2-15-2008

Air Force Institute of Technology Research Report 2007

Office of Research and Sponsored Programs, Graduate School of Engineering and Management, AFIT

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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  
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
Table of Contents

1. INTRODUCTION ............................................................................................................................................ 1
   1.1. OVERVIEW........................................................................................................................................... 1
   1.2. THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION ............. 1

2. SPECIAL RECOGNITIONS................................................................................................................................. 5
   2.1. FACULTY FELLOWS .............................................................................................................................. 5
   2.2. PROFESSIONAL CERTIFICATIONS ........................................................................................................... 6
   2.3. RESEARCH AWARDS .............................................................................................................................. 8
       2.3.1. FACULTY ........................................................................................................................................... 8
       2.3.2. STUDENTS ..................................................................................................................................... 10

3. RESEARCH STATISTICS.................................................................................................................................... 12
   3.1. RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS ........................................................................ 12
   3.2. RESEARCH AND CONSULTING OUTPUT MEASURES ........................................................................ 14
   3.3. RESEARCH AND CONSULTING SPONSORSHIP ............................................................................... 15
   3.4. OUTSIDE FUNDING FOR THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT ............. 17

4. SPONSORSHIP OF STUDENT RESEARCH ..................................................................................................... 19
   4.1. DOCTORAL DISSERTATIONS ................................................................................................................ 19
       4.1.1. OFFICE OF THE SECRETARY OF THE AIR FORCE ................................................................. 19
       4.1.2. AIR COMBAT COMMAND ........................................................................................................ 19
       4.1.3. AIR EDUCATION AND TRAINING COMMAND ......................................................................... 19
       4.1.4. AIR FORCE TECHNICAL APPLICATIONS CENTER ................................................................. 19
       4.1.5. AIR FORCE RESEARCH LABORATORY ..................................................................................... 19
       4.1.6. US ARMY RESEARCH DEVELOPMENT AND ENGINEERING COMMAND ................................ 20
       4.1.7. DEPARTMENT OF ENERGY ......................................................................................................... 21
       4.1.8. THE NATIONAL ACADEMY OF SCIENCES ................................................................................ 21
       4.2. MASTER'S THESISSES ..................................................................................................................... 22
       4.2.1. HQ UNITED STATES AIR FORCE ............................................................................................. 22
       4.2.2. OFFICE OF THE SECRETARY OF THE AIR FORCE ................................................................. 22
       4.2.3. AIR COMBAT COMMAND ........................................................................................................ 22
       4.2.4. AIR EDUCATION AND TRAINING COMMAND ......................................................................... 23
       4.2.5. AIR FORCE MATERIEL COMMAND ........................................................................................... 28
       4.2.6. AIR MOBILITY COMMAND ....................................................................................................... 38
       4.2.7. AIR FORCE SPACE COMMAND ................................................................................................. 38
       4.2.8. USAF FIELD OPERATING AGENCIES ........................................................................................ 38
       4.2.9. DEPARTMENT OF DEFENSE ..................................................................................................... 39
       4.2.10. UNITED STATES ARMY .............................................................................................................. 40
       4.2.11. UNITED STATES NAVY ............................................................................................................. 40
       4.2.12. DEPARTMENT OF ENERGY ....................................................................................................... 40
       4.2.13. OTHER FEDERAL AGENCIES ..................................................................................................... 41

4.3. GRADUATE RESEARCH PAPERS ............................................................................................................. 42
   4.3.1. HQ UNITED STATES AIR FORCE ............................................................................................. 42
   4.3.2. OFFICE OF THE SECRETARY OF THE AIR FORCE ................................................................. 42
   4.3.3. AIR COMBAT COMMAND ........................................................................................................ 42
   4.3.4. AIR EDUCATION AND TRAINING COMMAND ......................................................................... 43
   4.3.5. AIR FORCE MATERIEL COMMAND ........................................................................................... 44
   4.3.6. AIR MOBILITY COMMAND ....................................................................................................... 45
   4.3.7. AIR FORCE SPACE COMMAND ................................................................................................. 46
   4.3.8. UNITED STATES AIR FORCES IN EUROPE ............................................................................... 46
   4.3.9. DEPARTMENT OF DEFENSE ..................................................................................................... 46
5. ACADEMIC DEPARTMENT PUBLICATIONS AND FUNDING INFORMATION ........................................ 47
   5.1. DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS .......................................................... 48
   5.2. DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING ........................................... 69
   5.3. DEPARTMENT OF ENGINEERING PHYSICS ............................................................................... 111
   5.4. DEPARTMENT OF MATHEMATICS AND STATISTICS .............................................................. 126
   5.5. DEPARTMENT OF OPERATIONAL SCIENCES ........................................................................... 133
   5.6. DEPARTMENT OF SYSTEMS AND ENGINEERING MANAGEMENT ........................................... 155

6. RESEARCH CENTER PUBLICATIONS AND FUNDING INFORMATION ................................................. 172
   6.1. ADVANCED NAVIGATION TECHNOLOGY CENTER ................................................................. 173
   6.2. CENTER FOR DIRECTED ENERGY ............................................................................................ 177
   6.3. CENTER FOR CYBERSPACE RESEARCH .................................................................................. 184
   6.4. CENTER FOR MASINT STUDIES AND RESEARCH ................................................................. 197
   6.5. CENTER FOR OPERATIONAL ANALYSIS ................................................................................ 199
   6.6. CENTER FOR SPACE STUDIES AND RESEARCH ................................................................. 206
   6.7. CENTER FOR SYSTEMS ENGINEERING ................................................................................... 207

APPENDICES .............................................................................................................................................. 208
APPENDIX A: FACULTY CREDENTIALS ................................................................................................. 208
APPENDIX B: POST-DOCTORAL AND OTHER RESEARCH ASSOCIATES CREDENTIALS .................... 238
APPENDIX C: ABBREVIATIONS FOR ORGANIZATIONS ....................................................................... 240
APPENDIX D: INFORMATION FOR OBTAINING A COPY OF A THESIS ............................................. 242
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.

2.2. PROFESSIONAL CERTIFICATIONS

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

Badiru, Adeleji 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)³

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., 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.


COOPER, MARTHA C.,


“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.


DECKRO, RICHARD F.,


GOLTZ, MARK N.,

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

HALL, SHANE N., Maj,


HAVRILLA, MICHAEL J.,

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

KHAROUFEH, JEFFREY P.,


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.,

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.,

PERRY, MARCUS B.,

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.,

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

RUGGLES-WRENN, MARINA B.,

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,

2.3.2. STUDENTS

AFTANAS, JASON, Capt,

ARTELLI, MICHAEL, Maj,

BARTON, RICHARD J., Capt,

COHEE, BRANNEN C., Maj,
Mervin E. Gross Award, June 2007.

CORDEIRO, JAMES, Maj,

FENSTERER, GERALD, 1Lt,
Air Force Historical Foundation Award, March 2007.

FRANZ, TIMOTHY P., Maj,
Mervin E. Gross Award, March 2007.

GEFFRE, JENNIFER, 1Lt,

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,


LARSON, R.,


MICHALSKI, SYDNEY, Capt,


MONTMINY, DAVID P., Capt,


MOTT, STEPHEN D., 2Lt,


OLIVER, BRAD, Maj,


RASMUSSEN, C.,


SEYBA, JASON R., 2Lt,


SILVA, RYAN J., 2Lt,


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

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did this research contribute to a current Air Force/DoD project? (Yes answers)</td>
<td>99%</td>
</tr>
</tbody>
</table>
| The thesis work was:  
  Highly significant       | 30%  |
  Significant             | 57%  |
  Slightly significant    | 12%  |
  Not significant         | 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)     | 25%  |
  Lt Col (DR-III/GM-14)     | 40%  |
  Major (DR-II/GM-13)       | 16%  |
  Captain (DR-I/GS-12)      | 4%   |
  Other                     | 15%  |
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

<table>
<thead>
<tr>
<th>Graduate School by Department</th>
<th>Math &amp; Stats (ENC)</th>
<th>Electrical &amp; Comp Eng (ENG)</th>
<th>Engineering Physics (ENP)</th>
<th>Operational Sciences (ENS)</th>
<th>Sys &amp; Eng Management (ENV)</th>
<th>Aeronautics &amp; Astro (ENY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Faculty (FTE)</td>
<td>136</td>
<td>16</td>
<td>36</td>
<td>19</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>Refereed Publications</td>
<td>207</td>
<td>25</td>
<td>64</td>
<td>19</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Refereed Presentations</td>
<td>263</td>
<td>8</td>
<td>143</td>
<td>24</td>
<td>59</td>
<td>20</td>
</tr>
<tr>
<td>Other Presentations and Publications</td>
<td>267</td>
<td>31</td>
<td>71</td>
<td>41</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Sponsor Funded Projects</td>
<td>171</td>
<td>4</td>
<td>57</td>
<td>36</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Substantial Consultations</td>
<td>76</td>
<td>5</td>
<td>30</td>
<td>11</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Books</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Chapters of Books</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
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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>
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<tr>
<th>SPONSOR ORGANIZATION</th>
<th>PhD Dissertations</th>
<th>Master’s Theses</th>
<th>Graduate Research Papers</th>
<th>Funded Projects</th>
<th>Substantial Consultations</th>
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<td><strong>212</strong></td>
<td><strong>42</strong></td>
<td><strong>162</strong></td>
<td><strong>59</strong></td>
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</tbody>
</table>

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 # | Dollars       | Education # | Dollars       | Total # | 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  |

<table>
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<tr>
<th>Research Center</th>
<th>#</th>
<th>Dollars</th>
<th>#</th>
<th>Dollars</th>
<th>#</th>
<th>Dollars</th>
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<td>13</td>
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<td>-</td>
<td>-</td>
<td>12</td>
<td>343,825</td>
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<td>97,869</td>
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<td>1,748,665</td>
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</table>

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

<table>
<thead>
<tr>
<th>Dept.</th>
<th>AFRL Dollars</th>
<th>Other USAF Dollars</th>
<th>Other DoD Dollars</th>
<th>NGA Dollars</th>
<th>NSF Dollars</th>
<th>NSA Dollars</th>
<th>Other Federal Dollars</th>
<th>Non-Federal Dollars</th>
<th>Total Dollars</th>
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<td><strong>560,000</strong></td>
<td><strong>510,710</strong></td>
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<td><strong>24,750</strong></td>
<td><strong>76,477</strong></td>
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Research Center

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<th>Other DoD Dollars</th>
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<td><strong>-</strong></td>
<td><strong>20,160</strong></td>
<td><strong>5,647,353</strong></td>
</tr>
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</table>

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.


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.


4.1.4. AIR FORCE TECHNICAL APPLICATIONS CENTER


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

AFRL: DIRECTED ENERGY DIRECTORATE


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


AFRL: SENSORS DIRECTORATE


AFRL: SPACE VEHICLES DIRECTORATE


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


4.1.8. 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.


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


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.


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


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/A6OO.


NATIONAL AIR AND SPACE INTELLIGENCE CENTER


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.


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.


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.


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.


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.


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.


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.


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


NGUYEN, HIEU T., see BOND, MATTHEW S.
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.

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.

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.

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.


ROCHL, 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.

SALAVERRY JUAN A., Predicting Argentine Jet Fuel Prices. AFIT/GLM/ENC/07M-01. Faculty Advisor: Dr. Edward White, III. 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.

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.


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.

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.

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.

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.

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.

WILKEN, BRIAN A., Change-Point Methods for Overdispersed Count Data. FIT/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.


4.2.5. AIR FORCE MATERIEL COMMAND


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.


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.


AERONAUTICAL SYSTEMS CENTER


BLOMME, MARK, see ASHER, DOUGLAS W.


COREY, SHAWN, see ASHER, DOUGLAS W.

FILBEY, ROBERT, see ASHER, DOUGLAS W.

AIR FORCE RESEARCH LABORATORY [AFRL]

AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH


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.


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/IF.


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.


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: AIR VEHICLES DIRECTORATE


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


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.


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.

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.


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.


AFRL: HUMAN EFFECTIVENESS DIRECTORATE


AFRL: INFORMATION DIRECTORATE


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/IF.

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.

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.

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.


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.


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.


GLAUVTZ, 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.


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.


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.


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.


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.


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.


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


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/SNRR.

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.


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: 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/SNRM.


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


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. Smithtro. 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,Ga1-xN/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/VSE.


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.

PRITCHETT, 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. Smithtro. 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. Smithtro. AFRL/VS.
4.2.6. **AIR MOBILITY COMMAND**


4.2.7. **AIR FORCE SPACE COMMAND**


4.2.8. **USAF FIELD OPERATING AGENCIES**

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE**


**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.


**AIR FORCE COMMUNICATIONS AGENCY**

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.


**AIR FORCE COST ANALYSIS AGENCY**


**AIR FORCE TECHNICAL APPLICATION CENTER**


**AF GEOGRAPHICAL INFORMATION SYSTEMS SUPPORT CENTER (AF GISSC)**


**AIR FORCE TEST PILOT SCHOOL (AF TPS)**


**4.2.9. DEPARTMENT OF DEFENSE**

**DEFENSE LOGISTICS AGENCY (DLA)**

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

**DEFENSE THREAT REDUCTION AGENCY**


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 SECRETARY OF DEFENSE


UNITED STATES STRATEGIC COMMAND

NYSETHER, 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


4.2.10. UNITED STATES 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

HUODOCK, 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.


4.2.12. DEPARTMENT OF ENERGY

4.2.13. OTHER FEDERAL AGENCIES

ENVIRONMENTAL PROTECTION AGENCY (EPA)


NATIONAL AERONAUTICS AND SPACE ADMINISTRATION


NATIONAL GEOSPATIAL INTELLIGENCE AGENCY (NGA)

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

NATIONAL PARKS SERVICE (NPS)


NATIONAL SECURITY AGENCY


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


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


4.3.4. **AIR EDUCATION AND TRAINING COMMAND**


**19TH AIR FORCE**


**AFRICA 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.


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.


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


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.

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.


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


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 & AFSC/FPB.


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


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.


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.


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


4.3.8. UNITED STATES AIR FORCES IN EUROPE


4.3.9. DEPARTMENT OF DEFENSE

5. ACADEMIC DEPARTMENT PUBLICATIONS AND FUNDING INFORMATION
5.1. DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

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5.1.1 DOCTORAL DISSERTATIONS 49
5.1.2 MASTER’S THESES 49
5.1.3 FUNDED RESEARCH PROJECTS 55
5.1.4 FUNDED EDUCATIONAL PROJECTS 57
5.1.5 REFEREED JOURNAL PUBLICATIONS 58
5.1.6 REFEREED CONFERENCES 61
5.1.7 BOOKS & CHAPTERS IN BOOKS 66
5.1.8 OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES 66
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/VVS.


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.


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.

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/VAAI.


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


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


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.


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.


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.


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


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/VA.


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.


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.


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.


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.


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.


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.


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)

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)

ABBOY, 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.


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.


COREY, SHAWN, see ASHER, DOUGLAS W.

FILBIEY, ROBERT, see ASHER, DOUGLAS W.


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

PRITCHETT, 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,


CANFIELD, ROBERT A.,


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.,

KUNZ, DONALD L.,

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


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.


MAPLE, RAYMOND C., Lt Col,


PALAZOTTO, ANTHONY N.,


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

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


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

REEDER, MARK F.,


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.


SHEARER, CHRISTOPHER M., Maj,

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

SONI, SOM R.,


WALTER, JOERG D., Maj,


“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.


CANFIELD, ROBERT A.,


COBB, RICHARD G.


FRANKE, MILTON E.


KUNZ, DONALD L.


KING, PAUL I.,


MALL, SHANKAR


MAPLE, RAYMOND C., LtCol,

PALAZZOTTO, ANTHONY N.


REEDER, MARK F.


RUGGLES-WRENN, MARINA B.


SHEARER, CHRISTOPHER M., Maj,

TORVIK, PETER J.


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,


COBB, RICHARD G.

HICKS, KERRY D., LtCol,

RUGGLES-WRENN, MARINA B.


TORVIK, PETER J.


CONFERENCE PAPERS ACCEPTED ON THE BASIS OF REVIEWED ABSTRACT

BLACK, JONATHAN T.


BLUE, PAUL A.,


BRANAM, RICHARD D., Maj


CANFIELD, ROBERT A.


COBB, RICHARD G.


FRANKE, MILTON E.


KUNZ, DONALD L.


MALL, SHANKAR


Mall, S. and Ryba, J. L., “Humidity Effects on Woven Ceramic Matrix Composites”, Proceedings of International Conference on Technical Textiles, New Delhi, India, Nov. 11-14, 2006 (INVITED TALK)


PALAZOTTO, ANTHONY N.


REEDER, MARK F.


TITUS, NATHAN A., LtCol,


TORVIK, PETER J.


WIESEL, WILLIAM E.


5.1.7. BOOKS AND CHAPTERS IN BOOKS

CANFIELD, ROBERT A.


5.1.8. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BLACK, JONATHAN T.


BLUE, PAUL A., Maj,.


BRANAM, RICHARD D., Maj,.


CANFIELD, ROBERT A.

Organizing Committee, 2nd Annual ASME Dayton Engineering Sciences Symposium, 2006
Bond, Vanessa; Canfield, Robert A.; Madruga Santos Matos, Maria da Luz; Suleman, Afzul; and Blair, Maxwell, “Wind Tunnel Testing of Twisted Wing for Longitudinal Control in a Joined Wing Aircraft,” 2nd Annual ASME Dayton Engineering Sciences Symposium, Dayton, Ohio, 30 October 2006


Westfall, James; Canfield, Robert A.; Joo, James J.; and Sanders, Brian, “Multi-Disciplinary Optimization of a Distributed Actuation System in a Flexible Morphing Wing,” 2nd Annual ASME Dayton Engineering Sciences Symposium, Dayton, Ohio, 30 October 2006

Bond, Vanessa L.; Canfield, Robert A.; Madruga, Maria da Luz; Suleman, Afzul Suleman; and Blair, Maxwell, “Wind Tunnel Testing for Pitch Control in a Twisted Joined Wing Aircraft,” AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, 6 March 2007


COBB, RICHARD G.

Session Chair: 32nd Dayton-Cincinnati Aerospace Sciences Symposium


KUNZ, DONALD L.


LIEBST, BRADLEY S.

Liebst, Bradley S., "How Universities Teach About Our Shared Dependency on Space", Invited presentation and panel member for the 2007 Space Education Symposium, Montgomery, AL, 26 September 2007.

MAPLE, RAYMOND C., LtCol,


PALAZOTTO, ANTHONY N.


TORVIK, PETER J.


RUGGLES-WRENN, MARINA B.


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 70
5.2.2 MASTER'S THESES 71
5.2.3 GRADUATE RESEARCH PAPERS 75
5.2.4 FUNDED RESEARCH PROJECTS 77
5.2.5 FUNDED EDUCATIONAL PROJECTS 80
5.2.6 REFEREED JOURNAL PUBLICATIONS 80
5.2.7 REFEREED CONFERENCES 86
5.2.8 SUBSTANTIAL CONSULTATIONS 99
5.2.9 BOOKS & CHAPTERS IN BOOKS 101
5.2.10 PATENTS 101
5.2.11 OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES 101
5.2.1. **DOCTORAL DISSERTATIONS**


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.


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)


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.


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.


5.2.2.4. COMPUTER SCIENCE/COMPUTER SYSTEMS (GCS)


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.


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.


5.2.2.5. ELECTRICAL ENGINEERING (GE)


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.


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


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. DeVelbiss. 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.


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


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.


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.


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.


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.


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.


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)


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.

DOWN, 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.


HANNAH, JON T. See DOWNS, ROBERT O.

KARDOES, MICHAEL J. See DOWNS, ROBERT O.

WAINWRIGHT, FREDRICK W. See BARNHART, BRADLEY W.

**5.2.3.2. ELECTRICAL SCIENCE (IES)**

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.


COLLINS, PETER J.,


HAVRILLA, MICHAEL J.,


HOPKINSON, KENNETH M.,

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


KURKOWSKI, STUART H., Maj,


LAMONT, GARY B.,


MARTIN, RICHARD K.,


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,


“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]


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

SAVILLE, MICHAEL, A., Capt,

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

SCHMIDT, JASON D., Capt,


“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.,


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


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. FUNDDED 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]


“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.,


CAIN, STEPHEN C.,


DAVIS, NATHANIEL J. IV.,


GUSTAFSON, STEVEN C.,


HAVRILLA, MICHAEL J.,


HOPKINSON, KENNETH M.,


MARTIN, RICHARD K.,


MAYER, CHRISTOPHER B., Maj,

MILLS, ROBERT F.,


MULLINS, BARRY E.,


PACHER, MEIR


PETERSON, GILBERT L.


RAINES, RICHARD A.,


RAQUET, JOHN F.,

SAVILLE, MICHAEL A., Maj,


SCHMIDT, JASON D., Capt,


SEETHARAMAN, GUNA S.,


STARMAN, LAVERN A., Maj


TEMPLE, MICHAEL A.,


TERZUOLI, ANDREW J., JR.,


VETH, MICHAEL J., Maj,


WILLIAMS, PAUL D., Maj,

Paul D. Williams and Eugene H. Spafford; “CuPIDS: An Exploration of Highly Focused, Coprocessor-based Information System Protection,” *Computer Networks*; Elsevier; v 51(5); pp. 1284-1298; April 2007. [CCR]

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

REFEREED CONFERENCE PUBLICATIONS BASED ON FULL PAPER REVIEW

Baldwin, Rusty O.,


**CAIN, STEPHEN C.,**


**COLLINS, PETER J.,**


DAVIS, NATHANIEL J., IV


HAVRILLA, MICHAEL J.,


HOPKINSON, KENNETH M.,


KIM, YONG C.,


Jesse Somann and Yong C. Kim, “Classification of In-Phase/Quad-Phase (I/Q) Digital Downconversion Via Special Sampling Scheme (SSS)” IEEE International Conference on Electronics, Circuits, and Systems, pp-453-456, Nice, France, Dec 2006.

KURKOWSKI, STUART, H., LtCol,


LAMONT, GARY B.,


MARTIN, RICHARD K.,


MAYER, CHRISTOPHER B.,


McDONALD, J. TODD., LtCol


**MILLS, ROBERT F.,**


**MULLINS, BARRY E.,**


PACHTER, MEIR


PETERSON, GILBERT L.


RAINES, RICHARD A.,


RAQUET, JOHN F.,


SAVILLE, MICHAEL A., Maj,


SEETHARAMAN, GUNA S.,


**TEMPLE, MICHAEL A.,**


**TERZUOLI, ANDREW J., JR.,**


TOUSSAINT, GREGORY J., LtCol,


VETH, MICHAEL J., Maj,


WILLIAMS, PAUL D., Maj,


REFEREE CONFERENCE PUBLICATIONS BASED ON ABSTRACT REVIEW

HAVRILLA, MICHAEL J.,


MENDENHALL, MICHAEL J., Maj


MILLS, ROBERT F.,


MULLINS, BARRY E.,


PETERSON, GILBERT L.,


SCHMIDT, JASON D., Capt


TEMPLE, MICHAEL A.,


TERZUOLI, ANDREW J., JR.


VASQUEZ, JUAN R., LtCol,


VETH, MICHAEL J., Maj,


WILLIAMS, PAUL D., Maj,

5.2.8. SUBSTANTIAL CONSULTATIONS

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

BALDWIN, RUSTY O.

Baldwin, Rusty O., “Wound Treatment Study (Consultant),” Wright-Patterson Medical Center (SGCQW), Sep 07

COLLINS, PETER J.,


Collins, Peter J., Consultant to AFRL on new radar acquisition and associated AFIT/AFRL MOA, Dr. Brian Kent, AFRL/SN LO Chief Scientist, Nov 2006 - present.

Collins, Peter J., Advised AFRL on AFIT Low Observable Program personnel issues and a possible solution, William Cuzick, Director Signature Technology Office, 21 Sep 2006.

Collins, Peter J., Regular consultant for various classified programs, AFRL/SNS, 18 Sep 2006 - present.

DAVIS, NATHANIEL J. DAVIS, IV

Davis, Nathaniel J. IV., “HQDA 2007 Army Basic Research Review (Board Member),” US Army, 30-31 May, Crystal City, VA


LAMONT, GARY B.,


Lamont, Gary B. and Foster, Mike, "Bio-Inspired UAV Behavioral Development and Parallel Simulation (Consultant)," AFRL/SNZW, October, 2006 - September, 2007


MAYER, CHRISTOPHER B., Maj.


MILLS, ROBERT F.


MULLINS, BARRY E.,


PACHTER, MEIR

Pachter, Meir, “Cooperative Control of UAVs (Consultant),” AFRL/VACA, July-September 2007

Pachter, Meir, “Estimation & System Identification (Consultant),” AFOSR, proposal review, June 2007

RAQUET, JOHN F.,


SAVILLE, MICHAEL A., Maj,


Saville, Michael A., "Electronic Warfare Threat Assessment (Board Member),” Analysis Murder Board, National Air and Space Intelligence Center, Aug.-Nov. 2007.

TERZUOLI, ANDREW J., JR.

Terzuoli, Andrew J., Jr., “Wright Patt MASINT Development Consortium (WPMDC) (Consultant)” with NASIC/DEM, Jan 2005-Present

Terzuoli, Andrew J., Jr., “Wright Patt Passive Radar Working Group (PRWG) (Consultant)” with NASIC/AD, Jan 2002 - Present

Terzuoli, Andrew J., Jr., “Wright Patt Over the Horizon Radar (OTHR) (Consultant) Working Group” with NASIC/AD & DE, June 2007 - Present

Terzuoli, Andrew J., Jr., “Harnessing Remote Sensed Data (Consultant)” with NASIC/SCX June 2007-Present

Terzuoli, Andrew J., Jr., “RF Sensor Enhancement (Consultant)” with AFRL/SNR June 2003 - Present

VASQUEZ, JUAN R., LtCol,


WILLIAMS, PAUL D., Maj,

Williams, Paul D., “Cyber Force Development--Cyber Education and Training,” By-name designee to develop the knowledge, skills, and ability training requirements for the future cyber warfare forces, supported HQ AF, 8AF, AFCYBER, NSA, Oct 2006-Oct 2007, [CCR]
Mills, Robert F. and Williams, Paul D., “Cyber Force Development--Cyber PME”, supported Dr. Mills in developing the cyber warfare doctrine and material required for PME for all Airmen, supported AU, HQ AF, 8AF, AFCYBER, NSA, Oct 2006-Oct 2007. [CCR]

5.2.9. BOOKS AND CHAPTERS IN BOOKS

LAMONT, GARY B.,


MAYER, CHRISTOPHER B., Maj,


5.2.10. PATENTS

MARTIN, RICHARD K.,


5.2.11. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

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

PUBLICATIONS AND PRESENTATIONS

COLLINS, PETER J.,


FELLOWS, JAMES A., Lt Col


KURKOWSKI, STUART H., LtCol,


LAMONT, GARY B.,


MENDENHALL, MICHAEL J., Maj,


MILLS, ROBERT F.


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


MULLINS, BARRY E.


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.


RAINES, RICHARD A.,


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


RAQUET, JOHN F.,


SEETHARAMAN, GUNA


STARMAN, LaVERN A., Maj

**TEMPLE, MICHAEL A.**


**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, Dr. Rick Raines, Invited talk at USSTRATCOM/Omaha Chamber of Commerce, “USAF Needs for Cyber Education,” June 07, [CCR/ENG/HAF]


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]

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

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.

Session Organizer, “Material Characterization” for the 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)

KURKOWSKI, STUART H., LtCol,

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.,
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.,


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


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

RAINER, 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.,
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
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.

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,


Vice-President: Institute of Navigation, Dayton Chapter
5.3. DEPARTMENT OF ENGINEERING PHYSICS

Access Phone 937-255-2012, DSN 785-2012
Fax: 937-656-6000, DSN 786-6000
Homepage: http://www.afit.edu/en/enp/

5.3.1 DOCTORAL DISSERTATIONS 112

5.3.2 MASTER’S THeses 112

5.3.3 FUNDED RESEARCH PROJECTS 114

5.3.4 FUNDED EDUCATIONAL PROJECTS 116

5.3.5 REFEREED JOURNAL PUBLICATIONS 116

5.3.6 REFEREED PRESENTATIONS 118

5.3.7 SUBSTANTIAL CONSULTATIONS 120

5.3.8 OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES 121
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.


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.


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

SPANGLER, BRET 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.


5.3.2.2. **ELECTRO-OPTICS (GEO)**


5.3.2.3. **NUCLEAR ENGINEERING (GNE)**


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)**


5.3.2.5. **MATERIALS SCIENCES (GMS)**

5.3.3. FUNDED RESEARCH PROJECTS

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

ALLEY, THOMAS G., Lt Col,


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.,


“Airborne Aero-Optic Laboratory.” Sponsor: HELJTO. Funding: $114,825. [CDE]

“Delivered Irradiance Assessment Tool (DIAT).” Sponsor: DETEC. Funding: $103,000. [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.,


MATHEWS, KIRK A.,


NIDAY, THOMAS A., Maj,


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]


“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.


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 AlGaN/GaN HFETS.” Sponsor: AFOSR. Funding: $27,000.


RUSSELL, TIMOTHY H., Maj,

“Stimulated Brillouin Scattering Phase Conjugation in Optical Fiber.” Sponsor: HELJTO. Funding: $69,300. [CDE]

SMITHRO, CHRISTOPHER G., Maj,


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.

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.,


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.,


BURGGRAF, LARRY


JOHN, GEORGE


LAGRAFFE, DAVID A., LTC


HENGEHOLD, ROBERT L.

Ryu, Mee-Yi, Y. K. Yeo, and R. L. Hengehold, “Implantation damage recovery and carrier activation studies of Si-implanted Al_{0.18}Ga_{0.82}N by temperature dependent Hall-effect measurements,” Physica Status Solidi (c) 4, 2613-2616 (2007).

MATHEWS, KIRK A.,


NIDAY, THOMAS, Maj,


PERRAM, GLEN P.

Dolezal, Michael W., and Glen P. Perram, “Predissociation of Bi_2 A(0^+_u), v’=21-39”, Journal of Chemical Physics 126, 084310, 1-6 (Feb 2007). [CDE]


RUSSELL, TIMOTHY H., Maj,


WEEKS, DAVID E.,


YEO, YUNG KEE,


YEO, YUNG KEE,


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

BOHN, MATTHEW J., Maj,

CUSUMANO, SALVATORE J.


FIORINO, STEVEN T., Lt Col


HENGEOHLD, ROBERT L.


LAGGRAFFE, DAVID A., LTC,


PERRAM, GLEN P.


PETROSKY, JAMES C.


YEOW, YUNG KEE,


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/MNMER; students assembled PALS system at Eglin AFB.

FIORELLO, 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]


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.


PETROSKY, JAMES C.

Petrosky, James C., Chairman, QASPR Review Panel, NNSA, Jan-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,


BOHN, MATTHEW J., Maj,


BURGGRAF, LARRY,


Explored teaching and research collaborations with University of Cincinnati nuclear engineering faculty and students by video conference, joint with Dr. Petrosky.

CUSUMANO, SALVATORE J.,


FIORINO, STEVEN T., Lt Col


HENGEHOLD, ROBERT L.

LAGRAFFE, DAVID A., LTC,


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]


MATHEWS, KIRK A.,


NIDAY, THOMAS A., Maj,


PERRAM, GLEN P.


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., Glen P. Perram, Ronald F. Tuttle, “Using fireball signatures and phenomenology to distinguish high explosives” 2nd Annual Advanced Signatures Technology Symposium, Air Force Institute of Technology, Wright Patterson Air Force Base, OH, 7-9 Nov 2006. [CMSR]

PETROSKY, JAMES C.


RUSSELL, TIMOTHY H., Maj.


SMITHTRO, CHRISTOPHER G., Maj.


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 \( B \left( ^2 P_{1/2} \right) + H_2 \left( j = 0 \right) \leftrightarrow B \left( ^2 P_{3/2} \right) + H_2 \left( j' \right) \)”, APS March Meeting, Denver, CO, March 5-9, 2007.

Weeks, D.E., and T.A.Niday, "Scattering Matrix Elements for the Inelastic Collision \( B \left( ^2 P_{1/2} \right) + H_2 \left( j = 0 \right) \leftrightarrow B \left( ^2 P_{3/2} \right) + H_2 \left( j' \right) \)," Physics Department, Miami University, Oxford OH (2007).
YEO, YUNG KEE,


PROFESSIONAL ACTIVITIES

BURGGRAF, LARRY W.,


HENGEHOLD, 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.
Member, Board of Trustees, Engineering & Science Foundation of Dayton.
Laboratory Program Representative, National Research Council Research Associateship program.
5.4. DEPARTMENT OF MATHEMATICS AND STATISTICS

Access Phone: 937-255-3098, DSN 785-3098
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5.4.1 FUNDED RESEARCH PROJECTS 127
5.4.2 REFEREED JOURNAL PUBLICATIONS 127
5.4.3 REFEREED CONFERENCES 128
5.4.4 SUBSTANTIAL CONSULTATIONS 129
5.4.5 OTHER PRESENTATION, PUBLICATIONS AND PROFESSIONAL ACTIVITIES 129
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.,


THORSEN, STEVEN N., Maj,

“Analysis of the Performance of Classification and Information Fusion.” Sponsor: AFOSR. Funding: $15,004.

5.4.2. REFEREED JOURNAL PUBLICATIONS

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

ABRAMSON, MARK A., Lt Col


BULUTOGLU, DURSUN A.


LAIR, ALAN V.


NOVAK, KYLE A., Maj


OXLEY, MARK E.


THORSEN, STEVEN N., Maj


WHITE, EDWARD D., III


WOOD, AIHUA W.


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

BAKER, WILLIAM P.


FICKUS, MATTHEW C.


NOVAK, KYLE A., Maj

OXLEY, MARK E.


THORSEN, STEVEN N., Maj


5.4.4. SUBSTANTIAL CONSULTATIONS

BULUTOGLU, DURSUN A.


BUSH, BRETT A., Maj


DUCKRO, DONALD E., Lt Col


NEHER, ROBERT E. JR., Lt Col


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


**BULUTOGLU, DURSUN A.**

Referee, *Journal of Statistical Planning and Inference*

Referee, *Applied Mathematical Modelling Journal*


**DUCKRO, DONALD E., Lt Col**


**FICKUS, MATTHEW C.**

Referee, *Applied and Computational Harmonic Analysis*

Referee, *Advances in Computational Mathematics*


Fickus, M., “Rotations and moments over integer lattices,” the Norbert Wiener Center's Summertime Fourier Talks, University of Maryland, College Park, June 11, 2007.


**LAIR, ALAN V.**

Reviewer, *Mathematical Reviews*


**NEHER, ROBERT E. JR., Lt Col**

Referee, *IEEE Transactions on Reliability*

**NOVAK, KYLE A., Maj**

Referee, *Communications in Mathematical Sciences*
OXLEY, MARK E.


Reviewer, *10th International Conference on Information Fusion* (FUSION 2007), Quebec City, Quebec, Canada


THORSEN, STEVEN N., Maj


WHITE, EDWARD D., III

Editor, *Journal of Cost Analysis and Management*

Technical Paper Referee, *Journal of Cost Analysis and Management*

WOOD, AIHUA W.


Established the Aihua Mathematics Scholarship at the Ocean University of China, Qingdao, China.


WRIGHT, SAMUEL A., Maj

## 5.5. DEPARTMENT OF OPERATIONAL SCIENCES

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<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5.1</td>
<td>DOCTORAL DISSERTATIONS</td>
<td>134</td>
</tr>
<tr>
<td>5.5.2</td>
<td>MASTER'S THESES</td>
<td>134</td>
</tr>
<tr>
<td>5.5.3</td>
<td>GRADUATE RESEARCH PAPERS</td>
<td>138</td>
</tr>
<tr>
<td>5.5.4</td>
<td>FUNDED RESEARCH PROJECTS</td>
<td>140</td>
</tr>
<tr>
<td>5.5.5</td>
<td>REFEREED JOURNAL PUBLICATIONS</td>
<td>141</td>
</tr>
<tr>
<td>5.5.6</td>
<td>REFEREED PRESENTATIONS</td>
<td>143</td>
</tr>
<tr>
<td>5.5.7</td>
<td>SUBSTANTIAL CONSULTATIONS</td>
<td>148</td>
</tr>
<tr>
<td>5.5.8</td>
<td>BOOKS &amp; CHAPTERS IN BOOKS</td>
<td>149</td>
</tr>
<tr>
<td>5.5.9</td>
<td>OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES</td>
<td>149</td>
</tr>
</tbody>
</table>
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.


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/MSC.

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.


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.

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.


SALAVERRY JUAN A., *Predicting Argentine Jet Fuel Prices.* AFIT/GLM/ENC/07M-01. Faculty Advisor: Dr. Edward White, III. Sponsor: N/A.


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.


5.5.2.2. **OPERATIONS RESEARCH (GOR)**


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.


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.


HERBRANSON, TRAVIS J., Isolating Key Players in Clandestine Networks. AFIT/GOR/ENS/07-11. Faculty Advisor: Dr. Richard Deckro. Sponsor: N/A.


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

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.


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.

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


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.


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)


5.5.2.4. ENGINEERING MANAGEMENT (GEM)


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.


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)


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.

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


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

HUSS, 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.


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


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.


“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,**


**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.,**


**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. REFEREEED JOURNAL PUBLICATIONS

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

BAUER, KENNETH W. Jr.,


COCHRAN, JEFFERY K.,


COOPER, MARTHA C.,


DECKRO, RICHARD F.,


GRIFFIS, STANLEY E., Lt Col


JOHNSON, ALAN W.,


KAROUFEH, JEFFREY P.,


MATTIODA, DANIEL D., Maj


MILLER, J. O.,


OGDEN, JEFFREY A.,


PERRY, MARCUS B.,


WEIR, JEFFERY D., Lt Col


5.5.6. REFEREED PRESENTATIONS

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

BAUER, KENNETH W. Jr.,


BREWER, BARRY L., Maj


CHRISSIS, JAMES W.,


COCHRAN, JEFFERY K.,


COOPER, MARTHA C.,


CUNNINGHAM, WILLIAM A. III,


DECKRO, RICHARD F.,


DONOVAN, PAMELA, Lt Col


HALL, SHANE N., Maj


JOHNSON, ALAN W.,


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., “Manpower Requirements for Reusable Military Launch Vehicle Regeneration”, 75th MORS Symposium, Annapolis, 12-14 June 2007. [COA]

KCHAROUFEH, JEFFREY P.,


KINNEY, GARY W. Jr., Maj

KNIGHTON, SHANE A., Maj
Knighton, Shane. “Network Flow Model for Optimizing Fighter Squadron Selection”, Royal Military Academy, Kingston, Ontario, June 07. [COA]

MATTIODA, DANIEL D., Maj

MELOUK, SHARIF H.,

MILLER, J. O.,

MOORE, JAMES T.,


OGDEN, JEFFREY A.,


PERRY, MARCUS B.,


ROESENER, AUGUST G., Maj


ZALEWSKI, DANIEL J., Col,

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.,

JOHNSON, ALAN W.,
1FW, 1AMXS, Langley AFB VA, 30 May – 1 June 2007, F-22 Sortie generation modeling. [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]

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.,

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]

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.,
Session Chair: January 2007 AIAA Aerospace Sciences Meeting in Reno, NV.
Member: MDO/TC Education Subcommittee
COCHRAN, JEFFERY K.,


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


“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.


Elected Vice President Education, SOLE – The International Society of Logistics, Dallas, August 2006, two-year term.

Associate Editor, Journal of Supply Chain Management.


Editorial Advisory Board for the Supply Chain Management Review and Journal of Marketing Channels.

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,


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.


Editor, Military Operations Research.

Immediate Past President, Military Applications Society, INFORMS (from November 2006).

Area Editor, Service Systems, Computers & Industrial Engineering.


DONOVAN, PAMELA, Lt Col,

Reviewer: Council of Supply Chain Management Professionals Student Papers and The Transportation Journal.

HALL, SHANE N., Maj

JOHNSON, ALAN W., [COA]

Session Chair, Air Force Supply Chain Analysis, INFORMS National Meeting, November 5-8, 2006, Pittsburgh.


Vice Chair, Space Logistics Technical Committee, American Institute of Aeronautics and Astronautics.

Council Member, Military Applications Society, INFORMS.


Kharoufeh, Jeffrey P.,


Elected to the Board of Directors, Operations Research Division, Institute of Industrial Engineers (IIE).


KNIGHTON, SHANE A., Maj, [COA]

Member, Institute for Industrial Engineers and INFORMS.

MELOUK, SHARIF H., [COA]

Dayton Area Graduate Studies Institute (DAGSI) Representative.


Treasurer, INFORMS Cincinnati/Dayton Chapter, 2006-07.

Membership Committee Member, INFORMS Simulation Society, 2006-07.

**MILLER, J. O., [COA]**

INFORMS Simulation Society Council Representative (elected position).


Associate Editor for International Journal of Operations Research.


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.


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.,**


Member: Institute for Supply Management (ISM), Decision Sciences Institute, and Council of Logistics Management.

**PERRY, MARCUS B.,**


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.

ROESENER, AUGUST G., Maj

5.6. DEPARTMENT OF SYSTEMS AND ENGINEERING MANAGEMENT

Access Phone: 937-255-2998, DSN 785-2998
Fax: 937-656-4699, DSN 986-4699
Homepage: http://www.afit.edu/en/env/

5.6.1 MASTER'S THESES

5.6.2 GRADUATE RESEARCH PAPERS

5.6.3 FUNDED RESEARCH PROJECTS

5.6.4 REFEREED JOURNAL PUBLICATIONS

5.6.5 REFEREED PRESENTATIONS

5.6.6 SUBSTANTIAL CONSULTATIONS

5.6.7 BOOKS & CHAPTERS IN BOOKS

5.6.8 OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES
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.


5.6.1.2. ENGINEERING MANAGEMENT (GEM)


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: AFCESA/CE.


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.


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: AFCEE/CE.


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.


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)


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.


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.


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.


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.


5.6.1.5. **RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)**


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.


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, MICHALE 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.


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


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, MICHALE 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.


KOCH, RICHARD T., See CONNOLLY, MICHALE 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, MICHALE 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.


TANGLAO, RAINIER, See HILL, WILLIAM R., II.


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


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.,

BARELKA, ALEXANDER J., Maj,
“The Influence of Pop-Culture IT.” Sponsor: AFRL/HE. Funding: $80,000.

GOLTZ, MARK N.,


GRIMAILA, MICHAEL R.,
“Internet Protocol Geolocation: The Determination of a Geographic Location within a Metropolitan Area.” Sponsor: NASIC. Funding: $10,000.


“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.,

SHELLEY, MICHAEL L.,

STROUBLE, DENNIS D.,
5.6.4. REFEREEED JOURNAL PUBLICATIONS
Note: Research Center affiliation is listed in [ ] if applicable.

BADIRU, ADEDEJI B.,


BLECKMANN, CHARLES A.


GOLTZ, MARK N.,


GRIMAILA, MICHAEL R.,


HOLT, DANIEL T., LtCol,


REHG, MICHAEL T.


SLAGLEY, JEREMY M., Maj,


SMITH, JEFFREY S., LtCol,


THAL, ALFRED E., Jr.


TURNER, JASON M., Maj

5.6.5. REFEREED PRESENTATIONS

BADIRU, ADEDEJI B.


GRIMAILA, MICHAEL R.,


HALVORSEN, KENT C., LtCol,


HEMINGER, ALAN R.


HOLT DANIEL T., LtCol,


PEACHY, TODD A., Maj


TURNER, JASON M., Maj


WEST, CHRISTOPHER, Lt.Col


5.6.6. SUBSTANTIAL CONSULTATIONS

BADIRU, ADEDEJI B.


GRIMAILA, MICHAEL R.,


HEMINGER, ALAN R.,

“Identification and Selection of Subject Matter Experts”, for the Defense Threat Reduction Agency (DTRA), December 2006

REHG, MICHAEL T.


5.6.7. BOOKS AND CHAPTERS IN BOOKS

BADIRU, ADEDEJI B.


HOLT, DANIEL T., LtCol,


PEACHEY, TODD A., Maj,

5.6.8. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BADIRU, ADEDEJI B.


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.


GRIMAILA, MICHAEL R.,


SHELLEY, MICHAEL


SLAGLEY, JEREMY M., Maj.


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,


STROUBLE, DENNIS

A-10 Case Study for AFIT Center for Systems Engineering.

TURNER, JASON M., Maj

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 FUNDED RESEARCH PROJECTS 174
6.1.2 REFEREED JOURNAL PUBLICATIONS 175
6.1.3 REFEREED PRESENTATIONS 175
6.1.4 OTHER PUBLICATIONS 176
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.,


PETERTSON, 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]


“Sub-Surface Navigation.” Sponsor: AFRL/SN. Funding: $31,250. [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. REFEREEED JOURNAL PUBLICATIONS

PETERSON, GILBERT L.,


RAQUET, JOHN F.,


VETH, MICHAEL J., Maj,


6.1.3. REFEREEED PRESENTATIONS

BLUE, PAUL A., Maj,


PETERSON, GILBERT L.


RAQUET, JOHN F.,


VETH, MICHAEL J., Maj,


6.1.4. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

RAQUET, JOHN F.,


VETH, MICHAEL J., Maj,

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 FUNDED RESEARCH PROJECTS 178
6.2.2 FUNDED EDUCATIONAL PROJECTS 179
6.2.3 REFEREED JOURNAL PUBLICATIONS 179
6.2.4 REFEREED PRESENTATIONS 180
6.2.5 OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES 181
6.2.6 SUBSTANTIAL CONSULTATIONS 183
6.2.1. FUNDED RESEARCH PROJECTS

CUSUMANO, SALVATORE J.,


“Airborne Aero-Optic Laboratory.” Sponsor: HELJTO. Funding: $114,825. [CDE]

“Delivered Irradiance Assessment Tool (DIAT).” Sponsor: DETEC. Funding: $103,000. [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]


“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.


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.,


6.2.3. REFEREED JOURNAL PUBLICATIONS

CUSUMANO, SALVATORE J.,


FIORINO, STEVEN T., Lt Col


MILLER, J. O.,


PERRAM, GLEN P.,

Dolezal, Michael W., and Glen P. Perram, “Predissociation of Bi₂ A(0,\nu'), v'=21-39”, Journal of Chemical Physics 126, 084310, 1-6 (Feb 2007). [CDE]


RUSSELL, TIMOTHY H., Maj,


### 6.2.4. REFEREED PRESENTATIONS

**CUSUMANO, SALVATORE J.,**


**FIO RINO, STEVEN T., Lt Col,**


**PERRAM, GLEN P.,**


6.2.5. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

CUSUMANO, SALVATORE J.,


FIORINO, STEVEN T., Lt Col,


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]


PERRAM, GLEN P.,


William, Skip, Jeffrey Gallagher and Glen Perram, “Collisional broadening coefficients of singlet (a \( \Delta_g \)) oxygen with helium”, 59th Annual Gaseous Electronics Conference, Columbus, OH, Oct 2006. [CDE]


Gross, Kevin C., Glen P. Perram, Ronald F. Tuttle, “Using fireball signatures and phenomenology to distinguish high explosives” 2nd Annual Advanced Signatures Technology Symposium, Air Force Institute of Technology, Wright Patterson Air Force Base, OH, 7-9 Nov 2006. [CMSR]

RUSSELL, TIMOTHY H., Maj,


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]


MARCINIAK, MICHAEL A.,


6.3. CENTER FOR CYBERSPACE RESEARCH

Center for Cyberspace Research (CCR)
Director 255-6565 x4278
Executive Program Coordinator 255-3636 x4602
Homepage: http://www.afit.edu/ccr/

6.3.1 FUNDED RESEARCH PROJECTS 185
6.3.2 FUNDED EDUCATIONAL PROJECTS 185
6.3.3 REFEREED JOURNAL PUBLICATIONS 185
6.3.4 REFEREED PRESENTATIONS 188
6.3.5 OTHER PUBLICATIONS AND PRESENTATIONS 193
6.3.6 SUBSTANTIAL CONSULTATIONS 196
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]


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

6.3.3. REFEREED JOURNAL PUBLICATIONS

BALDWIN, RUSTY O.,


MILLS, ROBERT F.,


MULLINS, BARRY E.,


**OXLEY, MARK E.,**


**PETE RSON, GILBERT L.,**


**RAINES, RICHARD A.,**


**TEMPLE, MICHAEL A.**


**WILLIAMS, PAUL D., Maj,**

Paul D. Williams and Eugene H. Spafford; “CuPIDS: An Exploration of Highly Focused, Coprocessor-based Information System Protection,” *Computer Networks;* Elsevier; v 51(5); pp. 1284-1298; April 2007. [CCR]


### 6.3.4. REFEREED PRESENTATIONS

**BALDWIN, RUSTY O.**


HOPKINSON, KENNETH M.,


MILLS, ROBERT F.,


MULLINS, BARRY E.,


PETERSON, GILBERT L.,


RAINES, RICHARD A.,


WILLIAMS, PAUL D., Maj,


6.3.5. OTHER PUBLICATIONS AND PRESENTATIONS

KURKOWSKI, STUART H., LtCol,


MILLS, ROBERT F.,


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


MULLINS, BARRY E.,


PETE RSON, GILBERT L.,


RAINES, RICHARD A.,


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


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, 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 Paul Williams, Dr. Rick Raines, “AFIT/AFRL Research Relationship Building,” Rome NY, Oct 06 [CCR]
6.3.6. SUBSTANTIAL CONSULTATIONS

MILLS, ROBERT F.,


MULLINS, BARRY E.,


WILLIAMS, PAUL D., Maj,

Williams, Paul D., “Cyber Force Development--Cyber Education and Training,” By-name designee to develop the knowledge, skills, and ability training requirements for the future cyber warfare forces, supported HQ AF, 8AF, AFCYBER, NSA, Oct 2006-Oct 2007. [CCR]

Mills, Robert F. and Williams, Paul D., “Cyber Force Development--Cyber PME”, supported Dr. Mills in developing the cyber warfare doctrine and material required for PME for all Airmen, supported AU, HQ AF, 8AF, AFCYBER, NSA, Oct 2006-Oct 2007. [CCR]
6.4. CENTER FOR MASINT STUDIES AND RESEARCH

Center for MASINT Studies and Research [CMSR]
Chair 255-3636 x4536
Executive Program Coordinator 255-7287
FAX 656-6000
Homepage: http://www.afit.edu/cmsr/

6.4.1 FUNDED RESEARCH PROJECTS 198

6.4.2 FUNDED EDUCATIONAL PROJECTS 198

6.4.3 REFEREED PRESENTATIONS 198

6.4.4 OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES 198
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.,

“Establishing an Expert-Defined Protocol for Analytical Tradecraft with Career Specialization in Denail and Deception.” Sponsor: NASIC. Funding: $75,000. [CMSR]

“JWICS Connectivity Support.” Sponsor: NASIC. Funding: $50,000. [CMSR]

6.4.2. FUNDED EDUCATIONAL PROJECTS

TUTTLE, RONALD F.,

“Advanced Geospatial Intelligence Education.” Sponsor: NGA. Funding: $510,000. [CMSR]

“MASINT Academic Support.” Sponsor: AFRL/SN. Funding: $100,000. [CMSR]

6.4.3. REFEREED PRESENTATIONS

BOHN, MATTHEW J., LtCol,


PERRAM, GLEN P.,


6.4.4. OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES

BOHN, MATTHEW J., LtCol,


PERRAM, GLEN P.


Gross, Kevin C., Glen P. Perram, Ronald F. Tuttle, “Using fireball signatures and phenomenology to distinguish high explosives” 2nd Annual Advanced Signatures Technology Symposium, Air Force Institute of Technology, Wright Patterson Air Force Base, OH, 7-9 Nov 2006. [CMSR]
6.5. CENTER FOR OPERATIONAL ANALYSIS

Center for Operational Analysis (COA)
Director 255-6565 x4326
Projects Director 255-6565 x4251
Homepage: http://www.afit.edu/coa/

6.5.1 FUNDED RESEARCH PROJECTS 200

6.5.2 REFEREED JOURNAL PUBLICATIONS 200

6.5.3 REFEREED PRESENTATIONS 201

6.5.4 OTHER PRESENTATIONS, PUBLICATIONS AND PROFESSIONAL ACTIVITIES 203

6.5.5 SUBSTANTIAL CONSULTATIONS 204

6.5.6 BOOKS AND CHAPTERS IN BOOKS 205
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.,


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.,


JOHNSON, ALAN W.,


MILLER, J. O.,


WEIR, JEFFERY D., Lt Col,


6.5.3. REFEREED PRESENTATIONS

BAUER, KENNETH W. Jr.,


JOHNSON, ALAN W.,


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., “Manpower Requirements for Reusable Military Launch Vehicle Regeneration”, 75th MORS Symposium, Annapolis, 12-14 June 2007. [COA]

KNIGHTON, SHANE A., Maj,

Knighton, Shane. “Network Flow Model for Optimizing Fighter Squadron Selection”, Royal Military Academy, Kingston, Ontario, June 07. [COA]


MELOUK, SHARIF H.,


MILLER, J. O.,


MOORE, JAMES T.,


ZALEWSKI, DANIEL J., Col,

6.5.4. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

ANDERSON, BRADLEY E., Lt Col, [COA]


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.


Vice Chair, Space Logistics Technical Committee, American Institute of Aeronautics and Astronautics.

Council Member, Military Applications Society, INFORMS.


KNIGHTON, SHANE A., Maj, [COA]

Member, Institute for Industrial Engineers and INFORMS.

MELOUK, SHARIF H., [COA]

Dayton Area Graduate Studies Institute (DAGSI) Representative.


Treasurer, INFORMS Cincinnati/Dayton Chapter, 2006-07.

Membership Committee Member, INFORMS Simulation Society, 2006-07.


MILLER, J. O., [COA]

INFORMS Simulation Society Council Representative (elected position).

Associate Editor for International Journal of Operations Research.
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.
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]

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]
6.5.6. BOOKS AND CHAPTERS IN BOOKS

JOHNSON, ALAN W.,

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/

Chief 937-255-3636 x7469
Fax 937-656-7621, DSN 986-7621

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,


6.6.2. REFEREED JOURNAL PUBLICATIONS

COBB, RICHARD G.,

6.6.3. REFEREED PRESENTATIONS

COBB, RICHARD G.,

6.6.4. OTHER PRESENTATIONS PUBLICATIONS AND PROFESSIONAL ACTIVITIES

COBB, RICHARD G.,


6.7. CENTER FOR SYSTEMS ENGINEERING

Center for Systems Engineering
Education and Training Division
Homepage: http://cse.afit.edu/

Chief 937-255-3355 x3363
Fax 937-255-4981

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.,

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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Fax: 937-656-7621, DSN 986-7621
Homepage: http://www.afit.edu/en/eny/

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BLUE, PAUL A., Maj, Instructor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2004 (AFIT/ENY); BS, University of Nebraska - Lincoln, 1993; MS, University of Minnesota - Twin Cities, 1995; PhD (ABD), University of Minnesota - Twin Cities, 2004. Maj Blue’s research interests include the guidance and control of aerospace vehicles and the flight-testing of advanced control concepts. His current research is focused on guidance, navigation, and control of small unmanned aircraft systems, operator interfaces, and developing techniques to evaluate a controlled system’s performance (e.g. an aircraft’s handling qualities) based on the operators ability to perform a given task. Maj Blue’s prior assignments include Flight Control Research Engineer at the Air Vehicles Directorate of the Air Force Research Laboratory and Exchange Engineer at the German Aerospace Center. He has several publications, including a textbook on robust control with Prof. Juergen Ackermann et al. Tel. 937-255-3636 x4714 (DSN 785-3636 x4714), email: Paul.Blue@afit.edu.

BRANAM, RICHARD D., Maj, Assistant Professor of Aeronautical Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2005 (AFIT/ENY); BS, Aerospace Engineering, The Ohio State University, 1993; MS, Aeronautical Engineering, Air Force Institute of Technology, 1997; PhD, Aerospace Engineering, The Pennsylvania State University, 2005. Major Branam’s primary research areas of interest are rocket propulsion and hypersonics. Previous assignments include research scientist at the German Aerospace Center in the area of supercritical injection and as program manager of the upper stage rocket demonstration at the Air Force Research Laboratory. He has several publications, including a textbook on robust control with Prof. Juergen Ackermann et al. Tel. 937-255-3636 x4785 (DSN 785-3636 x4785), email: richard.branam@afit.edu.

CANFIELD, ROBERT A., Associate Professor in Aeronautics and Astronautics, Department of Aeronautics and Astronautics, 2000 (AFIT/ENY); BSE, Mechanical Engineering, Duke University, 1983; MS, Aeronautics and Astronautics, Stanford University, 1984; PhD, Engineering Mechanics, Virginia Polytechnic Institute and State University, 1992. Dr. Canfield’s research interests include structural optimization, multidisciplinary analysis and design methods, structural dynamics and controls, and aeroelasticity. He has published two textbooks, 32 journal articles and 56 papers in conference proceedings on these topics. Dr. Canfield is the former Program Manager for Computational Mathematics at the Air Force Office of Scientific Research (AFOSR) and AFOSR Director of Policy and Integration. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics. Tel. 937-255-3636 x4723, (DSN 785-3636 x4723), email: Robert.Canfield@afit.edu.
CALICO, ROBERT A., Jr., Professor Emeritus of Aerospace Engineering, AFIT Appointment Date: 1972 (AFIT/EN); BS, University of Cincinnati, 1966; MS, University of Cincinnati, 1968; PhD, University of Cincinnati, 1971. Dr. Calico’s research interests include aircraft stability and control, analytical dynamics, stability of non-linear systems, satellite dynamics, control theory, and vibration analysis. Tel. 937-255-3025 (DSN 785-3025), email: Robert.Calico@afit.edu.

COBB, RICHARD G., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2001 (AFIT/ENY); BS, the Pennsylvania State University, 1988; MS, Air Force Institute of Technology, 1992; PhD, Air Force Institute of Technology, 1996. Research interests include dynamics and control of flexible space structures for remote sensing applications, system identification techniques, control of micro air vehicles, and applications of optimal control theory. Prior to teaching at AFIT, Dr. Cobb was responsible for the establishment of an Air Force wide Reliability Centered Maintenance program to enhance jet engine reliability. In recognition of his accomplishments, Dr. Cobb was selected as the 2001 Senior Military Engineer of the Year for the Aeronautical Systems Center. Prior to his assignment at WPAFB in September 1999, Dr. Cobb served as program manager for the Air Force Research Laboratory’s TechSat 21 program, a revolutionary satellite technology program investigating the feasibility of using distributed micro-satellite constellations to satisfy Air Force global sensing requirements. While at Kirtland AFB NM, Dr. Cobb also served as the technical advisor for the Space Vehicles Technology Branch, and Chief of the Dynamic Systems Group. Tel. 937-255-3636 x4559 (DSN 785-3636 x4559), email: Richard.Cobb@afit.edu.

FRANKE, MILTON E., Professor Emeritus of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1959 (AFIT/ENY); BME, University of Florida, 1952; MSME, University of Minnesota, 1954; PhD, The Ohio State University, 1967. Research interests include fluid transmission lines, thrust vector control, high lift aerodynamics, fluidics, cavity acoustics, thrust augmenting ejectors, heat transfer, electrostatic cooling, boundary layers, aerodynamic in-ground effects, lean aerospace initiatives, reusable launch vehicles, and engineering of complex systems. Dr. Franke has authored or co-authored over 130 technical articles. He holds five patents, was the recipient of the AFIT Charles A. Stone Award in 1986 and the AFIT Bernard A. Schriever Award in 1993. Dr. Franke is a retired colonel in the Air Force Reserve. He is chair of the Committee on Organization and Rules (a committee of the ASME Board of Governors), past Vice President for Communications of the ASME (1990-1992), past Vice President for Systems and Design of the ASME (1993-1996), co-chair of the AIAA Weapon System Effectiveness Technical Committee, a Fellow of the ASME, and Associate Fellow of the AIAA. Dr. Franke retired 31 March 2007. Tel. 937-255-3636, x 4720 (DSN 785-3636, x 4720), email: milton.franke@afit.edu.

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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**KUNZ, DONALD L.,** Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2003 (AFIT/ENY); BS, Syracuse University, 1971; MS, Georgia Institute of Technology, 1972; PhD, Georgia Institute of Technology, 1976; Dr. Kunz’s research interests include rotorcraft dynamics, vibrations, and loads, structural dynamics, aeroelasticity, multidisciplinary dynamics, smart structures, and computational structural mechanics. He has published more than 60 journal articles, conference papers, and technical reports. Prior to coming to AFIT, Dr. Kunz worked at the US Army Aeroflightdynamics Directorate, McDonnell Douglas Helicopter Company, Old Dominion University, and the US Army Aviation and Missile Command. He is an Associate Fellow of AIAA; a member of AHS and ASME; and a licensed professional engineer in the Commonwealth of Virginia. Tel. 937-255-3636 x4548 (DSN 785-3636 x4548), email: Donald.Kunz@afit.edu.

**LIEBST, BRADLEY S.,** Professor of Aerospace Engineering and Head, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1989 (AFIT/ENY); BS, Wichita State University, 1978; MS, Massachusetts Institute of Technology, 1979; PhD, Massachusetts Institute of Technology, 1981. Dr. Liebst's research interests include eigenstructure assignment and control, stability and control of aerospace vehicles, passive and active control of large flexible structures, and aircraft handling qualities. He has published over 30 articles and reports and chaired over 40 theses and dissertations. Prior to teaching at AFIT, Professor Liebst was Assistant Professor of Aerospace Engineering for 6 years at the University of Minnesota where he was voted the 1987 Best Institute of Technology (U of M) Professor. Tel. 937-255-3636 x4636 (DSN 785-6565 x4636), email: Bradley.Liebst@afit.edu.
MALL, SHANKAR, Professor, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1986 (AFIT/ENY); BS, Mechanical Engineering, Banaras Hindu University, India, 1964; MS, Mechanical Engineering, Banaras Hindu University, 1966; PhD, Mechanical Engineering, University of Washington, 1977. Dr. Mall's research centers on composite and smart materials, fatigue and fracture. Dr. Mall has authored over 100 papers and has been the co-editor of a book and five conference proceedings. He is a Fellow of ASME, Associate Fellow of AIAA. He is also the Principal Materials Research Engineer, Materials and Manufacturing Directorate, Air Force Research Laboratory. He is associate editor of several journals. Tel. 937-255-3636 x4587 (DSN 785-3636 x4587), email: Shankar.Mall@afit.edu.

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PALAZOTTO, ANTHONY N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1975 (AFIT/ENY); BS, New York University, 1955; MS, Brooklyn Polytechnic Institute, 1961; PhD, New York University, 1968. Professor Palazotto's interests include nonlinear mechanics, shell analysis, finite elements, composite materials, viscoplasticity and nonlinear dynamics. Dr. Palazotto is the co-author of a textbook, "The Nonlinear Analysis of Shell Structures," published in 1992 by the AIAA. In addition he has authored over 165 archival technical publications and more than 330 technical reports and manuscripts. Dr. Palazotto received the Hetanyi Award in 1982 from the Society of Experimental Mechanics, the Cleary Award in 1981 from the Air Force Materials Lab, and the Structures and Materials Award from the ASCE in 1986. Dr. Palazotto is a Fellow of the ASCE and an Associate Fellow of the AIAA. He is a registered Professional Engineer. Tel. 937-255-3636 x4599 (DSN 785-3636 x4599), email: Anthony.Palazotto@afit.edu.

REEDER, MARK F., Assistant Professor of Aerospace Engineering, AFIT Appointment Date: 2002 (AFIT/ENY); BS, Mechanical Engineering, West Virginia University, 1989; MS, Mechanical Engineering, Ohio State University, 1991; PhD, Mechanical Engineering, Ohio State University, 1994; Prior to accepting a position with AFIT, Dr. Reeder served as an NRC Research Associate at NASA Glenn and subsequently as the manager of Research and Development for a manufacturer of industrial mixing equipment. Dr. Reeder’s research interests include all aspects of fluid mechanics with an emphasis on experimental applications involving external aerodynamics, mixing enhancement and propulsion. Recent publications include a characterization of store separation from a cavity using pressure sensitive paint and measurements of a micro air vehicle using a 6-DOF balance. He has been published in a variety of journals including the Journal of Fluid Mechanics, The AIAA Journal, The AIAA Journal of Propulsion and Power, Physics of Fluids, NASA Tech Briefs, and Chemical Engineering Progress. He has three patents to his credit and is a licensed Professional Engineer in the State of Ohio. Dr. Reeder is an Associate Fellow of the AIAA and a member of ASME. Tel. 937-255-3636 x4530 (DSN 785-3636 x4530), email: Mark.Reeder@afit.edu.

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.
SHEARER, CHRISTOPHER M., Assistant Professor of Aerospace Engineering, AFIT Appointment Date: September 2006 (AFIT/ENY); BS Aerospace Engineering, Texas A&M University, 1992, MS Aerospace Engineering, AFIT, 1997; PhD Aerospace Engineering, University of Michigan, 2006. Maj Shearer’s research interests include computational and experimental structural dynamics of High Altitude Long Endurance (HALE) aircraft. He is also interested in flight dynamics and control of aircraft as well as aircraft design. Previous research has focused on Model Predictive Control (MPC) methods used on a nonlinear aircraft model, flight testing of auto ground collision avoidance systems, and HALE aircraft. He is a licensed FAA Certified Flight Instructor and a member of AIAA, Tau Beta Pi, and the Experimental Aircraft Association. Tel. 937-255-3636 x4643 (DSN 785-3636 x4643), email: Christopher.shearer@afit.edu

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COOPER, MARTHA C., IPA, Visiting Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Math/Computer Science, Purdue University, 1968; MS Industrial Administration, Purdue University, 1968; Ph.D., Business (Marketing, Logistics), The Ohio State University, 1982. Professor Cooper's research interests include supply chain management, partnership and other inter-firm relationships, the role of customer service in corporate strategy, international logistics, and career patterns of women in logistics. She has co authored three books, Customer Service: A Management Perspective, Partnerships in Providing Customer Service: A Third Party Perspective, and Strategic Planning for Logistics. Professor Cooper has over one hundred publications, including two best paper awards. Tel. 937-255-3636 x4708 (DSN 785-3636 x4708), email: Martha.cooper@afit.edu
CU宁NINGHAM, WILLIAM A., III, Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 1994 (AFIT/ENS); BS, Business Administration, Missouri Southern State College, 1976; MS, Economics, Oklahoma State University, 1979; PhD, Economics, University of Arkansas, 1986. Dr. Cunningham’s research interests include transportation, strategic mobility, activity-based costing, lean, six sigma, theory of constraints, logistics management, public policy analysis, privatization, third-party logistics, international logistics, and international trade. Tel. (937) 255-6565 x4283 (DSN 785-6565 x4283), email: William.Cunningham@afit.edu.

DECKRO, RICHARD F., Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 1994 (AFIT/ENS); BSIE, State University of New York at Buffalo, 1972; MBA, Kent State University, 1973; DBA, Kent State University, 1976. Dr. Deckro's research and consulting interests are in the areas of information operations, applied mathematical programming and optimization, campaign planning, stabilization and reconstruction, scheduling, network models, project management, engineering management, technology selection and management, and multi-criteria decision making. He is the Editor of Military Operations Research and Area Editor for Service Systems for Computers & Industrial Engineering. Tel. 937-255-6565 x4325 (DSN 785-6565 x4325), email: Richard.Deckro@afit.edu.

DONOVAN, PAMELA, Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Kent State University, 1986; MS, Air Force Institute of Technology, 1996; PhD, University of Maryland, 2006. Lt Col Donovan’s research interests include inventory modeling, distribution processes, supply chain integration, and transportation. Tel. 937-255-3636 x4510 (DSN 785-3636 x4510), email: Pamela.donovan@afit.edu.

GRIFFIS, STANLEY E., Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); BA, History, Assumption College, 1988; MS, Logistics Management, Air Force Institute of Technology, 1996; PhD, Business Administration, The Ohio State University, 2001. Lt Col Griffis’ research interests include logistics performance measurement, lean agile and agile supply chain strategies, and social networks in supply chain management. Tel. 937-255-3636 x4533 (DSN 785-3636 x4533), email: Stanley.griffis@afit.edu.

HALL, SHANE N., Maj, Assistant Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Mathematics, Brigham Young University, 1997; MS, Operations Research, Air Force Institute of Technology, 2000; PhD, Industrial Engineering, University of Illinois at Urbana-Champaign, 2006. Maj Hall’s research interests include linear and integer optimization, dynamic programming approximation algorithms and heuristics with applications to military and health care problems. Tel. 937-255-3636 x4264 (DSN 785-3636 x4624), email: shane.hall@afit.edu.

JOHNSON, ALAN W., Associate Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2004 (AFIT/ENS); Center for Operational Analysis (COA), BS, Mechanical Engineering, Montana State University, 1982; MS, Systems Management, Air Force Institute of Technology, 1989; PhD, Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, 1996. Dr. Johnson’s research interests include strategic mobility, discrete-event simulation, logistics management, reliability and maintainability, and discrete optimization and heuristics. Tel. 937-255-3636 x4703 (DSN 785-3636 x4703), email: Alan.Johnson@afit.edu.

KHAROUFEH, JEFFREY P., Associate Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2001 (AFIT/ENS); BS, Ohio University, 1995; MS, Ohio University, 1997; PhD, Pennsylvania State University, 2001. Dr. Kharoufeh's primary research interest is the development and analysis of stochastic models in operations research. His application areas include reliability theory and modeling, maintenance optimization, and queuing systems.
Faculty Credentials
Department of Operational Sciences

KINNEY, GARY W. Jr., Maj, Assistant Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2005 (AFIT/ENS); Center for Operational Analysis (COA), BGS, Computer Science, University of Nebraska at Omaha, 1995; MS, Operational Analysis, Air Force Institute of Technology, 2000; Ph.D., Operations Research and Industrial Engineering, The University of Texas at Austin, 2005. Capt Kinney teaches courses in decision and risk analysis, multi-criteria decision making, integer programming and heuristic search methods. His research interests include decision and risk analysis, multi-criteria decision making, discrete optimization, large scale optimization and metaheuristics. Tel. 937-255-3636 x4601 (DSN 785-3636 x4601), email: Gary.Kinney@afit.edu.


MATTIODA, DANIEL D., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); Center for Operational Analysis (COA), BS Professional Aeronautics, Embry Riddle Aeronautical University 1997; MS Logistics and Acquisition Logistics Management, Air Force Institute of Technology, 2002; PhD Business Administration; Concentration: Marketing/Supply Chain Management, The University of Oklahoma – Norman, 2007. Maj Mattioda’s research interests include collaboration and flexibility in the supply chain; reverse logistics; international logistics; lean, agile, and agile logistics; and using simulation to model supply chain processes. Tel. 937-255-3636 x7946 (DSN 785-3636 x7946), email: Daniel.mattioda@afit.edu.

MELOUK, SHARIF H., Assistant Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2003 (AFIT/ENS); BS, Oklahoma State University, 1993; MBA, Oklahoma State University, 1997; PhD, Texas A&M University, 2003. Dr. Melouk’s research interests include discrete-event simulation, simulation optimization, and distributed simulation. He is a member of the Institute for Operations Research and the Management Sciences (INFORMS) and the Institute of Industrial Engineers (IIE).

MILLER, JOHN O., Associate Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Director, Center for Operational Analysis (COA), BS, United States Air Force Academy, 1980; MBA, University of Missouri at Columbia, 1983; MS, Air Force Institute of Technology, 1987; PhD, The Ohio State University, 1997. Dr. Miller’s research interests include simulation, ranking and selection, combat modeling, and nonparametric statistics. Tel. 937-255-6565 x4326 (DSN 785-6565 x4326), email: John.Miller@afit.edu.

MOORE, JAMES T., Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 1998 (AFIT/ENS); Center for Operational Analysis (COA), BA, University of Colorado, 1974; MBA, University of Wyoming, 1978; MS, Air Force Institute of Technology, 1981; PhD, The University of Texas at Austin, 1988. Dr. Moore's research interests include optimization theory, integer programming, scheduling, heuristics, and mobility modeling. Tel. 937-255-3636 x4528 (DSN 785-3636 x4528), email: James.Moore@afit.edu.

OGDEN, JEFFREY A., Assistant Professor of Logistics Management, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Accounting. Weber State University, 1998; MBA with emphasis in Supply Chain Management, Arizona State University, 2000; PhD, Business Administration with emphasis in Supply Chain Management, Arizona State University, 2003. Dr. Ogden’s research interests include strategic purchasing, supply base optimization, logistics management, quality management, e-marketplaces, RFID, and supply chain management. Tel. 937-255-3636 x4653 (DSN 785-3636 x4653), email: Jeffrey.ogden@afit.edu.
PATTERSON, KIRK A., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Center for Operational Analysis (COA), BS, Auburn University, 1985; MS, Auburn University, 1988; MS, Air Force Institute of Technology, 1997; PhD, University of Maryland, 2002. Maj Patterson’s research interests include supply chain management, transportation, strategic mobility, and logistics information management systems. Tel. 937-255-3636 x4521 (DSN 785-3636 x4521), email:

PERRY, MARCUS B., Assistant Professor of Operations Research, Dept of Operational Sciences, AFIT Appointment Date: 2004 (AFIT/ENS); BS, Southern Illinois University, 1998; MS, Southern Illinois University, 2000; PhD, Florida State University, 2004. Dr. Perry’s research interests include empirical modeling and analysis, experimental design, response surface methods, simulation, and quality control. He is a member of ASQ and a professional member of INFORMS and IIE.

ROESENER, AUGUST G., Maj, Assistant Professor of Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, United States Air Force Academy, 1998; MS, The University of Florida, 2002; PhD, The University of Texas at Austin, 2006. Capt Roesener’s research interests include linear and integer optimization, heuristics search algorithms, and experimental design. Tel. 937-255-3636 x4539 (DSN 785-3636 x4539), email: august.roesener@afit.edu

WEIR, JEFFERY D., LtCol, Assistant Professor of Operations Research, Interim Head Department of Operational Sciences, AFIT Appointment Date: 2002 (AFIT/ENS); Center for Operational Analysis (COA), Bachelors of Electrical Engineering, Georgia Institute of Technology, 1988; MAS, Embry Riddle Aeronautical University, 1992; MS, Air Force Institute of Technology, 1995; PhD, Georgia Institute of Technology, 2002. Lt Col Weir’s research interests include large-scale optimization, mathematical programming and decision analysis. He is a member of the Institute for Operations Research and Management Science (INFORMS) and the Military Operations Research Society (MORS).

ZALEWSKI, DANIEL J., Col, Senior Military Professor, Department of Operational Sciences, AFIT Appointment Date: 2005 (AFIT/ENS); Center for Operational Analysis (COA), BS, United States Air Force Academy, 1983; MS, George Mason University, 1989; PhD, Air Force Institute of Technology, 1995. Colonel Zalewski’s research interests include military modeling and simulation, process control, artificial intelligence, and neural networks. Tel. 937-255-3636 x4621 (DSN 785-3636 x4621), email: Daniel.Zalewski@afit.edu
BADIRU, ADEDEJI B., Professor and Head, Department of Systems & Engineering Management, AFIT
Appointment Date: 2006 (AFIT/ENV); BS, Tennessee Technological University, 1979; MS, Tennessee Technological University, 1981; PhD, Industrial Engineering, University of Central Florida, 1984. Dr. Badiru's research interests include Project Modeling, Analysis, Management, and Control, Mathematical Modeling, Computer Simulation, Information Systems, and Economic Analysis. He is the author of several books and technical journals. Tel. 937-255-3636 x4799 (DSN 785-3636 x4799), email: Adedeji.badiru@afit.edu.

BARTCZAK, SUMMER E., Lt Col, Assistant Professor of Information Resource Management, AFIT
Appointment Date: 2002 (AFIT/ENV); BS, United States Air Force Academy, CO, 1986; MS of Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1990; Masters of Military Operational Art, Air Command and Staff College, Air University, Montgomery, AL, 1998; PhD in Management Information Systems, Auburn University, Auburn, AL, 2002. Lt Col Bartczak’s research interests include information technology (IT)/knowledge management (KM) implementation and IT/KM strategy, innovation, and change. Tel. 937-255-3636 x4826 (DSN 785-3636 x4826), email: Summer.Bartczak@afit.edu.

BLECKMANN, CHARLES A., Associate Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1993 (AFIT/ENV); BA, Secondary Education (Biology), University of Evansville, 1967; MS, Biology, Incarnate Word College, 1971; PhD, Botany, University of Arizona, 1977. Dr. Bleckmann's research interests include water and wastewater analyses and treatment, hazardous waste identification and management, land treatment of wastes, groundwater remediation, biodegradation of organics, and fuels microbiology. Tel. 937-255-3636 x4721 (DSN 785-3636 x4721), email: Charles.Bleckmann@afit.edu.

FASS, R. DAVID, Maj, Instructor of Management; BS, Economics, University of New Mexico, 1989; MBA, University of New Mexico, 1993, PhD (A.B.D.), College of Business, Department of Management, New Mexico State University, 2007. His research interests include strategic management, organizational behavior, organizational development and change, government contracting, multilateral alliances ("constellations"), Austrian economics, prescriptive vs. descriptive research models, social network methods, structural equation modeling, transcendent goals, and enriching web-based learning. Tel. 937-255-3636 x4826 (DSN 785-3636 x4826), email: robert.fass@afit.edu.

GOLTZ, MARK N., Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1996 (AFIT/ENV); BS, Cornell University, 1972; MS, University of California, Berkeley, 1973; PhD, Environmental Engineering and Science, Stanford University, 1986. Dr. Goltz specializes in modeling the physical, chemical, and biological processes that affect the fate and transport of organic contaminants in the subsurface. He is also interested in the implementation and commercialization of innovative groundwater remediation technologies. Tel. 937-255-3636 x4638 (DSN 785-3636 x4638), email: Mark.Goltz@afit.edu.

GRIMAILA, MICHAEL R., Associate Professor of Information Resource Management, Department of Systems Engineering and Management, AFIT Appointment Date: 2004 (AFIT/ENV); Center for Cyberspace Research (CCR), BS, Texas A&M University, 1993; MS, Texas A&M University, 1995; PhD, Texas A&M University, 1999. Dr. Grimaila's research interests include information warfare; information operations; Information Assurance (IA) programs; IA risk management; IA resource allocation; IA metrics; data mining; and IA education, training, and awareness campaigns. Tel. 937-255-3636 x4800 (DSN 785-3636 x4800), email: michael.grimaila@afit.edu.
HALVERSON, KENT C., Lt Col, Assistant Professor of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2004 (AFIT/ENV); BS, Civil Engineering, U.S. Air Force Academy, 1990; MS, Civil Engineering, University of Illinois at Champaign-Urbana, 1995; and, PhD, Business Management, University of Florida, 2005. Lt Col Halverson’s research interests include leadership, social network analysis and organizational behavior. Tel. 937-255-3636 x4709 (DSN 785-3636 x4709), email: kent.halverson@afit.edu.

HEILMANN, SHARON, G., Maj, Assistant Professor of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2004 (AFIT/ENV); BS, Organizational Communication, Eastern Michigan University, 1988; MA, Organizational Communication, Ohio University, 1989; MS, Logistics Management, Air Force Institute of Technology, 1998; Master of Business, Indiana University-Bloomington, 2003; PhD, Organizational Behavior / Human Resource Management, Indiana University-Bloomington, 2005. Maj Heilmann’s research interests include human resource management, sexual harassment and whistle-blowing, mentoring, and organizational turnover. Tel. 937-255-3636 x7395 (DSN 785-3636 x7395), email: Sharon.Heilmann@afit.edu.

HEMINGER, ALAN R., Associate Professor, Department of Systems and Engineering Management, AFIT Appointment Date: 1994 (AFIT/ENV); BA, Philosophy, University of Michigan, 1966; MS, Educational Psychology, California State University at Hayward, 1978; PhD, Management Information Systems, University of Arizona, 1988. Dr. Heminger’s research interests include information integration, strategic information management, computer supported group problem-solving, reengineering, and long-term access to information. Tel. 937-255-3636 x7405 (DSN 785-3636 x7405), email: Alan.Heminger@afit.edu.


HOLT, DANIEL T., Lt Col, Assistant Professor of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2002 (AFIT/ENV); BS, Electrical Engineering, University of Louisville, 1989; MA, Human Resource Development, Webster University, 1993; MS, Air Force Institute of Technology, 1995; and, PhD, Management Auburn, 2002. Lt Col Holt’s research interests include organizational change, organizational development, human resource management, and attitude measurement. Tel. 937-255-3636 x7396 (DSN 785-3636 x7396), email: Daniel.Holt@afit.edu.

KEE, PATRICK D., Lt Col, Instructor of Systems Design and Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2007 (AFIT/ENV); BA, Physics, University of Nebraska at Omaha, 1989; MS, Engineering Physics, Air Force Institute of Technology, 1994; Doctoral Candidate, Physics, Air Force Institute of Technology. Lieutenant Colonel Kee's research interests include applying software development paradigms, such as object-oriented design, to rapid product development of both hardware and software. Tel. 937-255-3636 x4648 (DSN 785-3636 x4648), email: patrick.kee@afit.edu

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MCNUTT, ROSS T., Lt Col, Assistant Professor of Systems Design and Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2004 (AFIT/ENV); BS, Math and Physics, US Air Force Academy, 1987; MS, Aeronautical and Astronautical Engineering Massachusetts Institute of Technology, 1992; MS Technology and Policy, Mass Inst of Tech, 1992; PhD, Technology Management and Policy, Mass Inst of Tech, 1998. Research interests include defense product development, product development cycle time reduction, technology development and application, lean aerospace initiative, Cost of Delay analysis, schedule based tools and incentives, and project portfolio management practices.

MUCZYK, JAN P., Professor Emeritus of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2001 (AFIT/ENV). BS, MBA, and DBA, University of Maryland in Management and Organizational Behavior. Dr. Muczyk’s research interests include leadership, streamlining bureaucracies, and strategy implementation. Tel. 937-255-3069 (DSN 785-3069).

PEACHEY, TODD A., Maj, Assistant Professor of Information Resource Management. BS in Finance, Penn State, 1992; MS of Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1998; Major Peachey’s research interests include information systems security and knowledge management. Tel. 937-255-3636 x7391 (DSN 785-3636 x7391), email: todd.peachey@afit.edu

REHG, MICHAEL T., Assistant Professor of Management; BS, Wildlife Management, University of Wyoming, 1980; MS, Logistics Management, AFIT, 1990; PhD, Strategic Management, Indiana University, 1998. Interests include organizational change, organizational culture, organizational learning, training effectiveness, measurement scales and survey development. Tel. 937-255-3636 x4574 (DSN 785-3636 x4574), email: Michael.Rehg@afit.edu

SHELLEY, MICHAEL L., Professor of Environmental Science and Engineering, Department of Systems and Engineering Management, AFIT Appointment Date: 1996 (AFIT/ENV); BCE (Civil Engineering), Auburn University, 1974; MS (Environmental Engineering), Virginia Tech, 1975; PhD, Environmental Science and Engineering, University of North Carolina, 1985. Dr. Shelley focuses on system dynamics modeling in analyzing long-term management strategies. His research interests include abiotic and biochemical contaminant fate and transport, physiologically-based pharmacokinetic modeling, and ecological engineering design to optimize mission activity with environmental constraints. Tel. 937-255-3636 x7387 (DSN 785-3636 x7387), email: Michael.Shelley@afit.edu

SLAGLEY, JEREMY M., Maj, Assistant Professor of Industrial Hygiene, Department of Systems and Engineering Management, AFIT Appointment Date: 2006 (AFIT/ENV); BA, Environmental Engineering, US Military Academy, 1993; MS in Industrial Hygiene, University of Iowa, 2000; Ph.D., Occupational Safety and Health, West Virginia University, 2006. Maj Slagley’s research interests include engineering controls for noise and airborne hazards, Aerosol measurement, and exposure assessment. Tel. 937-255-3636 x4511 (DSN 785-3636 x4511), email Jeremy.Slagley@afit.edu

SMITH, DAVID A., LtCol, Assistant Professor of Environmental Science and Engineering, AFIT Appointment Date: 2006 (AFIT/ENV); B.A. (Mathematics/Secondary Education), Central Methodist College, 1986; MS (Nuclear Engineering (Health Physics)), University of Missouri - Columbia, 1990; MS (Nuclear and Radiological Engineering (Diagnostic Medical Physics)), 1997, University of Florida - Gainesville; PhD (Environmental Sciences), 2006, Ohio State University. LtCol Smith's research interests include Chemical, Biological, Radiological, and Nuclear (CBRN) response (medical, equipment and communication integration), CBRN detection, assessment of ecological and human health effects of weapons of mass destruction. Tel. 937-255-3636 x 4711 (DSN 785-3636 x4711), email david.a.smith@afit.edu
SMITH, JEFFREY S., Lt Col, Assistant Professor of Finance, Department of Systems and Engineering Management, AFIT Appointment Date: 2004 (AFIT/ENV); BA, Economics, University of South Carolina, 1990; MS in Applied Economics, Wright State University, 1995; Ph.D., Economics, University of Tennessee, 2004. Lt Col Smith’s research interests include using environmental valuation methods for DOD applications (specifically using non-market valuation techniques) and government financial analysis. Tel. 937-255-3636 x7393 (DSN 785-3636 x7393), email Jeffrey.Smith@afit.edu

THAL, ALFRED E., JR., Assistant Professor of Engineering Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1998 (AFIT/ENV); BS, Civil Engineering, Texas Tech University, 1981; MS, Engineering Management, AFIT, 1985; PhD, Environmental Engineering, University of Oklahoma, 1999. Dr Thal’s research interests include engineering and environmental management, groundwater flow and remediation technologies, facility and infrastructure management, product development, and project management. Tel. 937-255-3636 x7401 (DSN 785-3636 x7401), email: Al.Thal@afit.edu.

TURNER JASON M., Maj, Assistant Professor of Information Resource Management, AFIT Appointment Date: 2006 (AFIT/ENV); BS, Industrial Psychology, University of Wisconsin, Madison, WI, 1992; MS, Information of Resource Management, Air Force Institute of Technology, Dayton, OH, 1997; PhD, Information Science, University of Texas, Austin, TX, 2006. Maj Turner’s research interests include human factors/HCI, interface design and usability, and the social and organizational uses of information and information technology and their impacts on interpersonal communication; individual and collaborative decision-making; and collocated, virtual, and distributed work processes. Tel. 937-255-3636 x7407 (DSN 785-3636 x7407), email: Jason.Turner@afit.edu.

VITALE, DEAN C., Lt Col, Instructor of Management, Department of Systems and Engineering Management, AFIT Appointment Date: 2007 (AFIT/ENV); BS, Business Administration, The University of Florida, 1988; MS, Human Resource Development, Webster University, 1997; Doctoral Candidate, Management, Auburn University. Lt Col Vitale’s research interests include organizational analysis and change, influence in organizations, and research methods. Tel. 937-255-3636 x7395 (DSN 785-3636 x7395), email: Dean.Vitale@afit.edu

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APPENDIX B: POST-DOCTORAL AND OTHER RESEARCH ASSOCIATES CREDENTIALS

BAEK, SEUNGSU, Visiting Research Scientist in Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2005 (AFIT/ENY); BS, Ceramic Engineering Materials, 1982; MS, Process Development & Evaluation for Reuse of Sherben 1985; and PhD, Surface Modification in Sialon Composites, Yonsei University, Seoul, Korea, 1998. Dr. Baek is a principal researcher in ADD, Korea. He specializes in process development and evaluation of Ceramic Materials. Tel. 937-255-3636 x7490, e-mail: Seungsu.Baek.ctr.kp@afit.edu.

ESSENHIGH, KATHERINE A., National Research Council Research Associate in Chemical Physics, Department of Engineering Physics, AFIT Appointment Date: 2005 (AFIT/ENP); BS, Engineering Physics, 1997; and PhD (2005), Mechanical Engineering, Department of Mechanical Engineering, Ohio State University, Columbus, Ohio. Dr. Essenhigh specializes in non equilibrium fluid flow, chemical lasers, and optical diagnostics, particularly planar laser induced fluorescence in supersonic flow. Tel. 937-255-3636 x7305 (DSN 785-3636 x7947), email: Katherine.Essenhigh@afit.edu.

HUANG, JUNQI, Research Associate in Engineering and Environmental Management, Department of Systems and Engineering Management, AFIT Appointment Date: 1997 (AFIT/ENV); BS, Hydrogeology, Hebei Geological College, China, 1982; MS and PhD, Fluid Mechanics in Porous Media, Chinese Academy of Sciences, 1990. Dr. Huang specializes in numerical modeling of flow and transport in porous media. He is also interested in numerical simulation of non-Newtonian fluid flow and electromagnetic scattering. Tel. 937-255-3636 x7402 (DSN 785-3636 x7402), email: Junqi.Huang@afit.edu.

LI, ALEX GUANGMING, Senior Research Associate and Adjunct Faculty in the Department of Engineering Physics, AFIT Appointment Date: 1995 (AFIT/ENP); PhD in Materials Science, 1990, Chinese Academy of Sciences at Shanghai Institute of Optics and Fine Mechanics; MS in Materials Science, 1987, Chinese Academy of Sciences at Shanghai Institute of Optics and Fine Mechanics; BS in Materials Science, 1982, Changchun University of Science and Technology. Dr Li teaches the AFIT Materials Characterization course, MATL 680. His research interest is in developing AFM techniques for measuring nanometer-scale elastic modulus of surfaces. He has invented a novel AFM nano-patternning technique for producing sub-100 nm nanostructures in polymers. Additional research involves characterizing surface morphologies of glasses, ceramics, semiconductors, polymers, nano-carbon composites, and biological spores using AFM, SEM, TEM, optical interferometer, and optical microscopes; identifying and analyzing chemical compositions and structures using FTIR, Raman (micro-Raman), photoluminescence, EPR, XPS, ESCA, SEM, TEM, and XRD. Tel. 937-255-3636 x4835, e-mail: Guangming.Li@afit.edu.

O’NEAL, JEROME, Research Assistant in Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2006 (AFIT/ENS); BS, Mathematics and Foreign Languages, U.S. Military Academy at West Point, 1993; MS, Operations Research, Georgia Institute of Technology, 2004; PhD, Industrial and Systems Engineering, Georgia Institute of Technology, 2005. Dr. O’Neal specializes in mathematical optimization, including interior-point methods and integer programming. He is also interested in business and social science applications of mathematical optimization.

PERCIVAL, SCOTT A., Research Associate in Operations Research, Department of Operational Sciences, AFIT Appointment Date: 2007 (AFIT/ENS); Center for Operational Analysis (COA), BS, Operations Research, United States Air Force Academy, 2001; MS, Operations Research, Air Force Institute of Technology, 2003; Mr. Percival specializes in applied statistics, specifically multivariate analysis applied to Hyper-Spectral Imagery.
RYU, MEE YI, Research Associate in Semiconductor Physics, Department of Engineering Physics, AFIT Appointment Date: 2006 (AFIT/ENP); BS, Physics, Yeungnam University, Taegu, Korea, 1995; MS (1997) and PhD (2001), Semiconductor Physics, Department of Information and Communications, Gwangju Institute of Science and Technology, Gwangju, Korea. Dr. Ryu is a faculty member of Department of Physics, Kangwon National University, Chunchon, Kangwondo, Korea. She specializes in electrical, optical, and magnetic characterization of various semiconducting materials including dilute magnetic wide band gap semiconductors. Tel. 937-255-3636 x7305 (DSN 785-3636 x7305), email: Mee.Ryu@afit.edu.

YUN, SU-JIN, Visiting Research Scientist in Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2005 (AFIT/ENY); BS, Chemical Engineering, Sogang University, Korea, 1986; MS, Chemical Engineering, Texas A&M University, USA, 1991; PhD, Mechanical Engineering, Texas A&M University, USA, 1996. Dr. Yun specializes in the Sol-Gel process from silicon ethoxide using hypercritical conditions, and specializes in numerical modeling in metal forming in the equal channel extrusion process. He is also interested in numerical analysis for plastic deformation localization under various constitutive relations. Tel. 937-255-3636 x7495, email: sgy3788@yahoo.co.kr or SuJin.Yun.ctr.kp@afit.edu.
### 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.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Air Combat Command</td>
</tr>
<tr>
<td>ACES</td>
<td>Applied Computational Electromagnetic Society</td>
</tr>
<tr>
<td>AETC</td>
<td>Air Education and Training Command</td>
</tr>
<tr>
<td>AFCCEE</td>
<td>Air Force Center for Environmental Excellence</td>
</tr>
<tr>
<td>AFCESA</td>
<td>Air Force Civil Engineer Support Agency</td>
</tr>
<tr>
<td>AFIT</td>
<td>Air Force Institute of Technology</td>
</tr>
<tr>
<td>AFLMA</td>
<td>Air Force Logistics Management Agency</td>
</tr>
<tr>
<td>AFMC</td>
<td>Air Force Materiel Command</td>
</tr>
<tr>
<td>AFOTEC</td>
<td>Air Force Operational Test and Evaluation Center</td>
</tr>
<tr>
<td>AFRL</td>
<td>Air Force Research Laboratory</td>
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<tr>
<td>AFRL/AFOSR</td>
<td>AFRL/Air Force Office of Scientific Research</td>
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<tr>
<td>AFRL/DE</td>
<td>AFRL/Directed Energy Directorate</td>
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<tr>
<td>AFRL/HE</td>
<td>AFRL/Human Effectiveness Directorate</td>
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<tr>
<td>AFRL/IF</td>
<td>AFRL/Information Directorate</td>
</tr>
<tr>
<td>AFRL/ML</td>
<td>AFRL/Materials and Manufacturing Directorate</td>
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<tr>
<td>AFRL/MN</td>
<td>AFRL/Munitions Directorate</td>
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<tr>
<td>AFRL/PR</td>
<td>AFRL/Propulsion Directorate</td>
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<tr>
<td>AFRL/SN</td>
<td>AFRL/Sensors Directorate</td>
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<tr>
<td>AFRL/VA</td>
<td>AFRL/Air Vehicles Directorate</td>
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<tr>
<td>AFRL/VS</td>
<td>AFRL/Space Vehicles Directorate</td>
</tr>
<tr>
<td>AFCA</td>
<td>Air Force Communication Agency</td>
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<tr>
<td>AFSA</td>
<td>Air Force Security Agency</td>
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<tr>
<td>AFSEO</td>
<td>Air Force Seek Eagle Office (46 SK/SKE)</td>
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<tr>
<td>AFSPC</td>
<td>Air Force Space Command</td>
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<tr>
<td>AFTAC</td>
<td>Air Force Technical Applications Center</td>
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<tr>
<td>AFWA</td>
<td>Air Force Weather Agency</td>
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<tr>
<td>AHS</td>
<td>American Helicopter Society</td>
</tr>
<tr>
<td>AIA</td>
<td>Air Intelligence Agency</td>
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<tr>
<td>AIAA</td>
<td>American Institute of Aeronautics and Astronautics</td>
</tr>
<tr>
<td>AMC</td>
<td>Air Mobility Command</td>
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<tr>
<td>ARDA</td>
<td>Advanced Research and Development Activity</td>
</tr>
<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
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<tr>
<td>ASC</td>
<td>Aeronautical Systems Center</td>
</tr>
<tr>
<td>AU</td>
<td>Air University</td>
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<tr>
<td>DAGSI</td>
<td>Dayton Area Graduate Studies Institute</td>
</tr>
<tr>
<td>DARPA</td>
<td>Defense Advanced Research Projects Agency</td>
</tr>
<tr>
<td>DETEC</td>
<td>Directed Energy Test and Evaluation Capability</td>
</tr>
<tr>
<td>DISA</td>
<td>Defense Information Systems Agency</td>
</tr>
<tr>
<td>DoD</td>
<td>Department of Defense</td>
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<tr>
<td>DOE</td>
<td>Department of Energy</td>
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<tr>
<td>DoS</td>
<td>Department of State</td>
</tr>
<tr>
<td>DTRA</td>
<td>Defense Threat Reduction Agency</td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
</tr>
<tr>
<td>INCOSE</td>
<td>International Council on Systems Engineering</td>
</tr>
<tr>
<td>ISSMO</td>
<td>International Society for Structural and Multidisciplinary Optimization</td>
</tr>
<tr>
<td>MORS</td>
<td>Military Operations Research Society</td>
</tr>
<tr>
<td>NASA</td>
<td>National Aeronautics and Space Administration</td>
</tr>
<tr>
<td>NASIC</td>
<td>National Air and Space Intelligence Center</td>
</tr>
<tr>
<td>NSA</td>
<td>National Security Agency</td>
</tr>
<tr>
<td>NSF</td>
<td>National Science Foundation</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Name</td>
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<tr>
<td>NSSA</td>
<td>National Security Space Architect</td>
</tr>
<tr>
<td>NSSO</td>
<td>National Security Space Office</td>
</tr>
<tr>
<td>OSD</td>
<td>Office of the Secretary of Defense</td>
</tr>
<tr>
<td>PACAF</td>
<td>Pacific Air Forces</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers</td>
</tr>
<tr>
<td>SAF</td>
<td>Office of the Secretary of the Air Force</td>
</tr>
<tr>
<td>SPIE</td>
<td>The International Society for Optical Engineering</td>
</tr>
<tr>
<td>USSTRATCOM</td>
<td>United States Strategic Command</td>
</tr>
<tr>
<td>USAF</td>
<td>United States Air Force</td>
</tr>
<tr>
<td>USSOCOM</td>
<td>United States Special Operations Command</td>
</tr>
<tr>
<td>USTRANSCOM</td>
<td>United States Transportation Command</td>
</tr>
<tr>
<td>WPAFB</td>
<td>Wright-Patterson Air Force Base</td>
</tr>
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</table>
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Website: http://www.afit.edu
Email: research@afit.edu
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.