSUMANO, SALVATORE J.,

Fiorino, S.T. R.J. Bartell, M.J. Krizo, G.P. Perram, D.J. Fedyk, K.P. Moore, T.R. Harris, and S.J. Cusumano, "Worldwide Mission Planning Tool for Tactical High Energy Laser Systems Operating at Wavelengths Up to 14 μm ," (Paper AIAA-2007-7569) 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007. [CDE]

Fiorino, S.T. R.J. Bartell, M.J. Krizo, D.J. Fedyk, K.P. Moore, T.R. Harris, S.J. Cusumano, R. Richmond, and M.J. Gebhardt, "Worldwide Uncertainty Assessments of LADAR Performance for Diverse Low Altitude Atmospheric Environments at 1.064 μm and 1.557 μm ," (Paper AP02) MSS Active E-O Systems, Atlanta, GA, September 2007.[CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

FIORINO, STEVEN T., Lt Col,

Fiorino, S.T. R.J. Bartell, M.J. Krizo, G.P. Perram, D.J. Fedyk, K.P. Moore, T.R. Harris, and S.J. Cusumano, "Worldwide Mission Planning Tool for Tactical High Energy Laser Systems Operating at Wavelengths Up to 14 μm ," (Paper AIAA-2007-7569) 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

PERRAM, GLEN P.,

Fiorino, S.T. R.J. Bartell, M.J. Krizo, G.P. Perram, D.J. Fedyk, K.P. Moore, T.R. Harris, and S.J. Cusumano, "Worldwide Mission Planning Tool for Tactical High Energy Laser Systems Operating at Wavelengths Up to 14 μm ," (Paper AIAA-2007-7569) 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007. [CDE]

Essenhight, Katherine and Glen Perram, "2-D Temperature and Pressure Maps by Planar Laser Induced Fluorescence of a Low Pressure Mach 2 Supersonic Nozzle Flow: Comparisons for Different Back Pressures found in Gas Dynamic Lasers" (Paper AIAA-2007-3875) 38th AIAA Plasmadynamics and Lasers Conference, Miami, FL June 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Worldwide Estimates and Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 3 km and Below at Wavelengths of 0.355 μm to 10.6 μm ," (SPIE Paper 6551-03) SPIE Defense and Security Symposium 2007, Orlando, FL, April 2007. [CDE]

Gallagher, Jeffrey E., Glen P. Perram, and Skip Williams, "Ultrasensitive Absorption Measurements of Metastable Species: Pressure Broadening of the $b^1\Sigma_g \rightarrow a^1\Delta_g$ (1,0) Band in Oxygen Using Off-Axis Integrated-Cavity Output Spectroscopy", 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007. Proceedings of the AIAA, AIAA-2007-1359 (2007). [CDE]

Fiorino, S.T., Richard J. Bartell, Glen P. Perram, Matthew J. Krizo, Daniel J. Fedyk, and Salvatore J. Cusumano "Worldwide Estimates & Uncertainty Assessments of Laser Propagation for Diverse Geometries for Paths in the Altitude Regime of 24 km and Below at Wavelengths 0.355 to 14 μm " SPIE Defense & Security Symposium, Atmospheric Propagation IV, Orlando, FL, April 2007. SPIE Proceedings Vol. 6551 (2007).

Gross, Kevin C., Joseph Wymann, and Glen P. Perram, "Phenomenological Fireball Model for Remote Identification of High-Explosives" SPIE Defense & Security Symposium, Orlando, FL, April 2007. SPIE Proceedings Vol. 6551 (2007) [CMSR]

Hawks, Michael, and Glen P. Perram, "Passive Ranging of Boost Phase Missiles" SPIE Defense & Security Symposium, Acquisition, Tracking, Pointing, and Laser Systems Technologies XXI, Orlando, FL, April 2007. SPIE Proceedings Vol. 6569 (2007). [CDE]

6.2.5. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

CUSUMANO, SALVATORE J.,

Wisdom, B.W., S.T. Fiorino, R.J. Bartell, M.J. Krizo, and S.J. Cusumano, "Assessment of Optical Turbulence Profiles Derived from Probabilistic Climatology," 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. 9CDE)

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, M.J., J.E. McCrae, and S.J. Cusumano, "Assessment of High Energy Laser Delivered Irradiance Derived from Off-Axis Atmospheric Scatter," DEPS 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Uncertainty Assessments of Ship Defense High Energy Laser Performance in Various Worldwide Maritime Environments at Wavelengths of 1.045 μm , 1.625 μm , and 2.141 μm ," DEPS 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. [CDE]

Bartell, R.J., S.T. Fiorino, G.P. Perram, M.J. Krizo, T.P. Huster, J.P. Cheney, Cusumano S.J., E.P. Magee, M.R. Whiteley, and A. Ngwele "Comparison of Peak Irradiance and Power-in-the-Bucket Predictions Among Several Scaling Law Models and WaveOptics Codes Over Diverse Low Altitude Operating Regimes" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

Fiorino, S.T., R.J. Bartell, J.D. Eckel, M.J. Krizo, S.J. Cusumano, "Application and Impacts of Ground-to-Space Cloud Free Line of Sight Probabilities to Air-to-Ground High Energy Laser Engagement Scenarios" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

FIORINO, STEVEN T., Lt Col,

Wisdom, B.W., S.T. Fiorino, R.J. Bartell, M.J. Krizo, and S.J. Cusumano, "Assessment of Optical Turbulence Profiles Derived from Probabilistic Climatology," 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, M.J., J.E. McCrae, and S.J. Cusumano, "Assessment of High Energy Laser Delivered Irradiance Derived from Off-Axis Atmospheric Scatter," DEPS 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, D.J. Fedyk, B.W. Wisdom, and S.J. Cusumano, "Uncertainty Assessments of Ship Defense High Energy Laser Performance in Various Worldwide Maritime Environments at Wavelengths of 1.045 μm , 1.625 μm , and 2.141 μm ," DEPS 5th Annual Directed Energy Professional Society Modeling and Simulation Conference, Monterey, CA, March 2007. [CDE]

Bartell, R.J., S.T. Fiorino, G.P. Perram, M.J. Krizo, T.P. Huster, J.P. Cheney, Cusumano S.J., E.P. Magee, M.R. Whiteley, and A. Ngwele "Comparison of Peak Irradiance and Power-in-the-Bucket Predictions Among Several Scaling Law Models and WaveOptics Codes Over Diverse Low Altitude Operating Regimes" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

Fiorino, S.T., R.J. Bartell, J.D. Eckel, M.J. Krizo, S.J. Cusumano, "Application and Impacts of Ground-to-Space Cloud Free Line of Sight Probabilities to Air-to-Ground High Energy Laser Engagement Scenarios" Directed Energy Professional Society 9th Annual DE Symposium, Albuquerque, NM 30 Oct - 2 Nov 2006. [CDE]

Fiorino, S.T., R.J. Bartell, G.P. Perram, M.J. Krizo, L.E. Gravley, T.P. Huster, J.P. Cheney, and K.B. Le, "Expected Worldwide Laser Performance in Spectrally Diverse Near Earth Scenarios in the Presence of Common Atmospheric Obscurants" Military Sensing Symposia Active E-O System Symposium, Monterey CA, 26-28 Sep 2006. [CDE]

MARCINIAK, MICHAEL A.,

Harkiss, S.I. and M.A. Marciniak, "AFIT's large commercial aircraft infrared signature tool," 2006 Advanced Signatures Technology Symposium, Wright-Patterson AFB OH, 7-9 November 2006. [CDE]

Orth, D.F., M.A. Marciniak, S.J. Cusumano and R.L. Beauchamp, "An infrared camera simulation estimating the signal-to-noise ratio and spatial temperature profile of an ABL-illuminated target," 2007 Directed Energy Test & Evaluation Conference, Albuquerque, NM, 7-9 August 2007. [CDE]

Krizo, M.J., R.J. Bartell, E.P. Magee, S.T. Fiorino, R.L. Beauchamp, M.A. Marciniak, W.F. Bailey and S.J. Cusumano, "High Fidelity Simulation of a Bi-Static Measurement of Delivered Irradiance on Target," 2007 Directed Energy Test & Evaluation Conference, Albuquerque, NM, 7-9 August 2007. [CDE]

Whiteley, M., M.A. Marciniak and S.J. Cusumano, "Algorithm for the Estimation of Delivered Irradiance on Target," 2007 Directed Energy Test & Evaluation Conference, Albuquerque, NM, 7-9 August 2007. [CDE]

Cusumano, S.J., M.A. Marciniak, W.F. Bailey, S.T. Fiorino, M. Whiteley, M.J. Krizo, R.L. Beauchamp, E.P. Magee, R.J. Bartell, K.C. Gross and D.F. Orth, "Delivered Irradiance Assessment Tool," Final Report (2007). [CDE]

PERRAM, GLEN P.,

Bartell, Richard, Steven Fiorino, Matthew Krizo, Glen Perram, Todd Huster, Justin Cheney, Eric Magee, Matthew Whiteley, and Amy Ngwele, "Comparison of Peak Irradiance and Power in the Bucket Predictions Among Several Scaling Law Models and Wave Optics Codes Over Diverse Low Altitude Operating Regimes", Ninth Annual Directed Energy Symposium, Albuquerque, NM, Nov 2006. [CDE]

Essenhig, Katherine and Glen Perram, "Planar Laser Induced Fluorescence for Supersonic Flow Visualization" Ninth Annual Directed Energy Symposium, Albuquerque, NM, Nov 2006. [CDE]

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6.2.6. SUBSTANTIAL CONSULTATIONS

FIORINO, STEVEN T., LtCol,

Fiorino, Steven T., "Cloud Free Line of Sight Analysis" for Dr James Horkovich and Raytheon RMS Systems Engineering, Tucson, AZ, April 2007. [CDE]

Fiorino, Steven T., "Atmospheric Effects on Low-Altitude Laser Performance Analysis" for the National Academy of Science, Board on Army Science and Technology, Washington DC, May - August 2007. [CDE]

MARCINIAK, MICHAEL A.,

Cusumano, S.J., M.A. Marciniak, W.F. Bailey, and J.E. McCrae, "Delivered Irradiance Assessment Tool (DIAT)," Directed Energy Test and Evaluation Capability, Oct 2006-Sep 2007. [Center for Directed Energy] [CDE]

Marciniak, M.A., "Infrared optical signature measurement research," Signature Division, Sensors Directorate, Air Force Research Laboratory (AFRL/SNS), Oct 2006-Sep 2007. 9CDE)

Marciniak, M.A., "Infrared counter-countermeasure research," Sensor Materials Branch, Survivability and Sensor Materials Division, Materials and Manufacturing Directorate, AFRL (AFRL/MLPJ), Oct 2006-Sep 2007. [CDE]

6.3. CENTER FOR CYBERSPACE RESEARCH

Center for Cyberspace Research (CCR)

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6.3.1. FUNDED RESEARCH PROJECTS

MILLS, ROBERT F.,

“Insider Threat Research Laboratory and Ongoing Research of Investigating Methods, Algorithms and Approaches to Reduce the Risk of the Insider Threat Problem.” Sponsor: NSA. Funding: \$10,000. [CCR]

“Technical Support, Information/Cyber Operations: Sensing Applications.” Sponsor: AFIOC/IO. Funding: \$15,000. [CCR]

MULLINS, BARRY E.,

“Air Force Communications Systems Modeling.” Sponsor: AFCA. Funding: \$64,000. [CCR]

RAINES, RICHARD A.,

“AFIT Transformation Chair.” Sponsor: SECDEF. Funding: \$166,700. [CCR]

“Target Discovery, Sensor Fusion, and Mitigation Analysis.” Sponsor: AFRL/SN. Funding: \$225,000. [CCR/COA]

WILLIAMS, PAUL D., Maj,

“AFIT Support for AFRL Cybercraft Project.” Sponsor: AFOSR. Funding: \$40,000.” [CCR]

“Development of an Air Force Cyber Warfare Realistic Training Model.” Sponsor: AFRL/HE. Funding: \$25,000. [CCR]

6.3.2. FUNDED EDUCATIONAL PROJECTS

RAINES, RICHARD A.,

“Anti-Tamper Software Protection Initiative Education, Outreach, and Research.” Sponsor: AFRL/SN. Funding: \$75,000. [CCR]

“Development of a Federal Cyber Force at the Air Force Institute of Technology.” Sponsor: NSF. Funding: \$510,710. [CCR]

“Tuition and Resource Support for AFIT Center for Information Security Education and Research.” Sponsor: NSA. Funding: \$317,448. [CCR]

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BALDWIN, RUSTY O.,

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RAINES, RICHARD A.,

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6.3.6. SUBSTANTIAL CONSULTATIONS

MILLS, ROBERT F.,

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6.4. CENTER FOR MASINT STUDIES AND RESEARCH

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6.4.1. FUNDED RESEARCH PROJECTS

PETROSKY, JAMES C.,

“Analysis of Residual Memory Effects in Military Memory Systems.” Sponsor: AFRL/SN. Funding: \$32,240. [CMSR]

TUTTLE, RONALD F.,

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6.4.2. FUNDED EDUCATIONAL PROJECTS

TUTTLE, RONALD F.,

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6.4.3. REFEREED PRESENTATIONS

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PERRAM, GLEN P.,

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6.4.4. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BOHN, MATTHEW J., LtCol,

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6.5. CENTER FOR OPERATIONAL ANALYSIS

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6.5.1. FUNDED RESEARCH PROJECTS

BAUER, KENNETH W. Jr.,

“Sensor Fusion for Automatic Target Recognition.” Sponsor: AFOSR. Funding: \$51,390. [COA]

“Sensor Fusion for Automatic Target Recognition.” Sponsor: ACC. Funding: \$32,000. [COA]

DECKRO, RICHARD F.,

“AFIT/ENS and AFRL/HE Human Effectiveness Directorate MOA.” Sponsor: AFRL/HE. Funding: \$25,000. [COA]

JOHNSON, ALAN W.,

“Reusable Space Vehicle Ground Operations.” Sponsor: AFRL/VA. Funding: \$35,000. [COA]

MELOUK, SHARIF H.,

“AFIT Modeling and Simulation Support for Air Vehicles Directorate.” Sponsor: AFRL/VA. Funding: \$30,015. [COA]

MILLER, JOHN O.,

“Air Force Standard Analysis Toolkit (AFSAT) Support.” Sponsor: SAF. Funding: \$65,000. [COA]

MOORE, JAMES T.,

“Application of Metaheuristics to Air Force Problems.” Sponsor: AFOSR. Funding: \$50,000. [COA]

6.5.2. REFEREED JOURNAL PUBLICATIONS

BAUER, KENNETH W. Jr.,

Bednar, E.M., Bauer, K.W., and J.O. Miller, “Use of Control Variates in a Large-Scale Aggregated Combat Model”, Journal of Defense Modeling and Simulation, Vol 4, Number 1, Jan 2007, pages 29 - 41. [COA]

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Bednar, Earl M., Bauer, K.W. Jr, and Miller, J.O. "Use of Control Variates in a Large-Scale Aggregated Combat Model," The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology, Vol 4 No. 1, pp. 29-41, January 2007. [COA]

Long, Scott N., Miller, J.O., Brigantic, R.T., and Goda, M.E. "Using Defocus to Improve Peak Irradiance for Air-to-Ground High-Energy Chemical-Oxygen Iodine Laser (COIL) Weapons," Journal of Directed Energy, Vol 2, pp. 189-209, Spring 2007. [COA and CDE]

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WEIR, JEFFERY D., Lt Col,

Bullock, R. K., R. F. Deckro, and J. D. Weir, "Methodology for Competitive Strategy Development", forthcoming in Computers & Operations Research (Available online 13 November 2006). [COA]

Braziel, C., Thal, A.E. and Weir, J.D., "Evaluating the Effectiveness of Utility Privatization Efforts", Journal of Facility Management 5:2, pp 86 - 102 (2007). [COA]

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BAUER, KENNETH W. Jr.,

Smetek, T.E., K.W. Bauer, "Finding Hyperspectral Anomalies Using Multivariate Outlier Detection," Proceedings of the 2007 IEEE Aerospace Conference, March 2007. [COA]

Friend, M. A. and K.W. Bauer, "ROC Trajectory Measures for Classifier Accuracy and Robustness," Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2006), Editors: C. Dagli, D. Enke, A. Buczak, M. Embrechts, O. Ersoy, , St. Louis, MO, 5-8 November 2006. [COA]

JOHNSON, ALAN W.,

Cole, G. and Johnson, A.W., "Logistics Composite Model Variance Reduction". INFORMS National Meeting, Pittsburgh, November 4-8 2006. [COA]

Jackson, W., Cunningham, W., and Johnson, A., "Pure Pallet Program Viability for Military Retrograde Shipments", POM 18th Annual Conference, Dallas, May 4-7 2007. [COA]

Michalski, S. and Johnson, A.W., "Ground Support Staffing for Reusable Launch Vehicle Generation." 42nd Annual SOLE International Logistics Conference and Exhibition, 19-23 August 2007, Pittsburgh. [COA]

Michalski, S. and Johnson, A.W., "Logistics Personnel Requirements for Ground Support of a Reusable Military Launch Vehicle", Proceedings of the American Institute of Aeronautics and Astronautics Space 2007 Conference, Long Beach CA, AIAA-2007-6273. [COA]

Michalski, S. and Johnson, A.W., "Manpower Requirements for Reusable Military Launch Vehicle Regeneration", 75th MORS Symposium, Annapolis, 12-14 June 2007. [COA]

KNIGHTON, SHANE A., Maj,

Gentil, Kathy and Shane A. Knighton, "Developing Advanced Academic Degree Educational Profiles for Career Fields", INFORMS International, Puerto Rico, July 2007. [COA]

Knighton, Shane. "Network Flow Model for Optimizong Fighter Squadron Selection", Royal Military Academy, Kingston, Ontario, June 07. [COA]

Capt. Jennifer L Geffre, Dr Richard F Deckro and Maj. Shane Knighton, USAF, "Risk Analysis: Critical Components in Terrorist Attacks", Presented in WG 8, 75th Military Operations Research Society Symposium, June 2007. [COA]

Gentil, Kathy and Shane A. Knighton, "Developing Advanced Academic Degree Educational Profiles for Career Fields", Decision Analysis Affinity Group, Stanford, CA, March 07. [COA]

MELOUK, SHARIF H.,

Melouk, S. and P. Damodaran. (2007), "Analysis of the Passenger Security Screening Process using Simulation Optimization". Proceedings of the Sixteenth Industrial Engineering Research Conference, Nashville, TN, May 19-23. [COA]

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MILLER, J. O.,

Honabarger, Jason B. and Miller, J.O. "Modeling and Measuring Network Centric Warfare (NCW) With the System Effectiveness Analysis Simulation (SEAS)," 11th International Command and Control Research Technology Symposium, Cambridge, UK, 26-28 Sep 2006. [COA]

MOORE, JAMES T.,

Burks, Robert E. and James T. Moore, "Solving the Theater Distribution Problem with Tabu Search, Military Operations Research Society Symposium, Annapolis, MD, 12-14 Jun 2007. [COA]

Moore, James T., "Application of Metaheuristics to Air Force Problems", AFOSR Optimization and Discrete Mathematics Program Review, Arlington, VA 7-9 May 2007. [COA]

Burks, Robert E. and James T. Moore, "An Adaptive Tabu Search Heuristic for the LPDLTW with a Theater Distribution Application", Institute for Operations Research and the Management Sciences (INFORMS) Conference, Pittsburgh, PA, 5-8 Nov 2006. [COA]

Burks, Robert E. and James T. Moore, "An Adaptive Tabu Search Heuristic for the Theater Distribution Problem", Air Force Operations Research Society Symposium, Albuquerque, NM, 18-20 Oct 2006. [COA]

ZALEWSKI, DANIEL J., Col,

Maj. Michael J Artelli , Dr Richard F Deckro, Dr Marcus B Perry and Col. Daniel J Zalewski, "Public Resolve: The Casualty of the "Long War", Presented in WG 8 and WG 32, 75th Military Operations Research Society Symposium, June 2007. [COA]

6.5.4. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

ANDERSON, BRADLEY E., Lt Col, [COA]

Reviewer: Decision Sciences Institute (DSI) Journal & Journal of Applied Mathematics and Decision Sciences (JAMDS).

BAUER, KENNETH W. Jr., [COA]

QWEST member: Dr. Steve Rogers, Chief Scientist for Sensor Fusion and ATR at AFRL/SN has formed a QWEST advisory board to develop a new way to approach pattern recognition problems. The members are Dr. Rogers, Dr Matt Kabrisky (AFIT EE emeritus professor), Dr. Oxley (Mathematic Dept.), and Dr. Bauer (Operational Sciences Dept.)

JOHNSON, ALAN W., [COA]

Session Chair, Air Force Supply Chain Analysis, INFORMS National Meeting, November 5-8, 2006, Pittsburgh.

Sessions Chair, Air Force Supply Chain Analysis, Defense Logistics Analysis, INFORMS National Meeting, November 4-7, 2007, Seattle.

Vice Chair, Space Logistics Technical Committee, American Institute of Aeronautics and Astronautics.

Council Member, Military Applications Society, INFORMS.

Member: Military Operations Research Society (MORS)/ Production and Operations Management Society (POMS).

Manuscript Reviewer: European Journal of Operational Research and Military Operations Research Journal.

KNIGHTON, SHANE A., Maj, [COA]

Member, Institute for Industrial Engineers and INFORMS.

MELOUK, SHARIF H., [COA]

Dayton Area Graduate Studies Institute (DAGSI) Representative.

Special Session Organizer & co-Chair, Flexible Automation and Intelligent Manufacturing Conference, Philadelphia, PA. June 18-20, 2007.

Session Organizer & Chair, Industrial Engineering Research Conference, Nashville, TN. May 19-23, 2007.

Treasurer, INFORMS Cincinnati/Dayton Chapter, 2006-07.

Membership Committee Member, INFORMS Simulation Society, 2006-07.

Referee for: European Journal of Operational Research, International Journal of Production Economics, Proceedings of 2007, and Industrial Engineering Research Conference.

MILLER, J. O., [COA]

INFORMS Simulation Society Council Representative (elected position).

Judge for MORS Rist Prize 2006 & 2007.

Associate Editor for International Journal of Operations Research.

Journal Referee: Military Operations Research, International Journal of Logistics: Research and Applications, and The Journal of Defense Modeling and Simulation.

Member AF Modeling and Simulation Workforce Development Working Group.

MOORE, JAMES T., [COA]

Advisor to Student INFORMS chapter, MORS student chapter, and Omega Rho international operations research society.

Associate Editor for journal Military Operations Research.

Member of Editorial Board for International Journal of Operational Research.

Military Operations Research Society (MORS) Working Group 18 (Mobility and Transport of Forces) Chair.

MAS Cluster Chair and a MAS session chair for INFORMS 2007 conference.

Judge for student competition at the 2007 MORS Education Colloquium and Professional Development Conference.

Member: MORS, INFORMS, Tau Beta Phi, Omega Rho, and Phi Beta Kappa.

Referee for: IIE Transactions, Omega, and European Journal of Operational Research.

6.5.5. SUBSTANTIAL CONSULTATIONS

ANDERSON, BRADLEY E., Lt Col,

Advisor to Army Joint Logistics Education & Development Forum, May 2007. [COA]

JOHNSON, ALAN W.,

1FW, 1AMXS, Langley AFB VA, 30 May – 1 June 2007, F-22 Sortie generation modeling. [COA]

Johnson, A.W., Royal Military College, Kingston Ontario, 19 June 2007, “AFIT Logistics-Focused Analysis.” [COA]

KNIGHTON, SHANE A., Maj,

“Course of Action Selection and Assessment”, AFRL Rome Laboratory, March & September 2007. [COA]

MILLER, J. O.,

AF/A9: ongoing discussions on modeling and simulation and analyst career development. [COA]

AFRL/VA: ongoing discussions on Combat Modeling with SEAS and FLAMES. [COA]

C17 SPO: ongoing discussions concerning Strategic Brigade Airdrop. [COA]

Miller, J.O. “Selected COA Research,” Canadian Royal Military College and Canadian Forces Land OR Group Visit, Kingston, ON Canada, 19 Jun 2007. [COA]

6.5.6. BOOKS AND CHAPTERS IN BOOKS

JOHNSON, ALAN W.,

Johnson, A., Brigantic, R., and Mahan, J., 2007, “Strategic Mobility and Deployment”, Methods for Conducting Military Operational Analysis: Best Practices in Use Throughout the Department of Defense, L. Rainey and A. Loerch, Editors, Military Operations Research Society, Publishers, pp 281-315. [COA]

6.6. CENTER FOR SPACE STUDIES AND RESEARCH

Note: Beginning in FY08, the Space Studies Working Group replaced the designation CSSR.

Center for Space Studies and Research

Homepage: <http://www.afit.edu/cssr/>

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6.6.1. FUNDED RESEARCH PROJECTS

COBB, RICHARD G.,

“Element Set Generation Using a Commercial Telescope.” Sponsor: NASIC. Funding: \$3,000. [CSSR]

“Innovative Space Missions.” Sponsor: AFRL/VS. Funding: \$59,000. [CSSR/CSE]

MALL, SHANKAR,

“Nanocomposites as Lightweight Electronic Enclosures for Satellites.” Sponsor: SAF. Funding: \$94,869. [CSSR]

6.6.2. REFEREED JOURNAL PUBLICATIONS

COBB, RICHARD G.,

Shepherd, M. J., Cobb, R. G., Peterson, G. A. and Palazotto, A.N., “Quasi-static Optics-based Surface Control of an In-plane Actuated Membrane Mirror” *Journal of Spacecraft and Rockets*, Vol. 44, No. 4, July 2007, pp. 953-963. [CSSR]

6.6.3. REFEREED PRESENTATIONS

COBB, RICHARD G.,

Shepherd, M. J., Cobb, R. G., Peterson, G. A. and Palazotto, A.N., “Quasi-static Optics-based Surface Control of an In-plane Actuated Membrane Mirror” *Journal of Spacecraft and Rockets*, Vol. 44, No. 4, July 2007, pp. 953-963. [CSSR]

6.6.4. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

COBB, RICHARD G.,

Irvin, D. R., Cobb, R.G., and Lovell, T. A., “A General Methodology For Minimum-Fuel Hovering Satellite Formations.” AAS/AIAA Astrodynamics Specialist Conference. 19-23 Aug 2007, AAS 07-271. [CSSR]

Jorris, T. R. and Cobb, R.G., “3-D Trajectory Optimization Satisfying Waypoints and No-Fly Zone Constraints.” AAS/AIAA Astrodynamics Specialist Conference. 19-23 Aug 2007, AAS 07-304. [CSSR]

Irvin, D. R. and Cobb, R. G. “Multiple Leg Fuel-Optimal Trajectories for Hovering Satellites ” AAS/AIAA Spaceflight Mechanics Conference, Sedona AZ, 28 Jan - 1 Feb 2007 AAS 07-209. [CSSR]

Jorris, T. R. and Cobb, R.G., “2-D Trajectory Optimization Satisfying Waypoints and No-Fly Zone Constraints.” AAS/AIAA Spaceflight Mechanics Conference, Sedona AZ, 28 Jan - 1 Feb 2007, AAS 07-114. [CSSR]

6.7. CENTER FOR SYSTEMS ENGINEERING

Center for Systems Engineering

Education and Training Division

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6.7.1. FUNDED RESEARCH PROJECTS

COBB, RICHARD G.,

“Innovative Space Missions.” Sponsor: AFRL/VS. Funding: \$59,000. [CSSR/CSE]

COLOMBI, JOHN M., Lt Col,

“Human Systems Interface Research.” Sponsor: AFRL/HE. Funding: \$10,000. [CSE]

HAVLICEK, JEFFREY D., Maj,

“Resourcing Global Strike or Global Persistent Attack Architecture.” Sponsor: ACC. Funding: \$50,150. [CSE]

JACQUES, DAVID R.,

“Counter-Improvised Explosive Device (C-IED) Effort Analysis.” Sponsor: ACC. Funding: \$50,000. [CSE]

STROUBLE, DENNIS D.,

“Air Force Center for Systems Engineering A-10 Systems Engineering Case Study.” Sponsor: AFIT/SY. Funding: \$31,000.

WALTER, JEORG, Maj,

“Impacts of Uninhabited Operation on Long-Range Strike Aircraft.” Sponsor: AFRL/VA. Funding: \$15,000. [CSE]

6.7.2. FUNDED EDUCATIONAL PROJECTS

JACQUES, DAVID R.,

“Space Systems Engineering Case Studies.” Sponsor: SAF. Funding: \$60,000. [CSE]

WALTER, JEORG, Maj,

“SENG 585NC.” Sponsor: AFOTEC. Funding: \$49,725. [CSE]

APPENDICES

APPENDIX A: FACULTY CREDENTIALS

NOTE: Additional information may be obtained from the AFIT Yellow Pages at <http://www.afit.edu/YellowPages/default.cfm>

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GREENDYKE, ROBERT B., Associate Professor of Aeronautics and Astronautics and Director, AFIT Scientist and Engineer Education Programs at Kirtland AFB; Appointment Date: 2005 (AFIT/ENY); BBA, Economics, Baylor University, 1979; BS, Aerospace Engineering, Texas A&M University, 1986; MS, Aerospace Engineering, Texas A&M University, 1988; PhD, Interdisciplinary Engineering, Texas A&M University, 1998. Dr. Greendyke research interests include computational fluid dynamics, Direct Simulation Monte Carlo methods, hypersonic and reacting flows, radiation simulation, thermophysics, and plasma simulation. Dr. Greendyke was a Research Scientist at NASA-Langley Research Center studying re-entry and aerobraking flows, and an Associate Professor in the University of Texas at Tyler establishing a start-up Mechanical Engineering Program from concept through accreditation. He has published over 30 journal articles, technical reports and conference publications in multiple fields. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics. Tel. 937-255-3636 x4567, email: robert.greendyke@afit.edu

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JACQUES, DAVID R., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1999 (AFIT/ENY); BSME, Lehigh University, 1983; MSAE, Air Force Institute of Technology, 1989; PhD, Air Force Institute of Technology, 1995. Dr. Jacques' primary research is in the field of stability and control of air and space vehicles. He has published several papers on constrained optimal control synthesis, and co-authored a software toolbox that utilized his synthesis techniques. Current research addresses cooperative behavior and control for air and space vehicles, and general Systems Engineering theory and application. Dr. Jacques has extensive experience in munition system development and analysis, as well as ballistic system test. He is the curriculum chair for Systems Engineering and serves as Chief, Education and Training Division, AF Center for Systems Engineering. Tel. 937-255-3355 x3329 (DSN 785-3355 x3329), email: David.Jacques@afit.edu.

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RUGGLES-WRENN, MARINA B., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2003 (AFIT/ENY); BS, Polytechnic Institute of New York, 1981; MS Rensselaer Polytechnic Institute, 1983; PhD, Rensselaer Polytechnic Institute, 1987. Dr. Ruggles-Wrenn's interests center on mechanics of materials and structures, including experimental investigation of time-dependent material behavior, viscoplasticity, advanced composite materials, nano-composites, and high-temperature structural design methods. Dr. Ruggles-Wrenn has published over 60 journal articles and technical reports, and has co-authored 5 books on fatigue, fracture, and high temperature structural design methods. Dr. Ruggles-Wrenn received several research and best paper awards. She served as an associate technical editor of the ASME Journal of Pressure Vessel Technology (1996-2002). She currently chairs the ASME PVPD Design & Analysis Technical Committee. Dr. Ruggles-Wrenn is a Fellow of the ASME. Tel. 937-255-3636 x4641 (DSN 785-3636 x4641), email: Marina.Ruggles-Wrenn@afit.edu

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APPENDIX C: ABBREVIATIONS FOR ORGANIZATIONS

There are a number of abbreviations for organizations that are used in this report. This alphabetical listing includes only selected organizations.

ACC	Air Combat Command
ACES	Applied Computational Electromagnetic Society
AETC	Air Education and Training Command
AFCEE	Air Force Center for Environmental Excellence
AFCESA	Air Force Civil Engineer Support Agency
AFIT	Air Force Institute of Technology
AFLMA	Air Force Logistics Management Agency
AFMC	Air Force Materiel Command
AFOTEC	Air Force Operational Test and Evaluation Center
AFRL	Air Force Research Laboratory
AFRL/AFOSR	AFRL/Air Force Office of Scientific Research
AFRL/DE	AFRL/Directed Energy Directorate
AFRL/HE	AFRL/Human Effectiveness Directorate
AFRL/IF	AFRL/Information Directorate
AFRL/ML	AFRL/Materials and Manufacturing Directorate
AFRL/MN	AFRL/Munitions Directorate
AFRL/PR	AFRL/Propulsion Directorate
AFRL/SN	AFRL/Sensors Directorate
AFRL/VA	AFRL/Air Vehicles Directorate
AFRL/VS	AFRL/Space Vehicles Directorate
AFCA	Air Force Communication Agency
AFSA	Air Force Security Agency
AFSEO	Air Force Seek Eagle Office (46 SK/SKE)
AFSPC	Air Force Space Command
AFTAC	Air Force Technical Applications Center
AFWA	Air Force Weather Agency
AHS	American Helicopter Society
AIA	Air Intelligence Agency
AIAA	American Institute of Aeronautics and Astronautics
AMC	Air Mobility Command
ARDA	Advanced Research and Development Activity
ASME	American Society of Mechanical Engineers
ASC	Aeronautical Systems Center
AU	Air University
DAGSI	Dayton Area Graduate Studies Institute
DARPA	Defense Advanced Research Projects Agency
DETEC	Directed Energy Test and Evaluation Capability
DISA	Defense Information Systems Agency
DoD	Department of Defense
DOE	Department of Energy
DoS	Department of State
DTRA	Defense Threat Reduction Agency
IEEE	Institute of Electrical and Electronics Engineers
INCOSE	International Council on Systems Engineering
ISSMO	International Society for Structural and Multidisciplinary Optimization
MORS	Military Operations Research Society
NASA	National Aeronautics and Space Administration
NASIC	National Air and Space Intelligence Center
NSA	National Security Agency
NSF	National Science Foundation

NSSA	National Security Space Architect
NSSO	National Security Space Office
OSD	Office of the Secretary of Defense
PACAF	Pacific Air Forces
SAE	Society of Automotive Engineers
SAF	Office of the Secretary of the Air Force
SPIE	The International Society for Optical Engineering
USSTRATCOM	United States Strategic Command
USAF	United States Air Force
USSOCOM	United States Special Operations Command
USTRANSCOM	United States Transportation Command
WPAFB	Wright-Patterson Air Force Base

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1. REPORT DATE (DD-MM-YYYY) 15-02-2008		2. REPORT TYPE Annual Report		3. DATES COVERED (From – To) 01 Oct 06 – 30 Sep 07	
4. TITLE AND SUBTITLE AIR FORCE INSTITUTE OF TECHNOLOGY RESEARCH REPORT 2007				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Office of Research and Sponsored Programs, Graduate School of Engineering and Management				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/EN) 2950 Hobson Way WPAFB OH 45433-7765				8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/EN-TR-08-02	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/EN) 2950 Hobson Way WPAFB OH 45433-7765				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This report summarizes the research activities of the Air Force Institute of Technology's Graduate School of Engineering and Management. It describes research interests and faculty expertise; lists student theses/dissertations; identifies research sponsors and contributions; and outlines the procedures for contacting the school. Included in the report are: faculty publications, conference presentations, consultations, and funded research projects. Research was conducted in the areas of Aeronautical and Astronautical Engineering, Electrical Engineering and Electro-Optics, Computer Engineering and Computer Science, Systems and Engineering Management, Operational Sciences, Mathematics, Statistics and Engineering Physics.					
15. SUBJECT TERMS Air Force Institute of Technology, Research Report 2007					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
REPORT U	ABSTRACT U	c. THIS PAGE U			Dr. Michael J. Caylor
					19b. TELEPHONE NUMBER (Include area code) 937-255-3633, research@afit.edu

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