5-18-2007

Air Force Institute of Technology Research Report 2006

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

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Air Force Institute of Technology
Research Report 2006

Period of Report: 1 October 2005 to 30 September 2006

Graduate School of Engineering and Management
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For additional information, please call or email:

937-255-3633
DSN 785-3633
research@afit.edu

or visit the AFIT website: www.afit.edu
Air Force Institute of Technology
Research Report 2006
Foreword

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

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

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

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

1.1 OVERVIEW

This Research Report presents the FY06 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 Cooperative Research and Development Agreements (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 Col. Michael J. Caylor, Acting Director of Sponsored Programs, 937-255-3636 x7407, DSN 785-3636 x7407 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 2006-2007 catalog at http://www.afit.edu/en/enr/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.

AFIT produced Research Activities Brochures (http://www.afit.edu/en/enr/ResearchNews.cfm) in an effort to involve sponsor organizations in research and education. 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.

The Department of Aeronautics and Astronautics invites research topic proposals and collaborative suggestions for the Aeronautical, Astronautical and Systems 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
- Rotorcraft Aeromechanics
- Satellite Cluster Dynamics, Navigation, & Control
- Systems Engineering
The **Department of Electrical and Computer Engineering** invites research topic proposals and collaborative suggestions for the Electrical Engineering, Computer Engineering and Computer Science programs. The following list highlights the Department’s research specialties:

<table>
<thead>
<tr>
<th>Artificial Intelligence</th>
<th>Information Engineering, Exploitation, and Dissemination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Target Recognition</td>
<td>Micro and Nanosystems</td>
</tr>
<tr>
<td>Communications/Radar</td>
<td>Parallel and Distributed Processing</td>
</tr>
<tr>
<td>Computer Communication Networks</td>
<td>Signal and Image Processing</td>
</tr>
<tr>
<td>Cyber Operations and Security</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>Electromagnetics/Low Observables</td>
<td>Wireless Networks</td>
</tr>
<tr>
<td>Evolutionary Algorithms</td>
<td>Wireless Sensor Networks</td>
</tr>
<tr>
<td>Guidance, Navigation and Control</td>
<td>Information Visualization</td>
</tr>
</tbody>
</table>

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. The following list highlights the Department’s research specialties within these programs:

<table>
<thead>
<tr>
<th>Center for Directed Energy (CDE)</th>
<th>Directed Energy Weapons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for MASINT Studies and Research (CMSR)</td>
<td>Electronic and Photonic Materials</td>
</tr>
<tr>
<td>Combating Weapons of Mass Destruction</td>
<td>Lasers and Electro-Optics</td>
</tr>
<tr>
<td>Computational Physics</td>
<td>Nuclear Weapons and Effects</td>
</tr>
<tr>
<td>Counterproliferation</td>
<td>Remote Sensing and Signature Analysis</td>
</tr>
<tr>
<td></td>
<td>Space Weather</td>
</tr>
</tbody>
</table>

The **Department of Mathematics and Statistics** invites research topic proposals and collaborative suggestions for the following research specialties:

<table>
<thead>
<tr>
<th>Acoustic Wave Scattering</th>
<th>Information Fusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category Theory</td>
<td>Multiscale Methods</td>
</tr>
<tr>
<td>Combinatorial Optimization</td>
<td>Nonlinear Optimization</td>
</tr>
<tr>
<td>Design of Experiments</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>Electromagnetics</td>
<td>Partial Differential Equations</td>
</tr>
<tr>
<td>Gait Recognition</td>
<td>Reliability</td>
</tr>
<tr>
<td>Image Analysis</td>
<td>Wavelets</td>
</tr>
</tbody>
</table>

The **Department of Operational Sciences** invites research topic proposals and collaborative suggestions within the areas of Operations Research and Logistics Management. The following list highlights the Department’s research specialties:

<table>
<thead>
<tr>
<th>Applied/Multivariate Statistics</th>
<th>Operational Modeling and Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Operational Analysis (COA)</td>
<td>Operational Problems and Heuristic Modeling</td>
</tr>
<tr>
<td>Decision and Risk Analysis</td>
<td>Sensor/Classifier Fusion</td>
</tr>
<tr>
<td>Information Operations/Information Warfare</td>
<td>Space and International Logistics</td>
</tr>
<tr>
<td>Inventory Management/Theory</td>
<td>Space Logistics Modeling</td>
</tr>
<tr>
<td>Math Programming and Optimization</td>
<td>Stochastic Systems Analysis</td>
</tr>
<tr>
<td>Network Modeling</td>
<td>Supply Chain Management</td>
</tr>
</tbody>
</table>
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, and Research and Development Management programs. 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
- Organizational Change and Theory
- Organizational Control Center
- Performance
- Sustainable Development
- System Dynamics Modeling
- 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 Information Security Education and Research (CISER)** 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). CISER is also a National Science Foundation Cyber Corp institution. CISER’s objective is to increase the number of Information Assurance (IA) professionals through graduate-level education, degrees, and certificates in IA.

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 Space Studies and Research (CSSR)** coordinates and focuses AFIT’s research, education, and consultation activities to ensure that AFIT is responsive to the national security space community.

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

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

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.

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

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

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

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

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

England, Ellen C., Certified Industrial Hygienist, American Board of Industrial Hygiene, National Certification

England, Ellen C., Certified Safety Professional, Board of Certified Safety Professionals, National Certification

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

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


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

Macola, Carolyn M., Certified Hazardous Materials Manager, Master Level

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

Tenney, Curtis G., Certified Housing Development Finance Professional

Thomas, M. U., Professional Engineer, State of Michigan
2.3 RESEARCH AWARDS

2.3.1 FACULTY

CANFIELD, ROBERT A., [ENY]


CHRISSIS, JAMES W., [ENS]


DECKRO, RICHARD F., [ENS]


FRANKE, MILTON E., [ENY]


HAVRILLA, MICHAEL J., [ENG]

Nominated to the HKN Honor Society, November 2005

HOLT, DANIEL T., Lt Col [ENV]

Sigma Iota Epsilon Management Professor of Year 2005-2006 (Sigma Beta Chapter of Sigma Iota Epsilon)

KUNZ, DONALD L., [ENY]

American Institute of Aeronautics and Astronautics Distinguished Service Award, 2000–2006

MILLS, ROBERT F.,


NOVAK, KYLE A., Maj [ENC]

The University of Wisconsin – Madison’s John Nohel Prize for Outstanding Thesis in Applied Mathematics, 2006
RUGGLES-WRENN, MARINA B., [ENY]
The American Ceramic Society, Certificate of Recognition and Appreciation, 2006
ASME International, Pressure Vessel and Piping Division, Certificate of Appreciation, 2006

TERZUOLI, ANDREW J., Jr [ENG]
IEEE certificate of appreciation, MTT society

THOMAS, M. U., [ENS]

VARGAS, PAMELA A.,
Distinguished Service Award from Region IV of the National Council of University Research Administrators, May 2006.

WEIR, JEFFERY D., LT COL

2.3.2 STUDENTS

AMT, JOHN H.

ARMSTRONG, PATRICK D., Capt
AFIT Graduate School Dean’s Award Winner from the Department of Systems and Engineering Management, March 2006.

BAIZERT, PIOTR, Flt Lt
Measurement and Signature Intelligence Association Outstanding Student Award, March 2006

BULOCK, RICHARD K., Maj

BULSON, CHRISTOPHER D. 1LT
Offic of the Air Force Civil Engineer, George K Dimitroff Award, March 2006.

DENNINGHOFF, DANIEL J., Capt
AFIT Graduate School Dean’s Award Winner from the Department of Electrical and Computer Engineering, March 2006.
ELLIS, MARC D., Capt
Society of Cost Estimating and Analysis Thesis Award, March 2006

FRASER, NICHOLAS A., Capt
Louis F. Polk Outstanding Research Award, March 2006.
Association of Old Crow Information Operations Outstanding Research Award, March 2006

GORDON, RANDEL J., Capt

HAMILL, JONATHAN T., Maj

HINSHAW, HUYNH A., Capt
AFIT Graduate School Dean’s Award Winner from the Department of Operational Sciences, March 2006.

KIRK, TIMOTHY R., Maj; MCCRAINE, RODNEY E., Maj; UDOAKA, UDUAK I., Maj; WOOD, CAROLYN L., Maj
Winner of the Department of State (DOS) national case study competition that analyzed three major issues faced by DOS in posting Foreign Service officers to Nigeria. Other teams included Ohio State University, University of Wisconsin-Madison, Georgetown, Emory, Rice, and University of California-Berkeley

LEMANSKY, CHRISTOPHER D., Maj
Armed Forces Communications-Electronics Association’s C4I Research Excellence Award, March 2006.

MARINO, JASON E., Capt
Association of Old Crows Electronic Defense Outstanding Research Award, March 2006.

MCLAMB, WILBURN B., Capt

MIKULCIK, JOY D., Capt
Air Force Historical Foundation Thesis Award, March 2006.

MIXON, DUSTIN G., 1LT
AFIT Graduate School Dean’s Award Winner from the Department of Mathematics and Statistics, March 2006.
Research Statistics

MORRIS, KEVIN M., 2LT

Best Student Paper at the IEEE International Conference on Networking, Sensing and Control (ICNSC 2006), Ft. Lauderdale, FL, April 2006.

OVERHOLTS, DALE L. II, Capt

International Society of Logistics Jerome G. Peppers, Jr., Outstanding Student Award, March 2006.

ROSS, STEVEN M., Capt

AFIT Graduate School Commandant’s Award for Most Exceptional Thesis, March 2006.
American Institute of Aeronautics and Astronautics Graduate Student Award for Research Excellence, March 2006.
Institute of Navigation’s Research Excellence Award, March 2006.

SCHROEDER, NEIL J., Capt

Armed Forces Communications-Electronics Associations Information Resource Management Award, March 2006.

SHERIDAN, JAMES D., Maj

International Society of Logistics Jerome G. Peppers, Jr., Outstanding Student Award, March 2006.

SMETEK, TIMOTHY E., Maj


SUAREZ, TROY A., Capt


TUREK, NADJA F., Capt


UZPEN, SHELLY A., Capt

Measurement and Signature Intelligence Committee Outstanding Thesis Award, March 2006.

WAITE, RALPH J., Maj [ENS]


WILLIFORD, RUSSELL S., Capt

AFIT Graduate School Dean’s Award Winner from the Department of Engineering Physics, March 2006.
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 2006 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>100%</td>
</tr>
<tr>
<td>The thesis work was:</td>
<td></td>
</tr>
<tr>
<td>Highly significant</td>
<td>38%</td>
</tr>
<tr>
<td>Significant</td>
<td>48%</td>
</tr>
<tr>
<td>Slightly significant</td>
<td>13%</td>
</tr>
<tr>
<td>Not significant</td>
<td>1%</td>
</tr>
<tr>
<td>Average man-years of effort saved by the sponsors.</td>
<td>.92</td>
</tr>
<tr>
<td>Average cost avoided per thesis/dissertation by the sponsors.</td>
<td>$135,871</td>
</tr>
<tr>
<td>Total cost avoided for all theses and dissertations sponsored (estimated).</td>
<td>$35 M</td>
</tr>
<tr>
<td>Rank of respondents</td>
<td></td>
</tr>
<tr>
<td>Colonel (DR IV/GM-15)</td>
<td>25%</td>
</tr>
<tr>
<td>Lt Col (DR-III/GM-14)</td>
<td>40%</td>
</tr>
<tr>
<td>Major (DR-II/GM-13)</td>
<td>16%</td>
</tr>
<tr>
<td>Captain (DR-I/GS-12)</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>15%</td>
</tr>
</tbody>
</table>
RESEARCH ASSESSMENT QUESTIONNAIRE

TO:

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

Title:

Student Author:     Designator:

Faculty Advisor:

Date of Graduation:

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

1. Did this research contribute to a current task or goal of interest to your organization?      Y / N

2. Would you have completed this work if AFIT had not done it?      Y / N

3. Regardless of your answers above, how would you rate this work?      Highly significant

   Significant

   Slightly significant

   No significance

4. If AFIT had not done this work, please estimate what it would have cost your organization to perform it, either by using in-house resources or by contract. *Man-Years ____  $____________

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

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

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

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

Thank you.

_____________________________________  ______________________________
Name of Evaluator      Office Symbol

_____________________________________
Grade/Rank of Evaluator
3.2 RESEARCH AND CONSULTING OUTPUT MEASURES

There are measurable indicators of AFIT’s contribution to the engineering and scientific community and AFIT’s success in staying well informed of technical possibilities and scientific opportunities. These indicators include the number and quality of technical publications accepted by the editors of journals; the number of presentations accepted for regional, national and international conferences; the number of research projects conducted; the number of consultations performed for Air Force and DoD customers; and finally, the number of student graduate research papers, MS theses, and PhD dissertations completed and submitted to the Defense Technical Information Center. For FY06, 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>15</td>
<td>34</td>
<td>21</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Refereed Publications</td>
<td>124</td>
<td>10</td>
<td>51</td>
<td>20</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Other Publications</td>
<td>208</td>
<td>17</td>
<td>112</td>
<td>16</td>
<td>11</td>
<td>5</td>
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<tr>
<td>Presentations</td>
<td>340</td>
<td>19</td>
<td>131</td>
<td>75</td>
<td>41</td>
<td>21</td>
</tr>
<tr>
<td>Sponsor Funded Projects</td>
<td>159</td>
<td>6</td>
<td>49</td>
<td>29</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Substantial Consultations</td>
<td>39</td>
<td>2</td>
<td>5</td>
<td>17</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Books</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Chapters of Books</td>
<td>11</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Patents</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Doctoral Dissertations Advised</td>
<td>21</td>
<td>0</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Master’s Theses Advised</td>
<td>339</td>
<td>6</td>
<td>98</td>
<td>31</td>
<td>40</td>
<td>55</td>
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<tr>
<td>Graduate Research Papers Advised</td>
<td>80</td>
<td>14</td>
<td>8</td>
<td>1</td>
<td>57</td>
<td>0</td>
</tr>
</tbody>
</table>

*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 78% of technical, and 73% of all theses and dissertations listed in Table 3.2 are externally sponsored by Air Force, DoD and Government agencies. In addition, most of the research projects and consultations are carried out for Air Force and DoD units. The data are summarized in Table 3.3 and Figure 3.1.

Figure 3.1: Sponsors of AFIT Theses and Dissertations
Table 3.3: AFIT External Sponsorship by Organization

<table>
<thead>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>HQ UNITED STATES AIR FORCE</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF THE SECRETARY OF THE AIR FORCE</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>AIR EDUCATION AND TRAINING COMMAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIR COMBAT COMMAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Air and Space Intelligence Center</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIR FORCE MATERIEL COMMAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aeronautical Systems Center</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>Air Force Flight Test Center</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Force Research Laboratory (AFRL)</td>
<td>2</td>
<td>6</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Air Force Office of Scientific Research (AFOSR)</td>
<td>5</td>
<td>19</td>
<td></td>
<td>33</td>
<td></td>
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<tr>
<td>Air Vehicles Directorate (VA)</td>
<td>4</td>
<td>20</td>
<td></td>
<td>21</td>
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<tr>
<td>Directed Energy Directorate (DE)</td>
<td>3</td>
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<td>6</td>
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<tr>
<td>Human Effectiveness Directorate (HE)</td>
<td>1</td>
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<td>Information Directorate (IF)</td>
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<td>11</td>
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<tr>
<td>Materials &amp; Manufacturing Directorate (ML)</td>
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<td>Munitions Directorate (MN)</td>
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<td>Propulsion Directorate (PR)</td>
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<td>9</td>
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<td>Sensors Directorate (SN)</td>
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<td>Space Vehicles Directorate (VS)</td>
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<td>AIR MOBILITY COMMAND</td>
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<tr>
<td>US AIR FORCE OPERATING AGENCIES</td>
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<tr>
<td>Air Force Center for Environmental Excellence</td>
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<tr>
<td>Air Force Civil Engineer Support Agency</td>
<td>2</td>
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<td></td>
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<tr>
<td>Air Force Communications Agency</td>
<td>3</td>
<td></td>
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<td>1</td>
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<tr>
<td>Air Force Cost Analysis Agency</td>
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<tr>
<td>Air Force Expeditionary Force Center</td>
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<tr>
<td>Air Force Institute for Occupational Health</td>
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<tr>
<td>Air Force Technical Application Center</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Air Force Weather Agency</td>
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<td></td>
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<td>DEPARTMENT OF DEFENSE</td>
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<td>Defense Threat Reduction Agency</td>
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<td>National Defense University</td>
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<td>US Office of Secretary Defense</td>
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<td>US Transportation Command</td>
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<td>United States Navy</td>
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<tr>
<td>NON-FEDERAL ORGANIZATIONS</td>
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<td>Boeing</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Good Samaritan Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Multiple Sponsors  See Appendix C for Selected Acronym List and Organization Name Changes

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTALS</strong></td>
<td>20*</td>
<td>228*</td>
<td>46</td>
<td>159</td>
<td>36</td>
</tr>
</tbody>
</table>
### 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 FY06, and Figure 3.2 summarizes the past seven fiscal years of outside sponsored funding.

#### Table 3.4 New FY06 Awards to Academic Departments & Research Centers by Type

<table>
<thead>
<tr>
<th>Department</th>
<th>Research</th>
<th>Education</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics &amp; Statistics (ENC)</td>
<td>6</td>
<td>102,345</td>
<td>6</td>
</tr>
<tr>
<td>Electrical &amp; Computer Eng (ENG)</td>
<td>49</td>
<td>2,716,614</td>
<td>51</td>
</tr>
<tr>
<td>Engineering Physics (ENP)</td>
<td>29</td>
<td>1,842,940</td>
<td>35</td>
</tr>
<tr>
<td>Research &amp; Sponsored Programs (ENR)</td>
<td>1</td>
<td>9,800</td>
<td>1</td>
</tr>
<tr>
<td>Operations Sciences (ENS)</td>
<td>17</td>
<td>751,821</td>
<td>17</td>
</tr>
<tr>
<td>Systems &amp; Eng Management (ENV)</td>
<td>3</td>
<td>136,540</td>
<td>3</td>
</tr>
<tr>
<td>Aeronautical &amp; Astronautical Eng (ENY)</td>
<td>55</td>
<td>960,827</td>
<td>56</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>160</td>
<td>6,520,887</td>
<td>168</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Center**</th>
<th>#</th>
<th>Dollars</th>
<th>#</th>
<th>Dollars</th>
<th>#</th>
<th>Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Navigation Technology Center (ANT)</td>
<td>20</td>
<td>1,017,127</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>1,017,127</td>
</tr>
<tr>
<td>Center for Directed Energy (CDE)</td>
<td>18</td>
<td>1,426,353</td>
<td>2</td>
<td>65,875</td>
<td>20</td>
<td>1,492,228</td>
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<tr>
<td>Center for Info Security Edu &amp; Research (CISER)</td>
<td>9</td>
<td>915,658</td>
<td>2</td>
<td>401,469</td>
<td>11</td>
<td>1,317,127</td>
</tr>
<tr>
<td>Center for MASINT Studies and Research (CMSR)</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>850,000</td>
<td>3</td>
<td>850,000</td>
</tr>
<tr>
<td>Center for Operational Analysis (COA)</td>
<td>13</td>
<td>655,310</td>
<td>-</td>
<td>-</td>
<td>13</td>
<td>655,310</td>
</tr>
<tr>
<td>Center for Systems Engineering (CSE)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center for Space Studies &amp; Research (CSSR)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>60</td>
<td>4,014,448</td>
<td>7</td>
<td>1,317,344</td>
<td>67</td>
<td>5,331,792</td>
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</table>

* 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-FY06

- **Education**
- **Research**

Fiscal Year 16
Figure 3.3: Sponsors of FY06 Funded Projects

Table 3.5 New FY06 Awards to Academic Departments & Research Centers by Sponsor

<table>
<thead>
<tr>
<th>Department</th>
<th>AFRL</th>
<th>NGA</th>
<th>NSF</th>
<th>NSA</th>
<th>Other Federal</th>
<th>Other USAF</th>
<th>Other DoD</th>
<th>Non-Federal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENC</td>
<td>35,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>36,786</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>30,559</td>
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<tr>
<td>ENG</td>
<td>1,632,345</td>
<td>427,976</td>
<td>496,963</td>
<td>-</td>
<td>388,689</td>
<td>130,000</td>
<td>42,110</td>
<td>3,118,083</td>
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<tr>
<td>ENP</td>
<td>1,305,940</td>
<td>750,000</td>
<td>-</td>
<td>90,000</td>
<td>532,000</td>
<td>45,000</td>
<td>35,875</td>
<td>2,758,815</td>
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<tr>
<td>ENR</td>
<td>9,800</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>9,800</td>
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<td>ENS</td>
<td>376,424</td>
<td>-</td>
<td>10,000</td>
<td>33,000</td>
<td>330,550</td>
<td>-</td>
<td>-</td>
<td>1,847</td>
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<tr>
<td>ENV</td>
<td>111,540</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>25,000</td>
<td>-</td>
<td>-</td>
<td>136,540</td>
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<tr>
<td>ENY</td>
<td>741,119</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>183,364</td>
<td>23,561</td>
<td>28,174</td>
<td>976,218</td>
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<tr>
<td>TOTAL</td>
<td>4,212,168</td>
<td>750,000</td>
<td>427,976</td>
<td>506,963</td>
<td>159,786</td>
<td>1,434,603</td>
<td>223,561</td>
<td>7,853,622</td>
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</tr>
</tbody>
</table>

Research Centers

- **ANT**: 762,064
- **CDE**: 1,125,353
- **CISER**: 328,188
- **CMSR**: 337,310
- **COA**: 3,155,935
- **CSE**: 3,155,935
- **CSSR**: 3,155,935

**TOTAL**: 2,552,915

*All Center funds are also included in departmental funding*
4. SPONSORSHIP OF STUDENT RESEARCH

4.1 DOCTORAL DISSERTATIONS
[*Denotes Multiple Sponsors]

4.1.1 HQ UNITED STATES AIR FORCE


4.1.2 AIR COMBAT COMMAND

NATIONAL AIR AND SPACE INTELLIGENCE CENTER

*HAMILL, JONATHAN T. *Analysis of Layered Social Networks.* AFIT/DS/ENS/06-03, Faculty Advisor: Dr. Richard F. Deckro. Sponsor: AFRL/HECS and NASIC/FCEB.

HAWKS, MICHAEL R. *Passive Ranging Using Atmospheric Oxygen Absorption Spectra.* AFIT/DS/ENP/06-02, Faculty Advisor: Dr. Glen P. Perram. Sponsor: NASIC/DEM.

4.1.3 AIR EDUCATION AND TRAINING COMMAND

**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.

PHILLIPS, GRADY T. *Spatially-Resolved Temperature Diagnostic for Supersonic Flow Using Cross-Beam Doppler-Limited Laser Saturation Spectroscopy.* AFIT/DS/ENP/06-03 Faculty Advisor: Dr. Glen P. Perram. Sponsor: N/A

VOGEL, KURT A. *Dynamic and Control of Tethered Satellite Formations for the Purpose of Space-Based Remote Sensing.* AFIT/DS/ENY/06-04, Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

4.1.4 AIR FORCE RESEARCH LABORATORY

AFRL: AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

BURKS, ROBERT E. *An Adaptive Tabu Search Heuristic for the Location Routing Pickup and Delivery Problem with Time Windows with a Theater Distribution Application.* AFIT/DS/ENS/06-02, Faculty Advisor: Dr. James T. Moore. Sponsor: AFRL/AFOSR/NM.

CINNAMON, JOHN D. *Analysis and Simulation of Hypervelocity Gouging Impacts.* AFIT/DS/ENY/06-01, Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/AFOSR/NM.


SHEPHERD, MICHAEL J. *Lightweight In-Plane Actuated Deformable Mirrors for Space Telescopes.* AFIT/DS/ENY/06-03, Faculty Advisor: Dr. Richard Cobb. Sponsor: AFRL/AFOSR.

SHERMAN, NATHAN P. *Analysis and Control of Unreliable, Single-Server Retrial Queues with Infinite-Capacity Orbit and Normal Queue.* AFIT/DS/ENS/06-05, Faculty Advisor: Dr. Jeffery Kharoufeh. Sponsor: AFRL/AFOSR.
AFRL: AIR VEHICLES DIRECTORATE

BLAKE, TRAVIS F.  Reconstructing Spectral Scenes using Statistical Estimation to Enhance Space Situational Awareness.  AFIT/DS/ENG/06-05, Faculty Advisor: Lt Col Matthew E. Goda.  Sponsor: AFRL/VA.

PARKER, DAVID R.  Uncertainty Estimation for Target Detection System Discrimination and Confidence Performance Metrics.  AFIT/DS/ENY/06-01, Faculty Advisor: Dr. Steven C. Gustafson.  Sponsor: AFRL/VASD.

PARKER, GREGORY H. Dynamic Aeroelastic Analysis of Wing/Store Configurations.  AFIT/DS/ENY/06-06, Faculty Advisor: Lt Col Raymond Maple.  Sponsor: AFRL/VASD.

ROELKE, GEORGE R.  Fault and Defect Tolerant Computer Architectures: Reliable Computing with Unreliable Devices.  AFIT/DS/ENG/06-07, Faculty Advisor: Dr. Rusty O. Baldwin.  Sponsor: AFRL/VA.

AFRL: DIRECTED ENERGY DIRECTORATE

CRABTREE, PETER N.  Performance-Metric Driven Atmospheric Compensation for Robust Free-Space Laser Communication.  AFIT/DS/ENG/06-03, Faculty Advisor: Lt Col Matthew E. Goda.  Sponsor: AFRL/DES.

GRIMES, BRENT W.  Multiple Channel Laser Beam Combination and Phasing Using Stimulated Brillouin Scattering in Optical Fibers.  AFIT/DS/ENP/06-01, Faculty Advisor: Dr. Won Roh.  Sponsor: AFRL/DELO.

SCHULTHESS, MARCUS R.  Modeling and Optimal Estimation of Atmospherically Induced Pointing Error.  AFIT/DS/ENG/06-08, Faculty Advisor: Lt Col Matthew E. Goda.  Sponsor: AFRL/DE.

AFRL: HUMAN EFFECTIVENESS DIRECTORATE

*HAMILTON, JONATHAN T.  Analysis of Layered Social Networks.  AFIT/DS/ENS/06-03, Faculty Advisor: Dr. Richard F. Deckro.  Sponsor: AFRL/HECS and NASIC/FCEB

AFRL: INFORMATION DIRECTORATE

*ROBERTS, MARCUS L.  A General Framework for Analyzing, Characterizing, and Implementing Spectrally Modulated, Spectrally Encoded Signals.  AFIT/DS/ENG/06-06, Faculty Advisor: Dr. Michael A. Temple.  Sponsor: AFRL/SNRW and AFRL/IFGD.

AFRL: MUNITIONS DIRECTORATE

VETH, MICHAEL J.  Fusion of Imaging and Inertial Sensors for Navigation.  AFIT/DS/ENG/06-09, Faculty Advisor: Dr. John F. Raquet.  Sponsor: AFRL/MN.

AFRL: SENSORS DIRECTORATE

CORBELL, PHILLIP M.  Adaptive Illumination Patterns for Radar Applications.  AFIT/DS/ENG/06-01, Faculty Advisor: Dr. Michael A. Temple.  Sponsor: AFRL/SNHE

MACDONALD, ADAM.  Blind Deconvolution of Anisoplanatic Images Collected by a Partially Coherent Imaging System.  AFIT/DS/ENG/06-04, Faculty Advisor: Dr. Stephen C. Cain.  Sponsor: AFRL/SNJ.
*ROBERTS, MARCUS L.  A General Framework for Analyzing, Characterizing, and Implementing Spectrally Modulated, SpectrallyEncoded Signals.  AFIT/DS/ENG/06-06, Faculty Advisor: Dr. Michael A. Temple. Sponsor: AFRL/SNRW and AFRL/IFGD.
4.2 MASTER’S THESES
[*Denotes Multiple Sponsors]

4.2.1 HQ UNITED STATES AIR FORCE

CORRIGAN, ROBERT M.  Contemplating a New Model for Aerospace Medical Technician Skills Sustainment Training.  AFIT/GIR/ENV/06M-04, Faculty Advisor: Maj Carolyn Macola.  Sponsor: HQ USAF/SCGN.

McCRAIN, RODNEY E.  Factors Affecting the Transfer of Basic Combat Skills Training in the Air Force.  AFIT/GLM/ENS/06-09, Faculty Advisor: Maj Kirk Patterson.  Sponsor: HQ USAF/A4R.


4.2.2 SECRETARY OF THE AIR FORCE

ALBERT, ALAN P., EFSTATHIOS ANTONIOU, DERRICK W. BREWER, STEPHEN D. LEGGIERO, THOMAS I. SAVOIE, MARY R. TEETER, KIMBERLY A. TOOMAN, and RAMON L. VEGLIO.  A Systems Engineering Approach to Integrated Structural Health Monitoring For Again Aircraft.  AFIT/GSE/ENY/06-M02, Faculty Advisor: Dr. Som Soni.  Sponsor: SAF/IARL.

FLORY, JOHN A.  Optimizing Mean Mission Duration for Multiple-Payload Satellites.  AFIT/GOR/ENS/06-08, Faculty Advisor: Dr. Jeffrey Kharoufeh.  Sponsor: SAF/FMBMB.

RUCKER, JEFFREY E.  Using Agent-Based Modeling to Search for Elusive Hiding Targets.  AFIT/GOR/ENS/06-16, Faculty Advisor: Dr. John O Miller.  Sponsor: SAF/XCOM.

4.2.3 AIR COMBAT COMMAND


LEE, SANG H.  Investigation of the Effects of Target Feature Variations Ballistic Missile RCS.  AFIT/GE/ENG/06-34, Faculty Advisor: Lt Col James Fellows.  Sponsor: ACC.

OVERHOLTS, DALE L. II,  Improving Inter-continental Ballistic Missile Maintenance Scheduling through the Use of Location Analysis Methodologies.  AFIT/GLM/ENS/06-010, Faculty Advisor: Maj John Bell.  Sponsor: ACC/20 AF/A4.

WAGONER, DONALD J.  Predicting the Effects of Contingency Contracting on Local Economics.  AFIT/GLM/ENV/06-03, Faculty Advisor: Dr. Michael Hicks.  Sponsor: ACC/USCENTAF/A4.

NATIONAL AIR AND SPACE INTELLIGENCE CENTER

BOND, REED M., DAVID T. CAPONIO, LAWERENCE B. CHILDERS, DONALD J. DAVIS, JOHN V. FONTEJON, KENNETH R. KRANZ, and MICAH K. MOSSMAN.  Project INSIGHT: Threat Modeling and Analysis for Earth-Orbiting Satellites.  AFIT/GSE/ENY/06-M03, Faculty Advisor: Dr. Richard Cobb.  Sponsor: NASIC/SMSV.

*DOWNS, DONEDA D.  Evaluating the Commitment of Clandestine Group Members.  AFIT/GOR/ENS/06-06, Faculty Advisor: Dr. Richard Deckro.  Sponsor: AFRL/HECS & NASIC/FC.
LASH, PAUL C.  *Comparison of Computational Electromagnetic Codes for Prediction of Low-Frequency Radar Cross Section.*  AFIT/GE/ENG/06-32, Faculty Advisor: Dr. Michael Havrilla.  Sponsor: NASIC/ADNS.

POWERS, KELLY S.  *Parameter Estimation of a Tactical Missile using Linear Regression.*  AFIT/GAE/ENY/06-S12, Faculty Advisor: Dr. David R. Jacques.  Sponsor: NASIC/ADNW.

STEWART, BRYAN J.  *Reproducibility, Distinguishability, and Correlation of Fireball and Shockwave Dynamics in Explosive Munitions Detonations.*  AFIT/GAP/ENP/06-19, Faculty Advisor: Dr. Glen Perram.  Sponsor: NASIC/DEMI.

WARREN, TREVOR W.  *Characterization of Detonation Phenomena Observed in High-Speed, Visible Imagery.*  AFIT/GAP/ENP/06-20, Faculty Advisor: Dr. Glen Perram.  Sponsor: NASIC/DEMI.

4.2.4  **AIR EDUCATION AND TRAINING COMMAND**

**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.**

ABEYGOONEWARDENE, JEEVANI I.  *Scaling Flight Tests of Unmanned Air Vehicles.*  AFIT/GAE/ENY/06-S01, Faculty Advisor: Dr. David R. Jacques.  Sponsor: N/A.

ALHARBI, MOHAMMED A.  *Fast Video Stabilization Algorithms.*  AFIT/GCS/ENG/06-02, Faculty Advisor: Dr. Guna Seetharaman.  Sponsor: N/A.


BANG, SUNGWAN.  *Coalition Modeling in Humanitarian Assistance Operations.*  AFIT/GOR/ENS/06-02, Faculty Advisor: Dr. Richard Deckro.  Sponsor: N/A.

BANKS, DAVID L.  *Relationships Between Organizational Commitment, Core Job and Organizational Citizenship Behaviors in United States Air Force Organizations.*  AFIT/GLM/ENS/06-01, Faculty Advisor: Maj John Bell.  Sponsor: N/A.

BELL, GARRICK A.  *An Interactive Relaxation Approach for Anomaly Detection and Preventive Measures in Computer Networks.*  AFIT/GCE/ENG/06-01, Faculty Advisor: Dr. Guna Seetharaman.  Sponsor: N/A.

BELTON, SCOTT L.  *The Simulation of Off-Axis Laser Propagation Using HELEEOS.*  AFIT/GSS/ENP/06-01, Faculty Advisor: Lt Col Steven Fiorino.  Sponsor: N/A.

BENTLY, RICHARD S.  *Usability and Accessibility of Air Force Intranet Web Sites.*  AFIT/GIR/ENV/06M-02, Faculty Advisor: Dr. Kevin L. Elder.  Sponsor: N/A.

BENTSON, KIRSTIN A.  *An Epidemiological Approach to Terrorism.*  AFIT/GOR/ENS/06-03, Faculty Advisor: Dr. Stephen Baumert.  Sponsor: N/A.

BERNAL, PHIL ANDREW L.  *Forecasting Mental Health Care Cost for OIF and OEF Veterans.*  AFIT/GCA/ENV/06J-01, Faculty Advisor: Maj Jeffrey Smith.  Sponsor: N/A.

BOOHER, TIMOTHY B.  *Optimal Periodic Inspection of a Stochastically Degrading System.*  AFIT/GOR/ENS/06-04, Faculty Advisor: Dr. Jeffrey Kharoufeh.  Sponsor: N/A.
BOOKER, PATRICK L.  *A Comparative Assessment of Knowledge Management Programs Across the United States Armed Services.*  AFIT/GIR/ENV/06M-03, Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: N/A.

BROUSSARD, COREY M.  *New Tracing Filter Algorithm Using Input Parameter Estimation.*  AFIT/GA/ENG/06-01, Faculty Advisor: Dr. Meir Pachter. Sponsor: N/A.

BROWN, SILAS J.  *Applying Data Mining Techniques to Dynamically Model the ELINT Enterprise.*  AFIT/GCS/ENG/06-01, Faculty Advisor: Dr. Henry Potoczny. Sponsor: N/A.

BURKE, KENNETH W.  *Building a Consensus Forecast for Crude Oil Prices.*  AFIT/GLM/ENV/06-00, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.


CARBAJAL, JENNIFER M.  *Influence of Organizational Culture on the Relationship between Psychological Contracts and Organizational Citizenship Behavior.*  AFIT/GRD/ENV/06M-01, Faculty Advisor: Dr. Michael Rehg. Sponsor: N/A.

CARDEN, ROBERT D.  *A Market Response to DoD Contact Delay.*  AFIT/GRD/ENV/06M-02, Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

CHARLES, CHRISTOPHER S.  *Computational Modeling of the Dielectric Barrier Discharge (DBD) Device for Aeronautical Applications.*  AFIT/GAP/ENP/06-02, Faculty Advisor: Dr. William F. Bailey. Sponsor: N/A.

CHRISTENSEN, NIEL E.  *Hazardous Material Cargo Frustration at Military Aerial Ports of Embarkation.*  AFIT/GLM/ENS/06-02, Faculty Advisor: Maj John Bell. Sponsor: N/A.

CLARK, JEFFERY D.  *Characteristics of Two-Dimensional Triangular and Three-Dimensional Face-Centered-Cubic Photonic Crystals.*  AFIT/GEO/ENP/06-01, Faculty Advisor: Dr. Michael Marciniak. Sponsor: N/A.

CLAUSON, MILTON J.  *Analysis of Bacterial Population and Distribution in the Developing Strata of a Constructed Wetland Used for Chlorinated Ethene Bioremediation.*  AFIT/GES/ENV/06M-02, Faculty Advisor: Dr. Charles A. Bleckmann. Sponsor: N/A.

CODRINGTON, KEVIN W.  *Cost as an Independent Variable: A Study of its Continued Use by Aeronautical Systems Center’s Programs and their Contractors to set and Maintain Cost Objectives.*  AFIT/GRD/ENV/06M-03, Faculty Advisor: Lt Col Ross McNutt. Sponsor: N/A.

CONE, WILLIAM D.  *Improving Maintenance Data Collection Via Point-of-Maintenance (POMX) Implementation.*  AFIT/GLM/ENS/06-03, Faculty Advisor: Maj John Bell. Sponsor: N/A.


COOK, KENDRA L.  *Characterizing the Impact of Precision Time and Range Measurements from Two-Way Time Transfer Systems on Network Differential GPS Position Solutions.*  AFIT/GA/ENG/06-02, Faculty Advisor: Dr. John F. Raquet. Sponsor: N/A.

DAVIS, JUDY B.  *The Impact of the Defense Industry Consolidation on the Aerospace Industry.*  AFIT/GCA/ENV/06M-03, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.
DIKE, CHRISTOPHER C. *A Wind Tunnel Investigation of Joined Wing Scissors Morphing.* AFIT/GAE/ENY/06-J02, Faculty Advisor: Dr. Milton E. Franke. Sponsor: N/A.

DUGAN, JOSEPH M. *Situational Awareness and Synthetic Vision for Unmanned Aerial Vehicle Flight Testing.* AFIT/GAE/ENY/06-J03, Faculty Advisor: Maj Paul A. Blue. Sponsor: N/A.

ELLIS, MARC D. *A Hedonic Approach to Estimating Software Cost Using Ordinary least Squares Regression and Nominal Attribute Variables.* AFIT/GCA/ENV/06-M-04, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

ESPY, WALTER E. *Technology Transition: Guidance Versus Practice.* AFIT/GRD/ENV/06-M-04, Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

FRASER, NICHOLAS A. *Mitigating Distributed Denial of Service Attacks in an Anonymous Routing Environment: Client Puzzles and Tor.* AFIT/GCS/ENG/06-06, Faculty Advisor: Dr. Richard A. Raines. Sponsor: N/A.

GAMACHE, JOYCE A. *Review of the JCIDS and the NSSAP.* AFIT/GRD/ENS/06-01, Faculty Advisor: Dr. Stephan Brady. Sponsor: N/A.

GEITGEY, JASON W. *The Determination of Remaining Satellite Propellant Using Measured Moments of Inertia.* AFIT/GAE/ENY/06-J04, Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

GOODWIN, JEREMY S. *Detailed Design of the Rigidizable Inflatable Get-Away-Special Experiment.* AFIT/GA/ENY/06-M05, Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

GRAY, MICHAEL J. *The Effects of Ability Homophily on Individual Performance.* AFIT/GEM/ENV/06-M-04, Faculty Advisor: Maj Kent Halverson. Sponsor: N/A.

GSTATTENBAUER, GREG J. *Cost Comparison of Expendable, Hybrid and Reusable Launch Vehicles.* AFIT/GSS/ENY/06-M06, Faculty Advisor: Dr. Milton E. Franke. Sponsor: N/A.

GUNN-GOLKIN, ANNA E. *Structural Analysis of the Rigidizable Inflatable Get-Away-Special.* AFIT/GAE/ENY/06-S01, Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

HELMS, SARAH K. *Development and Testing of an Inflatable Rigidizable Space Structure Experiment.* AFIT/GA/ENY/06-M03, Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

HERALD, JENNY O. *Buying a Better Air Force.* AFIT/GCA/ENV/06M-05, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

HILL, CHRISTOPHER A. *Theoretical Modeling of the Transient Effects of a Towline Using the Method Characteristics.* AFIT/GAE/ENY/06-J06, Faculty Advisor: Dr. Ralph A. Anthenien Jr. Sponsor: N/A.

HOBBS, EDWARD L. *Efficient and Accurate Computation of Elastic Cross Sections in the Single-Level Breit-Wigner Resonance Region.* AFIT/GNE/ENP/06-02, Faculty Advisor: Maj David W. Gerts. Sponsor: N/A.


HUTZEL, JOHN R.  *A Graph Theoretic Analysis of the Effects of Organizational Structure on Employee Social Networks.*  AFIT/GRD/ENV/06M-07, Faculty Advisor: Dr. Dennis Strouble.  Sponsor: N/A.

HYDE, MILO W.  *Determining the Resistive Sheets Using Transmission Measurements.*  AFIT/GE/ENG/06-24, Faculty Advisor: Dr Michael Havrilla.  Sponsor: N/A.


JAMESON, ROBERT E.  *Development and Validation of Reentry Simulation Using MATLAB.*  AFIT/GSS/ENG/06-M08, Faculty Advisor: Lt Col Kerry D. Hicks.  Sponsor: N/A.

JOHNSON, MELISSA R.  *An Analysis of USAF Aircraft Noise and Hedonic Property Values.*  AFIT/GEM/ENG/06M-07, Faculty Advisor: Maj Sonia Leach.  Sponsor: N/A.

JUN, YAN.  *Evaluation of Chlorinated Solvents Removal Efficiency Among Three Wetland Plant Species: A Mesocom Study.*  AFIT/GEM/ENG/06M-18, Faculty Advisor: Dr. Charles Bleckmann.  Sponsor: N/A.

KELLNER, MOSTYN O.  *A Decision Model for Choosing Among Photovoltaic Technologies to Generate Electricity at Grid-Connected Air Force Facilities: A Value-Focused Approach.*  AFIT/GEM/ENV/06M-08, Faculty Advisor: Lt Col Ellen England.  Sponsor: N/A.

KIERPIEC, WENDY S.  *An Exploratory Case Study of Information Sharing and Collaboration within Air Force Supply Chain Management.*  AFIT/GLM/ENS/06-06, Faculty Advisor: Dr. Stephan Brady.  Sponsor: N/A.

KLEIN, TIMOTHY R.  *Macroscopic Computational Model of Dielectric Barrier Discharge Plasma Actuators.*  AFIT/GAP/ENP/06-07, Faculty Advisor: Dr. William Bailey.  Sponsor: N/A.


LAWSON, JOSEPH M.  *A Comparative Analysis of Transmission Control Protocol Improvement Techniques Over Space Based Transmission Media.*  AFIT/GIR/ENV/06M-08, Faculty Advisor: Dr. Michael R. Grimaila.  Sponsor: N/A.

LIESBET, GRAVELY E.  *Comparison of Climatological Optical Turbulence Profiles of Standard, Statistical and Numerical Modes using HELEEOS.*  AFIT/GAP/ENP/06-06, Faculty Advisor: Lt Col Steven Fiorino.  Sponsor: N/A.

LITTLE, PATRICK W.  *Control Parameters Estimation for a Known Maneuvering Re-Entry Vehicle.*  AFIT/GA/ENY/06-S02, Faculty Advisor: Dr. Richard Cobb.  Sponsor: N/A.

MANTOVANI, KEVIN R.  *Effects of Based Realignment and Closure (BRAC) on Real Estate Values.*  AFIT/GEM/ENV/06M-10, Faculty Advisor: Dr. Michael J. Hicks.  Sponsor: N/A.

MAYHALL, SANDRA A.  *Modeling a Repairable Study Chain and Applying APFR Concepts.*  AFIT/GOR/ENS/06-22, Faculty Advisor: Dr. William Cunningham.  Sponsor: N/A.
McCLAMMA, DYAN E.  Roadblocks to Software Modernization.  AFIT/GRD/ENV/06M-09, Faculty Advisor: Dr. Michael Rehg.  Sponsor: N/A.

McHALE, STEPHEN, R.  Development of a Three-Dimensional Air Blast Propagation Model Based Upon the Weighted Average Flux Method.  AFIT/GNE/ENP/06-04, Faculty Advisor: Dr. Kirk A. Matthews.  Sponsor: N/A.

MENDEZACEVES, ENRIQUE.  Biological System Impedance Identification Using Stochastic Estimation and Control.  AFIT/GE/ENG/06-41, Faculty Advisor: Lt Col Juan Vasquez.  Sponsor: N/A.

MICELI, DAVID S.  Characterization of a Coflow Nozzle for Use in a Filtered Rayleigh Scattering System.  AFIT/GAE/ENY/06-J10, Faculty Advisor: Dr. Mark F. Reeder.  Sponsor: N/A.

MILLER, NATHAN A.  A Comparison of Main Rotor Smoothing Adjustments Using Linear & Neural Network Algorithms.  AFIT/GAE/ENY/06-M24, Faculty Advisor: Dr. Donald L. Kunz.  Sponsor: N/A.

MIXON, DUSTIN G.  Doppler-Only Multistatic Radar.  AFIT/GAM/ENC/06-01, Faculty Advisor: Dr. Matthew Fickus, (937) 255-3636 Ext 4513.  Sponsor: N/A.

MOORE, GARY J.  The Longitudinal Effect of Self-Monitoring and Locus of Control on Social Network Position in Friendship Networks.  AFIT/GEM/ENV/06M-11, Faculty Advisor: Maj Kent Halverson.  Sponsor: N/A.

MURPHY, TONY A.  Analysis of Patient Information: An Empirical Modeling Approach.  AFIT/GOR/ENS/06-14, Faculty Advisor: Dr. Sharif Melouk.  Sponsor: N/A.

NELSON, RYAN E.  An Exploration of the Effects of Genetic Drift on the Endangered Red-Cockaded Woodpecker.  AFIT/GEM/ENV/06M-12, Faculty Advisor: Dr. Michael Shelley.  Sponsor: N/A.

NOBLE, LOUIS A.  Dual Fine Tracking Control of a Satellite Laser Communication.  AFIT/GSS/ENG/06-02, Faculty Advisor: Lt Col Juan R. Vasquez.  Sponsor: N/A.

OSWEILER, VICTOR P.  Covariance Estimation and Autocorrelation of NORAD Two-Line Element Sets.  AFIT/GSS/ENY/06-M09, Faculty Advisor: Lt Col Nathan A. Titus.  Sponsor: N/A.

PACE, KEVIN D.  Terrain and Spatial Effects on Hazard Prediction and Assessment Capability (HPAC) Software Dose-Rate Contour Plot predictions as Compared to a Sample of Local Fallout Data from Test Detonations in the Continental United States, 1945-1962.  AFIT/GNE/ENP/06-06m, Faculty Advisor: Lt Col Steven Fiorino.  Sponsor: N/A.


PHELPS, JENNIFER A.  Moderating Effects of Perceived Organizational Support on the Relationship Between Job Satisfaction and Turnover Intentions for Recently Retrained USAF Enlisted.  AFIT/GEM/ENV/06M-13, Faculty Advisor: Maj Sharon Heilmann.  Sponsor: N/A.

PROANO, ZACHARY.  Existence of Explosive Solutions to Non-Monotone Semilinear Elliptic Equations.  AFIT/GAM/ENC/06-03, Faculty Advisor: Dr. Aihua W. Wood.  Sponsor: N/A.

PROVOST, DAMEN R.  The Effects of Modern GPS Technologies on Reentry Vehicle Dispersion Accuracy.  AFIT/GSS/ENV/06-M11, Faculty Advisor: Lt Col Terry Hicks.  Sponsor: N/A.

PULEO, ANTHONY J.  Mitigating Insider Threat using Human Behavior Influence Models.  AFIT/GCE/ENG/06-04, Faculty Advisor: Dr. Robert F. Mills.  Sponsor: N/A.
REHM, CHRISTOPHER R.  Signal Characterization Using Entropy-Based Spectral Processing.  
AFIT/GE/ENG/06-50, Faculty Advisor: Dr. Michael Temple.  Sponsor: N/A.

RENDON, AXEL.  Optimal Coverage of Theater Targets with Small Satellite Constellations.  
AFIT/GSS/ENY/06-M12, Faculty Advisor: Lt Col Nathan A. Titus.  Sponsor: N/A.

SAMLER, JENNIFER J.  Statistical Approach to Background Subtraction for Production of High-Quality Silhouettes for Human Gait Recognition.  
AFIT/GAM/ENC/06-04, Faculty Advisor: Maj Samuel A. Wright.  Sponsor: N/A.

SHIN, YONGJOO.  Factors Impacting Key Management Effectiveness In Secured Wireless Networks.  
AFIT/GIR/ENV/06M-09, Faculty Advisor: Dr. Michael R. Grimaila.  Sponsor: N/A.

SIEFERT, NICHOLAS S.  Shockwave Interactions with Argon Glow Discharges.  
AFIT/GAP/ENP/06-18, Faculty Advisor: Dr. William Bailey.  Sponsor: N/A.

AFIT/GCA/ENV/06M-06, Faculty Advisor: Dr. Michael J. Hicks.  Sponsor: N/A.

SMITH, DAVID N.  Existence of Large Solutions to Semi-Linear Elliptic Equations with Multiple Terms.  
AFIT/GAM/ENC/06-05, Faculty Advisor: Dr. Aihua W. Wood.  Sponsor: N/A.

STEGER, GREGORY M.  Reliability of Systems using Event Occurrence Networks.  
AFIT/GOR/ENS/06-17, Faculty Advisor: Lt Col David Denhard.  Sponsor: N/A.

STRATTON, MITCHELL D.  Leadership in Groups: Social Networks and Perceptions of Formal and Informal Leaders.  
AFIT/GSS/ENV/06M-01, Faculty Advisor: Maj Kent C. Halverson.  Sponsor: N/A.

SUAREZ, TONY A.  Acquisition Program Baselines: Theory & Practice.  
AFIT/GRD/ENV/06M-11, Faculty Advisor: Maj Sonia E. Leach.  Sponsor: N/A.

TASSIKA, DAVIS M.  Corporate Entrepreneurship Assessment Instrument: Systematic Validation of a Measure.  
AFIT/GIR/ENV/06M-05, Faculty Advisor: Maj Daniel Holt.  Sponsor: N/A.

TAYLOR, CATHERINE ANN.  Characterization of Passivated Indium Antimonide.  
AFIT/GEO/ENP/06-03, Faculty Advisor: Dr. Michael Marciniak.  Sponsor: N/A.

AFIT/GOR/ENS/06-18, Faculty Advisor: Dr. Jim Chrissis.  Sponsor: N/A.

TISDEL, JASON E.  Small Sample Confidence Intervals in Log Space Back-Transformed from Normal Space.  
AFIT/GAM/ENC/06-02, Faculty Advisor: Dr. Edward White.  Sponsor: N/A.

VALENTINE, JENNIFER R.  Application of the Strategic Alignment Model and Information Technology Governance Concepts to Support Network Centric Warfare.  
AFIT/GIR/ENG/06-01, Faculty Advisor: Dr. Robert F. Mills.  Sponsor: N/A.

VINCENT, ROBERT C.  CFD Investigation of the Flow Dynamics Inside a Spherical Surface Indentation.  
AFIT/GAE/ENY/06-M29, Faculty Advisor: Lt Col Raymond C. Maple.  Sponsor: N/A.

WARD, CHRISTOPHER J.  Factors Influencing Effectiveness of the Acquisition Career Field Initial Education Course.  
AFIT/GRD/ENV/06M-13, Faculty Advisor: Dr. Michael Rehg.  Sponsor: N/A.

AFIT/GEM/ENV/06M-17, Faculty Advisor: Dr. Alfred Thal.  Sponsor: N/A.
4.2.5 AIR FORCE MATERIEL COMMAND

AMT, JOHN ROBERT H.  *Methods for Aiding Height Determination in Pseudolite-Based Reference Systems Using Batch Least-Squares Estimation.*  AFIT/GE/ENG/06-03, Faculty Advisor: Dr John Raquet.  Sponsor: AFMC.


BRANTLEY, BEAU M.  *Quantitative Analysis of a Turbulent Wind Tunnel with Obstructions for use in Liquid Flame Spread Experiments.*  AFIT/GAE/ENY/M-04, Faculty Advisor: Dr. Ralph A. Anthenien.  Sponsor: AFMC/46OG/OGM/AL-OC.

CROWLEY, RYAN A.  *Development of an Evaluation Methodology for Hazardous Waste Training Program.*  AFIT/GEM/ENV/06M-03, Faculty Advisor: Dr. Alfred Thal.  Sponsor: AFMC/MSEVQ.


MAHON, LISA J.  *Comparison of Variance to Mean Ratio Methods for Reparable Inventory Management.*  AFIT/GLM/ENS/06-07, Faculty Advisor: Maj Bradley Anderson.  Sponsor: HQ AFMC/A8S.

MARTIN, MICHAEL H.  *Implementing Reliability Centered Maintenance Analysis in a Revised Preventive Maintenance Program for the F-15.*  AFIT/GLM/ENS/06-08, Faculty Advisor: Dr. William Cunningham.  Sponsor: AFMC/330 FS.


PENDLEY, SCOTTY A.  *Factors and Interactions that Affect Air Force C-17 Air Craft Mission Capable Rates.*  AFIT/GLM/ENS/06-12, Faculty Advisor: Dr. Alan Johnson.  Sponsor: HQ AFMC/A44A.

PENNINGTON, JASPER E.  *Access Cost Estimation for Beddown Analysis.*  AFIT/GLM/ENS/06M-13, Faculty Advisor: Dr. Alan Johnson.  Sponsor: HQ AFMC/A75R.

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AUNE, SHAYNE C.  Comparison of Ray Tracing through Ionospheric Models.  AFIT/GE/ENG/06-04, Faculty Advisor: Lt Col Matthew Goda.  Sponsor: AFRL/VSBXP.

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CROSS, STEVEN M.  Data Analysis and its Impact on Predicting Schedule & Cost Risk.  AFIT/GIR/ENC/06M-01, Faculty Advisor: Dr. Edward D. White, III.  Sponsor: AFCAA.

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PARSON, ANNETTE M.  Modeling E & F Region Response to X-Ray Solar Flares.  AFIT/GAP/ENP/06-14, Faculty Advisor: Maj Christopher Smithro.  Sponsor: AFWA/DN.

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DERMER, JAMES B. Hurricane Katrina: A Lesson in Disaster Preparedness. AFIT/IMO/ENS/06E-04, Faculty Advisor: Dr. William Cunningham. Sponsor: USAF EOS/CC.

FRYMIRE, MICHAEL B. Analysis of Alternatives for the Joint Cargo Aircraft A Value Focused Thinking Approach. AFIT/IOA/ENS/06-01, Faculty Advisor: Maj Shane Knighton. Sponsor: HQ USAF/A5XC-GM.

HEASTER, WILLIAM C. Tanker Employment Evolution: Operation Desert Storm Through Operation Iraqi Freedom. AFIT/IMO/ENS/06E-09, Faculty Advisor: Dr. James Moore. Sponsor: HQ USAF/A1M.

HIGGINBOTHAM, DAVID and DOUGLAS WARNock, Predicting Retention of USAF Critical Skills Officers. AFIT/IOA/ENS/06-02, Faculty Advisor: Maj Robert Neher. Sponsor: HQ USAF/A1PF.

JOHNSON, ROGER F. Accelerating the Transition from Mission Support Group Commander to Air Expeditionary Group Commander. AFIT/IMO/ENS/06E-10, Faculty Advisor: Maj Kirk Patterson. Sponsor: HQ USAF AEFC/CC.

LONG, PERRY M. Contingency Response Groups and the Humanitarian Assistance/Disaster Response Mission: A Case Study. AFIT/IMO/ENS/06E-11, Faculty Advisor: Dr. William Cunningham. Sponsor: HQ USAF EOS/CC.

MOSS, KENNETH E. Aerial Prepositioning of War Material. AFIT/IMO/ENS/06E-13, Faculty Advisor: Dr. Stephen Brady. Sponsor: HQ USAF OUSD/LPP.

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BAUER, KURT P., II. Using Remote Sensing for Nuclear Event Attribution. AFIT/ILM/ENP/06-01, Faculty Advisor: Dr. James Petrosky. Sponsor: N/A.

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COLEMAN, TODD L. and JERRY C. STONECIPHER, A Comparison of the Air Force Institute of Technology and Civilian Institutions Graduate Logistics Curricula. AFIT/ILM/ENS/06-03, Faculty Advisor: Maj Kirk Patterson. Sponsor: N/A.

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REYNOLDS, GEORGE M. An Inventory Management Paradigm for Advanced Academic Degree Officers. AFIT/IOA/ENS/06-10, Faculty Advisor: Lt Col Raymond Staats. Sponsor: AFIT/CC

RIGDON, AARON. Municipal Regulations of Hazardous Materials Due to the Threat of Terrorism and its Effects on the Rail Industry. AFIT/ILM/ENS/06-12, Faculty Advisor: Lt Col John Bell. Sponsor: N/A.

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FELTER, KEITH N.  *Application of Lean Principles to the C-130 Formal Training Unit.*  AFIT/IMO/ENS/06E-05, Faculty Advisor: Dr. Alan Heminger.  Sponsor: 314 AW and 314 OG.

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RAPP, TIMOTHY J.  *Analysis of Hybrid Ultra Large Aircraft’s Potential Contribution to Interheater Mobility.*  AFIT/IMO/ENS/06E-16, Faculty Advisor: Dr. James Moore.  Sponsor: JS/VJ4.

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WAITE, RALPH J.  *Viper Way Ahead.*  AFIT/IOA/ENS/06-14, Faculty Advisor: Dr. Gary Kinney.  Sponsor: 56 OG/CC.

WHITE, ROBERT T., JOE BEAHM (ENY) and BRET ANDERSON (ENY)  *Capability Optimization of the USAF’s F-15C Fleet within a Constrained Budget.*  AFIT/ILM/ENS/06-22, Faculty Advisor: Lt Col John Colombi.  Sponsor: F-15 SG/VA.

WHITE, SAMUEL G., III.  *Requirements for Common Bomber Mission Planning Environment.*  AFIT/IC4/ENG/06-08, Faculty Advisor: Dr. Robert Mills.  Sponsor: B2SG/VA.

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MARTINDALE, MICHAEL J.  *A Discrete-Event Simulation Model for Evaluating Air Force Reusable Military Launch Vehicle Post-Landing Operations.*  AFIT/ILM/ENS/06-09, Faculty Advisor: Dr. Alan Johnson.  Sponsor: AFRL/VA.
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DABROWSKI, PATRICK W.  *Optimizing Real Time Information in the Cockpit (RTIC) Data In Future Air Mobility Command Situational Awareness.*  AFIT/IMO/ENS/06E-03, Faculty Advisor: Dr. Rosa Birjandi.  Sponsor: AMC/A5Q.

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SANDLIN, DORAL E. and THOMAS D. TORKELSON.  *The Trade-Offs of Tanker Air-Refuelability.*  AFIT/ILM/ENS/06-13, Faculty Advisor: Dr. Alan Johnson.  Sponsor: AMC/A59T.

TORKELSON, THOMAS D. see SANDLIN, DORAL E.

**4.3.6 UNITED STATES STRATEGIC COMMAND**

DAWSON, GARY R.  *Project Angel Fire: Concept of Operations in a Permissive Tactical Environment.*  AFIT/ILM/ENS/06-04, Faculty Advisor: Dr. Michael Hicks.  Sponsor: US STRATCOM.

**4.3.7 UNITED STATES TRANSPORTATION COMMAND**


LUKES, CLARENCE W.  *The Future Light Cargo Aircraft.*  AFIT/IMO/ENS/06E-12, Faculty Advisor: Lt Col Donald Duckro.  Sponsor: US TRANSCOM.
MIRAVITE, ALEXANDER, Jr., and CHARLES F. SCHLEGEL. *Global En Route Basing Infrastructure Location Model.* AFIT/IOA/ENS/06-08, Faculty Advisor: Lt Col Raymond Staats. Sponsor: US TRANSCOM JT/TCJ5-A5.


PREVETT, TYLER T. *Sealift or Airlift for Global Mobility?* AFIT/IMO/ENS/06E-15, Faculty Advisor: Maj Bradley Anderson. Sponsor: US TRANSCOM/J3-R.

SCHLEGEL, CHARLES F. see MIRAVITE, ALEXANDER Jr.

STEWARD, MELANIE J. *Effective Teaming for Expeditionary Combat Support.* AFIT/IOA/ENS/06-11, Faculty Advisor: Lt Col Raymond Staats. Sponsor: N/A.
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CINNAMON, JOHN D. Analysis and Simulation of Hypervelocity Gouging Impacts. AFIT/DS/ENY/06-01, Faculty Advisor: Dr. Anthony N. Palazotto. Sponsor: AFRL/AFOSR/NM.


PARKER, DAVID R. Uncertainty Estimation for Target Detection System Discrimination and Confidence Performance Metrics. AFIT/DS/ENY/06-01, Faculty Advisor: Dr. Steven C. Gustafson. Sponsor: AFRL/AFOSR.

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SHEPHERD, MICHAEL J. Lightweight In-Plane Actuated Deformable Mirrors for Space Telescopes. AFIT/DS/ENY/06-03, Faculty Advisor: Dr. Richard Cobb. Sponsor: AFRL/AFOSR.

VOGEL, KURT A. Dynamic and Control of Tethered Satellite Formations for the Purpose of Space-Based Remote Sensing. AFIT/DS/ENY/06-04, Faculty Advisor: Dr. Richard G. Cobb. Sponsor: N/A.

5.1.2 MASTERS THESES

5.1.2.1 AERONAUTICAL ENGINEERING (GAE)

ABEYGOONEWARDENE, JEEVANI I. Scaling Flight Tests of Unmanned Air Vehicles. AFIT/GAE/ENY/06-S01, Faculty Advisor: Dr. David R. Jacques. Sponsor: N/A.


ALMAJALI, MOHAMMAD. Effects of Difference between Axial and Contact Loads on Fretting. AFIT/GAE/ENY/06-S02, Faculty Advisor: Dr. Shankar Mall. Sponsor: AFRL/MLLP.

ANISKO, JONATHAN F. Numerical Investigation of Cavity-Vane Interactions within the Ultra Compact Combustor. AFIT/GAE/ENY/06-M01, Faculty Advisor: Dr. Ralph A. Anthenien. Sponsor: AFRL/AFOSR/NA.

BABCOCK, JUDSON T. Free Flight Store Simulation Using Beggar. AFIT/GAE/ENY/06-M02, Faculty Advisor: Lt Col Raymond Maple. Sponsor: AFMC/46SK

BALACONIS, JOHN G. Some Aspects of the Mechanical Response of BMJ 5250-4 Neat at 191°C: Experiment and Modeling. AFIT/GAE/ENY/M-03, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/AFOSR/NA.

BRANTLEY, BEAU M. Quantitative Analysis of a Turbulent Wind Tunnel with Obstructions for use in Liquid Flame Spread Experiments. AFIT/GAE/ENY/M-04, Faculty Advisor: Dr. Ralph A. Anthenien. Sponsor: AFMC/46OG/OGM/AL-OC.

CHAPMAN, BENJAMIN D. Characterization of Functionally Graded Materials. AFIT/GAE/ENY/M-05, Faculty Advisor: Dr. Anthony Palazotto. Sponsor: AFRL/VASM

COMSTOCK, STEPHEN J. Development of a Low-Latency, High Data Rate, Differential GPS Relative. AFIT/GAE/ENG/06-03, Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/SNRR.
CRAWFORD, MATTHEW P.  *Optimal Geometric Deployment of a Ground Based Pseudolite Navigation System to Trace a Landing Aircraft.*  AFIT/GAE/ENG/06-02, Faculty Advisor: Dr. John F. Raquet.  Sponsor: AFRL/AFOSR.

DELAPP, CHARLES J.  *Particle Image Velocimetry Using a Novel, Non-Intrusive Particle Seeding.*  AFIT/GAE/ENY/06-J01, Faculty Advisor: Dr. Mark F. Reeder.  Sponsor: AFRL/VAAI.

DIKE, CHRISTOPHER C.  *A Wind Tunnel Investigation of Joined Wing Scissors Morphing.*  AFIT/GAE/ENY/06-J02, Faculty Advisor: Dr. Milton E. Franke.  Sponsor: N/A.

DIITTMAN, ERIC R.  *Design, Build and Validation of a Small-Scale Combustion Chamber Testing Facility.*  AFIT/GAE/ENY/06-M06, Faculty Advisor: Dr. Ralph A. Anthenien.  Sponsor: AFRL/AFOSR/NA.

DUGAN, JOSEPH M.  *Situational Awareness and Synthetic Vision for Unmanned Aerial Vehicle Flight Testing.*  AFIT/GAE/ENY/06-J03, Faculty Advisor: Maj Paul A. Blue.  Sponsor: N/A.

EDENS, SCOTT G.  *Performance Measurements of Direct Air Injection in a Cavity-Based Flameholder for a Supersonic Combustor.*  AFIT/GAE/ENY/06-02, Faculty Advisor: Dr. Paul I. King.  Sponsor: AFRL/PRAS.

*FALCONE, CHRISTINA M.*  *Some Aspects of the Mechanical Response of PMR-15 Neat Resin at 288°C: Experiment and Modeling.*  AFIT/GAE/ENY/06-S03, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn.  Sponsor: AFRL/AFOSR/RL and AFRL/MLBCM

FREDRICKSON, BRIAN M.  *Application of Spline Variational Analysis Method in the Modeling of Composite Repairs.*  AFIT/GAE/ENY/06-M09, Faculty Advisor: Dr. Anthony Palazotto.  Sponsor: AFRL/MLBCM.

GAMBLE, BRIAN J.  *Experimental Analysis of Propeller Interactions with a Flexible Wing Micro-Air-Vehicle.*  AFIT/GAE/ENY/06-M10, Faculty Advisor: Dr. Mark F. Reeder.  Sponsor: AFRL/VAAA.

GEATZ, ANGELA M.  *A Prediction Code for the Thrust Performance of Two-Dimensional Non-Axisymmetric, Converging Diverging Nozzles.*  AFIT/GAE/ENY/06-03, Faculty Advisor: Dr. Paul I. King.  Sponsor: AFRL/PRTA.

GEITGEY, JASON W.  *The Determination of Remaining Satellite Propellant Using Measured Moments of Inertia.*  AFIT/GAE/ENY/06-J04, Faculty Advisor: Dr. Richard G. Cobb.  Sponsor: N/A

GUNN-GOLKIN, ANNA E.  *Structural Analysis of the Rigidizable Inflatable Get-Away-Special.*  AFIT/GAE/ENY/06-S01, Faculty Advisor: Dr. Richard G. Cobb.  Sponsor: N/A

HANK, JOSEPH M.  *Comparative Analysis of Two-Stage-to-Orbit Rocket and Airbreathing Reusable Launch Vehicles for Military Applications.*  AFIT/GAE/ENY/06-M12, Faculty Advisor: Dr. Milton E. Franke.  Sponsor: AFRL/PRAT.

HAUBELT, LANE C.  *Aerodynamic Loss and Mixing over a Cavity Flame Holder Downstream of Pylon-Aided Fuel Injection.*  AFIT/GAE/ENY/06-M13, Faculty Advisor: Dr. Paul I. King.  Sponsor: AFRL/PRAS.

HELFRICH, TIMOTHY M.  *Cycle Performance of a Pulse Detonation Engine with Supercritical Fuel Injection.*  AFIT/GAE/ENY/06-M14, Faculty Advisor: Dr. Paul I. King.  Sponsor: AFRL/PRTC.
HETTRICK, GRIFFIN. *Effects of Frequency and Environment on Fatigue Behavior of an Oxide-Oxide Ceramic Matrix Composite at 1200°C.* AFIT/GAE/ENY/06-J05, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTC.

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HILL, CHRISTOPHER A. *Theoretical Modeling of the Transient Effects of a Towline Using the Method Characteristics.* AFIT/GAE/ENY/06-J06, Faculty Advisor: Dr. Ralph A. Anthenien Jr. Sponsor: N/A.

HIRSCH, BRIAN J. *Maneuver Estimation Model for Geostationary Orbit Determination.* AFIT/GAE/ENY/06-J01, Faculty Advisor: Dr. William E. Wiesel. Sponsor: AFRL Det. 15.

HOFER, THOMAS W. *Development of a Comprehensive Digital Avionics Curriculum for the Aeronautical Engineer.* AFIT/GAE/ENG/06-01, Faculty Advisor: Dr. Guna Seetharaman. Sponsor: Naval Air Warfare Center Aircraft Division.

IN, WON. *Experimental Investigation Into the Aerodynamic Ground Effect of a Tailless Chevron and Lambda-Shaped UCAV’s.* AFIT/GAE/ENY/06-M16, Faculty Advisor: Dr. Milton E. Franke. Sponsor: AFRL/VAAA.

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JUNG, TIMOTHY P. *Wind Tunnel Study of Interference Effects Relating to Aft Supersonic Ejection of a Store.* AFIT/GAE/ENY/06-04, Faculty Advisor: Dr. Mark F. Reeder. Sponsor: AFRL/VAAI.

KIMLER, FRED A. *Structural Design of Wing Twist for Pitch Control of Joined Wing Sensor Craft.* AFIT/GAE/ENY/06-M02, Faculty Advisor: Dr. Robert Canfield. Sponsor: AFRL/VAS.

KNICK, WESLEY R. *Characterization of Pulse Detonation Engine Performance with Varying Free Stream Stagnation Pressure Levels.* AFIT/GAE/ENY/06-M34, Dr. Paul I. King. Sponsor: AFRL/PRTC.

KOUTSOUKOS, PAVLOS. *Effects of Environment on Creep Behavior of Two Oxide-Oxide Ceramic Matrix Composites at 1200°C.* AFIT/GAE/ENY/06-S06, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn. Sponsor: AFRL/PRTC.

LEIGH, ELLIOT J. *Simulation of a Moving, Elastic Beam using Hamilton’s Weak Principle.* AFIT/GAE/ENY/06-M21, Faculty Advisor: Dr. Donald L. Kunz. Sponsor: AFRL/VASD.

MADHI, ELHOUCINE. *Fretting Fatigue Behavior of Nickel Alloy IN100.* AFIT/GAE/ENY/06-M22, Faculty Advisor: Dr. Shankar Mall. Sponsor: AFRL/MLLP.

MARQUEZ-CHISOLM, DANIEL J. *Natural Frequencies and Mode Shapes of a Nonlinear, Uniform Cantilevered Beam.* AFIT/GAE/ENY/06-S06, Faculty Advisor: Dr. Donald L. Kunz. Sponsor: US Army Aero Flight Dynamics Directorate.
MCCARTHY, PATRICK A.  Characterization of UAV Performance and Development of a Formation Flight Controller for Multiple Small UAV’s.  AFIT/GAE/ENY/06-J08, Faculty Advisor: Maj Paul A. Blue.  Sponsor: AFRL/VA.

MCELLROY, JONATHAN A.  Navigation Using Signals of Opportunity in the AM Transmission Band.  AFIT/GAE/ENG/06-04, Faculty Advisor: Dr. John F. Raquet.  Sponsor: AFRL/SNRRN.


MEHRMAN, JOHN M.  Effect of Hold Times on Fatigue Behavior of Nextel 720\textsuperscript{TM}/Alumina Ceramic Matrix Composite at 1200\textdegree C in Air and in Steam Environment.  AFIT/GAE/ENY/06-M23, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn.  Sponsor: AFRL/PRTC.

MICELI, DAVID S.  Characterization of a Coflow Nozzle for Use in a Filtered Rayleigh Scattering System.  AFIT/GAE/ENY/06-J10, Faculty Advisor: Dr. Mark F. Reeder.  Sponsor: N/A.

MILLER, NATHAN A.  A Comparison of Main Rotor Smoothing Adjustments Using Linear & Neural Network Algorithms.  AFIT/GAE/ENY/06-M24, Faculty Advisor: Dr. Donald L. Kunz.  Sponsor: N/A.

MOENTER, DAVID S.  Design and Numerical Simulation of Two Dimensional Ultra Compact Combustor Model Sections for Experimental Observation of Cavity-Vane Flow Interactions.  AFIT/GAE/ENY/06-S06, Faculty Advisor: Dr. Ralph A. Anthenien.  Sponsor: AFRL/AFOSR/NA.

MORGANSTERN, SHAWN D.  Alleviation of Buffet-Induced Vibration Using Piezoelectric Actuators.  AFIT/GAE/ENY/06-M25, Faculty Advisor: Robert Canfield.  Sponsor: AFRL/VA.

MOSTACCIO, JASON.  Experimental Investigation of the Aerodynamic Ground Effect of a Tailless LAMBDA-Shaped UCAV With Wing Flaps.  AFIT/GAE/ENY/06-J11, Faculty Advisor: Dr. Milton E. Franke.  Sponsor: AFRL/VA.

MURRAY, KARL N.  Wear Analysis of Cu-AL Coating on Ti-6Al-4V Under Fretting.  AFIT/GAE/ENY/06-J12, Faculty Advisor: Dr. Shankar Mall.  Sponsor: AFRL/MN.

ORLOFF, BENJAMIN S.  A Comparative Analysis of Single-Stage-to-Orbit Rocket and Airbreathing Vehicles.  AFIT/GAE/ENY/06-13, Faculty Advisor: Dr. Milton E. Franke.  Sponsor: ASC/ENMD.

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PENDLETON, RONALD J.  Validation of a Scaled Plane Strain Hypervelocity Gouging Model.  AFIT/GAE/ENY/06-M26, Faculty Advisor: Dr. Anthony N. Palazotto.  Sponsor: AFRL/AFOSR.

POWERS, KELLY S.  Parameter Estimation of a Tactical Missile using Linear Regression.  AFIT/GAE/ENY/06-S12, Faculty Advisor: Dr. David R. Jacques.  Sponsor: NASIC/ADNW.

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ROBINSON, BRENT K.  An Investigation into Robust Wind Correction Algorithms for Off-The-Shelf Unmanned Aerial Vehicle Autopilots.  AFIT/GAE/ENY/06-J14, Faculty Advisor: Maj Paul A. Blue.  Sponsor: AFRL/VA.

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ROSS, STEVEN M.  *Formation Flight Control for Aerial Refueling.*  AFIT/GAE/ENY/06-M35, Faculty Advisor: Dr. David R. Jacques.  Sponsor: TPS/EDT.

SCARLETT, JOHN N.  *Multibody Dynamic Aeroelastic Simulation of a Folding Wing Morphing Aircraft.*  AFIT/GAE/ENY/06-M28, Faculty Advisor: Dr. Robert Canfield.  Sponsor: AFRL/VASA.

SCHEEL, KASEY S.  *Effects of Polishing Shot-Peened Surfaces on Fretting Fatigue Behavior of Ti-6Al-4V.*  AFIT/GAE/ENY/06-S10, Faculty Advisor: Dr. Shankar Mall.  Sponsor: AFRL/MLLP.

* SIEGART GREGORY T.  *Effect of Environment on Creep Behavior of an Oxide/Oxide CFCC with ±45° Fiber Orientation.*  AFIT/GAE/ENY/06-J15, Faculty Advisor: Dr. Marina B. Ruggles-Wrenn.  Sponsor: AFRL/MLLN and AFRL/PRTC.

SIMKO, RICHARD J.  *Store Separations from a Supersonic Cone.*  AFIT/GAE/ENY/06-M29, Faculty Advisor: Lt Col Raymond C. Maple.  Sponsor: AFRL/VAII.

SULLIVAN, MARK A.  *Creep-Rupture and Fatigue Behaviors of Notched Oxide/Oxide Ceramic Matrix Composite at Elevated Temperature.*  AFIT/GAE/ENY/06-M30, Faculty Advisor: Dr. Shankar Mall.  Sponsor: AFRL/MLLN.

VINCENT, ROBERT C.  *CFD Investigation of the Flow Dynamics Inside a Spherical Surface Indentation.*  AFIT/GAE/ENY/06-M29, Faculty Advisor: Lt Col Raymond C. Maple.  Sponsor: N/A.

WALL, JENNIFER D.  *An Experimental Study of Pulsed DC Discharge Plasma Flow Control Actuator.*  AFIT/GAE/ENY/06-J16, Faculty Advisor: Dr. Milton E. Franke.  Sponsor: AFRL/PRTT.


WILSON, PAUL M.  *Simulation of Weapons Release from Cargo Aircraft.*  AFIT/GAE/ENY/06-M33, Faculty Advisor: Dr. Milton E. Franke.  Sponsor: AFRL/MNAV.

5.1.2.2  **ASTRONAUTICAL ENGINEERING (GA)**

BROUSSARD, COREY M.  *New Tracing Filter Algorithm Using Input Parameter Estimation.*  AFIT/GA/ENG/06-01, Faculty Advisor: Dr. Meir Pachter.  Sponsor: N/A.

CHRONISTER, JESSICA B.  *Structural Health Monitoring Considering Internal Beam Damage.*  AFIT/GA/ENY/06-M09, Faculty Advisor: Anthony N. Palazotto.  Sponsor: AFRL/VASA.

COOK, KENDRA L.  *Characterizing the Impact of Precision Time and Range Measurements from Two-Way Time Transfer Systems on Network Differential GPS Position Solutions.*  AFIT/GA/ENG/06-02, Faculty Advisor: Dr. John F. Raquet.  Sponsor: N/A.

CORNEILUS, JOHN J.  *Development of In-Plane Surface Deformation Sensing for Thin Film PVDF Actuated Membrane Mirrors.*  AFIT/GA/ENY/06-M01, Faculty Advisor: Dr. Richard G. Cobb.  Sponsor: AFRL/AFOSR.

FEDDEN, ANGELINDA D.  *Graphitized Carbon Foam with Phase Change Material.*  AFIT/GA/ENY/06-M02, Faculty Advisor: Milton E. Franke.  Sponsor: AFRL/MLBC.

GOODWIN, JEREMY S.  *Detailed Design of the Rigidizable Inflatable Get-Away-Special Experiment.*  AFIT/GA/ENY/06-M05, Faculty Advisor: Dr. Richard G. Cobb.  Sponsor: N/A.
HELMS, SARAH K.  Development and Testing of an Inflatable Rigidizable Space Structure Experiment.  AFIT/GA/ENY/06-M03, Faculty Advisor:  Dr. Richard G. Cobb.  Sponsor:  N/A.


LEE, DUSTIN W.  Evaluation of Factors Contributing to Damping of Coated and Uncoated Titanium Plates.  AFIT/GA/ENY/06-M06, Faculty Advisor:  Dr. Anthony N. Palazotto.  Sponsor:  AFRL/PRTS.

LITTLE, PATRICK W.  Control Parameters Estimation for a Known Maneuvering Re-Entry Vehicle.  AFIT/GA/ENY/06-S02, Faculty Advisor:  Dr. Richard Cobb.  Sponsor:  N/A.

MCCLELLAND, WILLIAM A.  Inertia Measurement and Dynamic Stability Analysis of a Radio-Controlled Joined Wing Aircraft.  AFIT/GA/ENY/06-M07, Faculty Advisor:  Dr. Robert Canfield.  Sponsor:  AFRL/VASD.

PARIS, JODY A.  The Effects of Using Solar Radiation Pressure to Alleviate Fuel Requirements for Orbit Changing and Maintenance of the DSCS II F-13 Satellite.  AFIT/GA/ENY/06-M08, Faculty Advisor:  Lt Col Nathan Titus.  Sponsor:  AFSPC/SMC/DET 12.

5.1.2.3  ENGINEERING MANAGEMENT (GEM)

HUTCHINGS, MATTHEW B.  Indigenous Architecture for Expeditionary Installations.  AFIT/GEM/ENY/06M-06, Faculty Advisor:  Lt Col Ellen England.  Sponsor:  N/A.

5.1.2.4  MATERIALS AND SCIENCE ENGINEERING (GMS)

FREELS, JASON K.  Modeling Fracture in Z-Pinned Composite Coo-Cured Laminates Using Smeared Properties and Cohesive Elements in DYNA3D.  AFIT/GMS/ENY/06-S01, Faculty Advisor:  Dr. Som Soni.  Sponsor:  AFRL/MLBC.

NG, JONATHAN L.  Fretting Fatigue Behavior of Shot-Peened IN 100.  AFIT/GMS/ENY/06-M01, Faculty Advisor:  Shankar Mall.  Sponsor:  AFRL/MLLP.

RYBA, JENNIFER L.  Creep Rupture Behavior of a Woven Ceramic Matrix Composite at Elevated Temperatures in a Humid Environment.  AFIT/GMS/ENY/06-M01, Faculty Advisor:  Shankar Mall.  Sponsor:  AFRL/MLLN.

5.1.2.5  SPACE SYSTEMS (GSS)

CATRIB, CHRISTINE A.  An Analysis of Phased Array Radar Fences for Space Surveillance.  AFIT/GSS/ENY/06-M05, Faculty Advisor:  Lt Col Nathan A. Titus.  Sponsor:  HQ AFSPC/XPY.

GSTATTENBAUER, GREG J.  Cost Comparison of Expendable, Hybrid and Reusable Launch Vehicles.  AFIT/GSS/ENY/06-M06, Faculty Advisor:  Dr. Milton E. Franke.  Sponsor:  N/A.

JAMESON, ROBERT E.  Development and Validation of Reentry Simulation Using MATLAB.  AFIT/GSS/ENY/06-M08, Faculty Advisor:  Lt Col Kerry D. Hicks.  Sponsor:  N/A.

OSWEILER, VICTOR P.  Covariance Estimation and Autocorrelation of NORAD Two-Line Element Sets.  AFIT/GSS/ENY/06-M09, Faculty Advisor:  Lt Col Nathan A. Titus.  Sponsor:  N/A.

PETERSON, GINA A.  Control Demonstration of a Thin Deformable In-Plane Actuated Mirror.  AFIT/GSS/ENY/06-M10, Faculty Advisor:  Dr. Richard G. Cobb.  Sponsor:  AFRL/AFOSR.
Department of Aeronautics and Astronautics

PROVOST, DAMEN R.  The Effects of Modern GPS Technologies on Reentry Vehicle Dispersion Accuracy.  AFIT/GSS/ENY/06-M11, Faculty Advisor: Lt Col Terry Hicks.  Sponsor: N/A.

RENDON, AXEL.  Optimal Coverage of Theater Targets with Small Satellite Constellations.  AFIT/GSS/ENY/06-M12, Faculty Advisor: Lt Col Nathan A. Titus.  Sponsor: N/A.

VOGT, CHARLES W.  Performance Capability of a Damaged Lighter-Than-Air Vehicle Operating in the Near Space Regime.  AFIT/GSS/ENY/06-M13, Faculty Advisor: Lt Col Nathan A. Titus.  Sponsor: AFSPC/A3J.

WEDEKIND, JAMES T.  Characterizing and Controlling the Effects of Differential Drag on Satellite Formations.  AFIT/GSS/ENY/06-M14, Faculty Advisor: Lt Col Nathan A. Titus.  Sponsor: AFRL/VS.

5.1.2.6  SYSTEMS ENGINEERING (GSE)

ALBERT, ALAN P., EFSTATHIOS ANTONIOU, DERRICK W. BREWER, STEPHEN D. LEGGERO, THOMAS I. SAVOIE, MARY R. TEETER, KIMBERLY A. TOOMAN, and RAMON L. VEGLIO.  A Systems Engineering Approach to Integrated Structural Health Monitoring For Again Aircraft.  AFIT/GSE/ENY/06-M02, Faculty Advisor: Dr Som Soni.  Sponsor: SAF/IARL.


ANTONIOU, EFSTATHIOS.  See ALBERT, ALAN P.

BOND, REED M., DAVID T. CAPONIO, LAWERENCE B. CHILDERS, DONALD J. DAVIS, JOHN V. FONTEJON, KENNETH R. KRANZ, and MICAH K. MOSSMAN.  Project INSIGHT: Threat Modeling and Analysis for Earth-Orbiting Satellites.  AFIT/GSE/ENY/06-M03, Faculty Advisor: Dr Richard Cobb.  Sponsor: NASIC/SMSV.

BREWER, DERRICK W.  See ALBERT, ALAN P.

BRITTON, RYAN L.  See ALLEN, RONALD G.

CAPONIO, DAVID T.  See BOND, REED M.

CHILDERS, LAWERENCE B.  See BOND, REED M.

DAVIS, DONALD J.  See BOND, REED M.

DEANGELIS, TINA M.  See ALLEN, RONALD G.

FONTEJON, JOHN V.  See BOND, REED M.

HORN, KRISTON L.  See ALLEN, RONALD G.

JACKSON, LEE G.  See ALLEN, RONALD G.

KEMTER, JAMES D.  See ALLEN, RONALD G.

KIMBEL, JASON W.  See ALLEN, RONALD G.

KRANZ, KENNETH R.  See BOND, REED M.
WONG-JIRU, ANN. *Graph Theoretical Analysis of Network Centric Operation Using.* AFIT/GSE/ENY/06-S01, Faculty Advisor: Lt Col John Colombi. Sponsor: AFMC/653 ELSG.
5.1.3 FUNDED RESEARCH PROJECTS

ANTHENIEN, RALPH A.,


“Flow Optimization of the Ultra Compact Combustor.” Sponsor: AFRL/PR. Funding: $8,000.


“Investigation of Liquid Flame Spread Behind an Aerodynamic Obstruction.” Sponsor: USAF 46 OG/OGM/OL-AC. Funding: $8,000.


BLUE, PAUL A., Maj

“Planning, Guidance, and Control for Multiple UAV Cooperative Operations”. Sponsor: AFRL/VA. Funding: $36,000. [ANT]

BRANAM, RICHARD D., Maj


CANFIELD, ROBERT A.,


COBB, RICHARD A.,


“Evaluation of Innovative Space Missions”. Sponsor: AFRL/VS. Funding: $40,000. [ANT]

“Evaluation of Innovative Space Missions”. Sponsor: AFRL/VS. Funding: $35,000. [ANT]

FRANKE, MILTON E.,


“Boundary Layer Control using Plasma Induced Velocity.” Sponsor: AFRL/PR. Funding: $5,000.

“Open Cell PCM Coated Graphitic Foam Thermal Management Applications for Aerospace and Space.” Sponsor: AFRL/ML. Funding: $6,564.

JACQUES, DAVID R.,


KING, PAUL I.,

“Experimental Investigation of Pylons and Cavities for Scramjet Combustors.” Sponsor: AFRL/PR. Funding: $5,000.


KUNZ, DONALD L.,

“High-Fidelity Aeroelastic Analysis for Flexible-Wing MAVs.” Sponsor: AFRL/AFOSR. Funding: $18,054.


MALL, SHANKAR,


“Characterization of MEMS Switches.” Sponsor: AFRL/SN. Funding: $10,000.

MAPLE, RAYMOND C., Lt Col


PALAZOTTO, ANTHONY N.,


“Gouging Mitigation by Considering the Effects of Coatings, Nonequilibrium Thermodynamics and Material Failure.” Sponsor: AFRL/AFOSR/NM. Funding: $102,953.


“Scarf Joint Analysis.” Sponsor: AFRL/ML. Funding: $5,000.

“Structural Health Monitoring.” Sponsor: AFRL/VA. Funding: $10,000.

REEDER, MARK F.,

“Characterizing Flow Control Effectiveness for Submerged Inlet.” Sponsor: AFRL/VA. Funding: $16,000.


“Feasibility of Using Dry Ice for Seed Particles in Closed Circuit Wind Tunnels.” Sponsor: AFRL/VA. Funding: $10,000.


“Time Resolved Filtered Rayleigh Scattering Feasibility Study.” Sponsor: AFRL/PR. Funding: $5,000.

RUGGLES-WRENN, MARINA B.,

“Effect of Monazite Coating on Creep Behavior of Two Oxide-Oxide Ceramic Composites at Elevated Temperatures.” Sponsor: AFRL/PR. Funding: $6,321.

“Effects of Physical Aging and Chemical Degradation on Mechanical Behavior of High-Temperature Polymer Matrix Composites.” Sponsor: AFRL/AFOSR. Funding: $30,663.


“Rate-Sensitivity and Short term Creep of 5250-4 Polymer at Room Temperature and at 500F (191C).” Sponsor: AFRL/ML. Funding: $6,000.

WALTER, JEORG D., Maj

“Enhancing Command Communications through Adaptive Networking.” Sponsor: AFRL/AFOSR. Funding: $10,000.

5.1.4 FUNDED EDUCATIONAL PROJECTS

WALTER, JEORG, Maj

“SENG 539NC.” Sponsor: Combat Direction Systems Activity Dam Neck. Funding: $15,391.

5.1.5 REFEREED JOURNAL PUBLICATIONS

CANFIELD, ROBERT A.,

Rasmussen, Cody; Canfield, Robert A.; and Blair Maxwell, “Joined-Wing Sensor-Craft Configuration Design,” Journal of Aircraft, Vol. 43, Number 5, September-October 2006, pp. 1470-1478


COBB, RICHARD G.,


KING, PAUL I.,


KUNZ, DONALD L.,

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MAPLE, RAYMOND C., Lt Col


PALAZOTTO, ANTHONY N.,


REEDER, MARK F.,


RUGGLES-WRENN, MARINA B.,


WIESEL, WILLIAM E.,


5.1.6 OTHER PUBLICATIONS

BLUE, PAUL A., Maj


CANFIELD, ROBERT A.,


COBB, RICHARD G.,


FRANKE, MILTON E.,


GREENDYKE, ROBERT B.,


KING, PAUL I.,


KUNZ, DONALD L.,


MAPLE, RAYMOND C., Lt Col


PALAZOTTO, ANTHONY N.,


REEDER, MARK F.,


SWENSON, ERIC D.,


TORVIK, PETER J.,


5.1.7 SUBSTANTIAL CONSULTATIONS

FRANKE, MILTON E.,

Air Force Research Laboratory (AFRL/MN, AFRL/PR, AFRL/MLBC, AFRL/PRAT, AFRL/VAAA)

KUNZ, DONALD L.,


5.1.8 PRESENTATIONS

BRANAM, RICHARD D.,


Branam, R., "Coaxial Rocket Injection Instability," AFOSR contractors meeting, 26 Sep 2006, Annapolis, MD.
COBB, RICHARD G.,


FRANKE, MILTON E.,


KUNZ, DONALD L.,


Kunz, D.L., “Dynamic Coupling of the KC-135 Tanker and Boom for Modeling and Simulation,” invited lecture, Old Dominion University, September 22, 2006

MALL, SHANKAR,


MAPLE, RAYMOND C., Lt Col


Department of Aeronautics and Astronautics

PALAZOTTO, ANTHONY N.,


RUGGLES-WRENN, MARINA B.,


TORVIK, PETER J.,


WALTER, JOERG D., Maj


5.1.9 BOOKS AND CHAPTERS IN BOOKS

JACQUES, DAVID

5.1.10 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

BRANAM, RICHARD D.,
Executive Committee: 31st Dayton-Cincinnati Aerospace Sciences Symposium
Technical Paper Referee: AIAA Journal of Propulsion and Power

CANFIELD, ROBERT A.,
Publications Sub-Committee Chair: AIAA Multidisciplinary Design Optimization Technical Committee
Conference Paper Referee: AIAA Multidisciplinary Analysis and Optimization Conference
Session Chair: AIAA Multidisciplinary Analysis and Optimization Conference, Portsmouth, VA, Sep 2006; and AMSE Dayton Engineering and Sciences Symposium, Oct 2005

COBB, RICHARD G.,
Session Chair: Dayton-Cincinnati Aerospace Sciences Symposium

FRANKE, MILTON E.,
American Society of Mechanical Engineers (ASME):(1) Representative to the American Association for the Advancement of Science (AAAS) (2) Member and Chair Committee on Organization and Rules reporting to the ASME Board of Governors
American Institute of Aeronautics and Astronautics (AIAA): Member and Co-Chair, Weapon System Effectiveness Technical Committee

GREENDYKE, ROBERT B.,
Member, AIAA Thermophysics Technical Committee, 2001 – Present
Best Paper Subcommittee Chairman, 2002 – Present
Technical Paper Referee: AIAA Journal of Spacecraft & Rockets
KUNZ, DONALD L.,
Committee Member: AIAA Structural Dynamic Technical Committee, AHS Education Committee
Session Chair: 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference
Technical Paper Referee: AIAA Journal; Journal of Aircraft (3 papers)

LIEBST, BRADLEY S.,
Technical Paper Referee: AIAA Journal; Journal of Aircraft; and Journal of Guidance, Control and Dynamics
Member: Board of Directors, Honors Seminars of Metropolitan Dayton, Inc.

MAPLE, RAYMOND C., Lt Col
Session Chair: Dayton-Cincinnati Aerospace Sciences Symposium

REEDER, MARK F.,
Session chair at the AIAA 36th Fluid Dynamics Conference (San Francisco, June 2006) and at the AIAA Dayton-Cincinnati Aerospace Science Symposium (March 2006).

RUGGLES-WRENN, MARINA B.,
Design & Analysis Technical Committee Chair: ASME Pressure Vessel and Piping Division
Symposium Organizer: Composite Materials and Structures, Design and Analysis, ASME 2006 Pressure Vessel and Piping Conference
Session Chair: ASME 2006 Pressure Vessel and Piping Conference
Session Chair: ASME 2005 International Mechanical Engineering Congress & Exposition

SONI, SOM R.,
Technical Paper Referee: Journal of Computational and Theoretical Nanosciences
Peer Review: AFOSR Proposals
Resource Chair/Honors Seminars of Metropolitan Dayton, Inc.
TORVIK, PETER J.,
Member: Review Committee for Selection of AIAA Fellows

WALTER, JOERG D.,
Session chair at the AIAA Dayton-Cincinnati Aerospace Science Symposium (March 2006).

WIESEL, WILLIAM E.,
Secretary and Member: Board of Directors, Honors Society of Metropolitan Dayton, Inc.
5.2 DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Access Phone: 937-255-2024, DSN 785-2024
Fax: 937-656-7061, DSN 986-7061

5.2.1 DOCTORAL DISSERTATIONS

5.2.2 MASTERS THESES

5.2.3 GRADUATE RESEARCH PAPERS

5.2.4 FUNDED RESEARCH PROJECTS

5.2.5 FUNDED EDUCATIONAL PROJECTS

5.2.6 REFEREED JOURNAL PUBLICATIONS

5.2.7 OTHER PUBLICATIONS

5.2.8 SUBSTANTIAL CONSULTATIONS

5.2.9 PRESENTATIONS

5.2.10 BOOKS & CHAPTERS IN BOOKS

5.2.11 PATENTS

5.2.12 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

75
5.2.1 DOCTORAL DISSERTATIONS

BLAKE, TRAVIS F.  Reconstructing Spectral Scenes using Statistical Estimation to Enhance Space Situational Awareness.  AFIT/DS/ENG/06-05, Faculty Advisor: Lt Col Matthew E. Goda.  Sponsor: AFRL/VA.

CORBELL, PHILLIP M.  Adaptive Illumination Patterns for Radar Applications.  AFIT/DS/ENG/06-01, Faculty Advisor: Dr. Michael A. Temple.  Sponsor: AFRL/SNHE

CRABTREE, PETER N.  Performance-Metric Driven Atmospheric Compensation for Robust Free-Space Laser Communication.  AFIT/DS/ENG/06-03, Faculty Advisor: Lt Col Matthew E. Goda.  Sponsor: AFRL/DES.

MACDONALD, ADAM.  Blind Deconvolution of Anisoplanatic Images Collected by a Partially Coherent Imaging System.  AFIT/DS/ENG/06-04, Faculty Advisor: Dr. Stephen C. Cain.  Sponsor: AFRL/SNJ.

*ROBERTS, MARCUS L.  A General Framework for Analyzing, Characterizing, and Implementing Spectrally Modulated, Spectrally Encoded Signals.  AFIT/DS/ENG/06-06, Faculty Advisor: Dr. Michael A. Temple.  Sponsor: AFRL/SNRW and AFRL/IFGD.

ROELKE, GEORGE R.  Fault and Defect Tolerant Computer Architectures: Reliable Computing with Unreliable Devices.  AFIT/DS/ENG/06-07, Faculty Advisor: Dr. Rusty O. Baldwin.  Sponsor: AFRL/VA.

*ROBERTS, MARCUS L.  A General Framework for Analyzing, Characterizing, and Implementing Spectrally Modulated, Spectrally Encoded Signals.  AFIT/DS/ENG/06-06, Faculty Advisor: Dr. Michael A. Temple.  Sponsor: AFRL/SNRW and AFRL/IFGD.

SCHULTHESS, MARCUS R.  Modeling and Optimal Estimation of Atmospherically Induced Pointing Error.  AFIT/DS/ENG/06-08, Faculty Advisor: Lt Col Matthew E. Goda.  Sponsor: AFRL/DE.

VETH, MICHAEL J.  Fusion of Imaging and Inertial Sensors for Navigation.  AFIT/DS/ENG/06-09, Faculty Advisor: Dr. John F. Raquet.  Sponsor: AFRL/MN.
5.2.2 MASTERS THESES

5.2.2.1 COMPUTER ENGINEERING (GCE)

BELL, GARRICK A. An Interactive Relaxation Approach for Anomaly Detection and Preventive Measures in Computer Networks. AFIT/GCE/ENG/06-01, Faculty Advisor: Dr. Guna Seetharaman. Sponsor: N/A.


PULEO, ANTHONY J. Mitigating Insider Threat using Human Behavior Influence Models. AFIT/GCE/ENG/06-04, Faculty Advisor: Dr. Robert Mills. Sponsor: N/A.


SANCHEZ, ROBERTO C. Managing Bandwidth and Traffic via Bundling and Filtration in Large Scale Distributed Simulations. AFIT/GCE/ENG/06-06, Faculty Advisor: Dr. Kenneth Hopkinson. Sponsor: ASC/XRA.

SESSLER, BRIAN A. Evaluation and Analysis of Node Localization Power Cost in Ad Hoc Wireless Sensor Networks with Mobility. AFIT/GCE/ENG/06-07, Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFRL/IFSC.

SLEAR, JAMES N. AFIT UAV Swarm Mission Planning and Simulation System. AFIT/GCE/ENG/06-08, Faculty Advisor: Dr. Gary B. Lamont. Sponsor: AFRL/IFSC and AFRL/SNZW.

5.2.2.2 COMPUTER SCIENCE/COMPUTER SYSTEMS (GCS)

ALHARBI, MOHAMMED A. Fast Video Stabilization Algorithms. AFIT/GCS/ENG/06-02, Faculty Advisor: Dr. Guna Seetharaman. Sponsor: N/A.

BROWN, SILAS J. Applying Data Mining Techniques to Dynamically Model the ELINT Enterprise. AFIT/GCS/ENG/06-01, Faculty Advisor: Dr. Henry Potoczny. Sponsor: N/A.

CROCKFORD, ANDREW S. Exploiting Semi-Directional Transceivers for Localization in Communication Systems. AFIT/GCS/ENG/06-04, Faculty Advisor: Maj Scott R. Graham. Sponsor: AFRL/AFOSR.

DRESSLER, JUDSON C. Optimizing the Replication of Multi-Quality Web Applications Using ACO and WoLF. AFIT/GCS/ENG/06-05, Faculty Advisor: Maj Christopher B. Mayer. Sponsor: AFRL/IFSE.

FRASER, NICHOLAS A. Mitigating Distributed Denial of Service Attacks in an Anonymous Routing Environment: Client Puzzles and Tor. AFIT/GCS/ENG/06-06, Faculty Advisor: Dr. Richard A. Raines. Sponsor: N/A.

HALE, SCOTT C. Flashlight: A Dynamic Detector of Shared State, Race, Conditions, and Locking Model in Concurrent Java Programs. AFIT/GCS/ENG/06-08, Faculty Advisor: Maj Robert Graham. Sponsor: NSA/ALPHA/NCSC.
KIRCHNER, BRIAN. *A Monocular Vision Based Approach to Flocking*. AFIT/GCS/ENG/06-09, Faculty Advisor: Dr. Gilbert Peterson. Sponsor: AFRL/SNRP.

OKOLICA, JAMES S. *Detecting Potential Insider Threats Through Email Datamining*. AFIT/GCS/ENG/06-01, Faculty Advisor: Dr. Gilbert Peterson. Sponsor: NSA.

PRICE, IAN C. *Evolving Self-Organized Behavior for Homogeneous and Heterogeneous UAV or UCAV Swarms*. AFIT/GCS/ENG/06-11, Faculty Advisor: Dr. Gary B. Lamont. Sponsor: AFRL/SNZW.

SPINELLI, CHRISTOPHER J. *Development and Testing of a High-Speed Real-Time Kinematic Precise DGPS Positioning System Between Two Aircraft*. AFIT/GCS/ENG/06-12, Faculty Advisor: Dr. John F. Raquet. Sponsor: AFRL/SN RN.

5.2.2.3 **ELECTRICAL ENGINEERING (GE)**

AMT, JOHN ROBERT H. *Methods for Aiding Height Determination in Pseudolite-Based Reference Systems Using Batch Least-Squares Estimation*. AFIT/GE/ENG/06-03, Faculty Advisor: Dr. John Raquet. Sponsor: AFMC.

AUNE, SHAYNE C. *Comparison of Ray Tracing through Ionospheric Models*. AFIT/GE/ENG/06-04, Faculty Advisor: Lt Col Matthew Goda. Sponsor: AFRL/VSXP.

BAIZERT, PIOTR. *Forward Looking Radar Clutter Suppression Using Frequency Diverse Arrays*. AFIT/GE/ENG/06-05, Faculty Advisor: Maj Todd Hale. Sponsor: AFRL/SN.


BORKOWSKI, JEFFREY M. *A Minimum Effort Control Approach to Guided Munition Path Planning*. AFIT/GE/ENG/06-07, Faculty Advisor: Lt Col Juan Vasquez. Sponsor: AFRL/MNGN.

BORTLE, JONATHAN. *A Measurement and Prediction-Based Validation of the AFIT Large Commercial Aircraft IR Trend Analysis Tool*. AFIT/GE/ENP/06-01, Faculty Advisor: Dr. Michael Marciniak. Sponsor: AFRL/SNS.

BRUCKART, STEPHEN A. *Multi-frame Shift Estimation*. AFIT/GE/ENG/06-08, Faculty Advisor: Dr. Stephen Cain. Sponsor: AFRL/SN.


BURRIS, CHARLES R. *An Estimation Theory Approach to Detection and Ranging of Obscured Targets in 3-D*. AFIT/GE/ENG/06-10, Faculty Advisor: Dr. Stephen Cain. Sponsor: AFRL/SNJM.


CADY, E. M. *A Study of Near Field Data Transformed to the Far Field for a Canonical PEC Scattered*. AFIT/GE/ENG/06-11, Faculty Advisor: Dr. Andrew J. Terzouli. Sponsor: ASC/ENAD.


CHEZEM, JOHN R.V. Analysis of Photoconductive Properties in Ge$_2$B$_2$Te$_5$ (GST) Chalcogenide Films for Applications in Novel Electronics. AFIT/GE/ENG/06-14, Faculty Advisor: Lt Col James Fellows. Sponsor: AFRL/IF-TA.

CHRISTIANSEN, BRADLEY D. Active FPGA Security through Decoy Circuits. AFIT/GE/ENG/06-15, Faculty Advisor: Dr. Yong Kim. Sponsor: AFRL/SNTA.

CONLEY, JAMES D. Coexistent Performance Characterization of a Simulated Offset GMSK System. AFIT/GE/ENG/06-16, Faculty Advisor: Dr. Michael Temple. Sponsor: AFRL/IFGD.

DENNINGHOFF, DANIEL J. Power-Savenging MEMS Robots. AFIT/GE/ENG/06-17, Faculty Advisor: Maj Lavern Starman. Sponsor: AFRL/MNAV.

ECKERT, REBECCA J. Polar Phase Screens: A Comparison with other Methods of Random Phase Screen Generation. AFIT/GE/ENG/06-18, Faculty Advisor: Lt Col Matthew Goda. Sponsor: AFRL/DES.


HANSEN, ERIC G. Multilingual Phoneme Models for Rapid Speech Processing System. AFIT/GE/ENG/06-02, Faculty Advisor: Dr. Steven Gustafson. Sponsor: AFRL/HECP.

HENDENBERG, JOHN M. Characterization of Binary Offset Carrier (BOC) Systems Coexisting with Wideband Signals. AFIT/GE/ENG/06-02, Faculty Advisor: Dr. Michael Temple. Sponsor: AFRL/SNWR.

HERWEG, JARED A. Passive Objective Detection Using Illumination of Opportunity and a Moving Receiver. AFIT/GE/ENG/06-21, Faculty Advisor: Dr. Andrew Terzouli. Sponsor: AFRL/SNWR.

HORNBACK, JESSE R. Speak Recognition using Mellin Transform. AFIT/GE/ENG/06-22, Faculty Advisor: Dr. Steven Gustafson. Sponsor: AFRL/HECP.

HYATT, ANDREW W. Doppler Aliasing Reduction In Wide-Angle Synthetic Aperture Radar Using Phase Modulated Random Stepped-Frequency Waveforms. AFIT/GE/ENG/06-23, Faculty Advisor: Dr. Todd Hale. Sponsor: AFRL/SNRT.

HYDE, MILO W. Determining the Resistive Sheets Using Transmission Measurements. AFIT/GE/ENG/06-24, Faculty Advisor: Dr. Michael Havrilla. Sponsor: N/A.

ILLARI, Roger A. Development of a Wireless Model Incorporating Large Scale Fading in a Rural, Urban and Suburban Environment. AFIT/GE/ENG/06-25, Faculty Advisor: Dr. Barry Mullins. Sponsor: AFCA/ENAN.
Department of Electrical and Computer Engineering

IVES, JASON L.  Elevation of a Field Programmable Gate Array Circuit Reconfiguration System.  AFIT/GE/ENG/06-26, Faculty Advisor: Dr. Rusty Baldwin.  Sponsor: AFRL/V SSE.


KOBOLD, MICHAEL C.  Laser Covariance Vibrometry for Unsymmetrical Mode.  AFIT/GE/ENG/06-61, Faculty Advisor: Dr. Stephen Cain.  Sponsor: AFRL/SNAT.

KOZAK, MATTHEW C.  Multiple Model Methods for Cost Function Based Multiple Hypothesis Trackers.  AFIT/GE/ENG/06-29, Faculty Advisor: Dr. Peter Maybeck.  Sponsor: AFOSR/NM.

KRUPP, GARY G.  Characterization of Xpatch Incremental Length Diffraction Coefficients.  AFIT/GE/ENG/06-30, Faculty Advisor: Dr. Michael Havrilla.  Sponsor: AFRL/SNAS.

KUBLER, THOMAS L.  Ant Clustering with Locally Weighting ANT Perception and Diversified Memory.  AFIT/GE/ENG/06-31, Faculty Advisor: Dr. Gilbert Peterson.  Sponsor: NSA/NIE TP.

LASH, PAUL C.  Comparison of Computational Electromagnetic Codes for Prediction of Low-Frequency Radar Cross Section.  AFIT/GE/ENG/06-32, Faculty Advisor: Dr. Michael Havrilla.  Sponsor: NASIC/ADNS.

LAWSON, TIMOTHY W.  Side-Looking Airborne Adaptive Operation in Hot Clutter.  AFIT/GE/ENG/06-33, Faculty Advisor: Maj Todd Hale.  Sponsor: AFRL/SNRT.

LEE, SANG H.  Investigation of the Effects of Target Feature Variations Ballistic Missile RCS.  AFIT/GE/ENG/06-34, Faculty Advisor: Lt Col James Fellows.  Sponsor: ACC.


MARTIN, MARK.  Design and Characterization of a Radiation Tolerant Triple Mode Redundant Sense Amplifier Flip-Flop for Space Applications.  AFIT/GE/ENG/06-39, Faculty Advisor: Dr. Yong Kim.  Sponsor: AFRL/V SSE.

MAWHORTER, STEVEN.  Active Operational Tracking with Spatial Light Modulators.  AFIT/GE/ENG/06-40, Faculty Advisor: Dr. Matthew Goda.  Sponsor: AFRL/ SN.

MAYNARD III, JOHN.  Bio-Inspired, Odor Based Navigation.  AFIT/GE/ENG/06-48, Faculty Advisor: Lt Col Juan Vasquez.  Sponsor: AFRL/SNRP.

MENDEZACEVES, ENRIQUE.  Biological System Impedance Identification Using Stochastic Estimation and Control.  AFIT/GE/ENG/06-41, Faculty Advisor: Lt Col Juan Vasquez.  Sponsor: N/A.
MIMS, WILLIE H.  *Wideband Signal Detection Using a Down-Converting Channelized Receiver.*  AFIT/GE/ENG/06-42, Faculty Advisor: Dr. Michael Temple.  Sponsor: AFRL/SNRP.


MORRIS, KEVIN M.  *Performance Analysis of a Cooperative Search Algorithm for Multiple for Multiple Unmanned Aerial Vehicles Under Limited Communication Conditions.*  AFIT/GE/ENG/06-44, Faculty Advisor: Dr. Barry E. Mullins.  Sponsor: USAFA/DFEC.

PARIS, NEIL D.  *LQG/LTR Tilt and Tip Control for the Starfire Optical Range 3.5 meter Telescope’s Adaptive Optics System.*  AFIT/GE/ENG/06-37, Faculty Advisor: Lt Col Juan Vasquez.  Sponsor: AFRL/DESA.

PETRUCCI, DAVID J.  *Gaussian Mixture Reduction for Bayesian Target Tracking in Clutter.*  AFIT/GE/ENG/06-01, Faculty Advisor: Dr. Peter Maybeck.  Sponsor: AFOSR/NM.

PITZER, TIMOTHY L.  *A Platform for Antenna Optimization with Numerical Electromagnetics Codes Incorporated with Genetic Algorithms.*  AFIT/GE/ENG/06-46, Faculty Advisor: Dr. Andrew Terzouli.  Sponsor: AFRL/SNCR.

POCHET, MICHAEL C.  *Characterization of the Field Emission Properties of Carbon Nanotubes Formed on Silicone Carbide Substrates by Surface Decomposition.*  AFIT/GE/ENG/06-47, Faculty Advisor: Lt Col James Fellows.  Sponsor: AFRL/MN.

REHM, CHRISTOPHER R.  *Signal Characterization Using Entropy-Based Spectral Processing.*  AFIT/GE/ENG/06-50, Faculty Advisor: Dr. Michael Temple.  Sponsor: N/A.

RICE, CHRISTOHER A.  *Fast Scene Based Non-Uniformity Correction with Minimal Temporal.*  AFIT/GE/ENG/06-59, Faculty Advisor: Dr. Stephen Cain.  Sponsor: AFRL/SNJR.

SHOCKLEY, JEREMIAH A.  *Estimation and Mitigation of Unmodeled Errors for a Pseudolite Based Reference System.*  AFIT/GE/ENG/06-51, Faculty Advisor: Dr. John Raquet.  Sponsor: AFMC/746th Test Squadron.

SIKES, CLINT R.  *Non-Cooperative Detection of Frequency-Hopped GMSK Signals.*  AFIT/GE/ENG/06-37, Faculty Advisor: Dr. Robert Mills.  Sponsor: AFRL/SNRC.

STARR, MICHAEL S.  *Embedded GPS Jamming Proof of Concept.*  AFIT/GE/ENG/06-54, Faculty Advisor: Dr. John Raquet.  Sponsor: USAF/TPS.

SOMANN, JESSE D.  *Characterization and Design of High-Level VHDL I/Q Frequency Downconverter via Special Sampling Scheme.*  AFIT/GE/ENG/06-53, Faculty Advisor: Dr. Yong Kim.  Sponsor: AFRL/SNCR.

THOMPSON, JAMES D.  *Verification of a Decision Level Fusion Algorithm Using a Proven ATR System and Measured SAR Data.*  AFIT/GE/ENG/06-60, Faculty Advisor: Dr. Steven Gustafson.  Sponsor: AFRL/SNZT.

UZPEN, Shelly A.  *A Measurement Based Examination of Optical Signature Changes Due to Weathering Effects on Aircraft Paint.*  AFIT/GE/ENP/06-02, Faculty Advisor: Dr. Michael Marciniak.  Sponsor: AFRL/SNS.
WARDELL, DEAN C. Application of Fuzzy State Aggregation and Policy Hill Climbing to Multi-Agent Systems in Stochastic Environments. AFIT/GE/ENG/06-55, Faculty Advisor: Dr. Gilbert Peterson. Sponsor: AFRL/SNRR.


WOOD, CHRISTOPHER C. Multi-Dimensional Wave Front Sensing Algorithms for Embedded Tracking and Adaptive Optics. AFIT/GE/ENG/06-57, Faculty Advisor: Dr. Stephen Cain. Sponsor: AFRL/SNRT.

YOUNG, MATTHEW V. An Airborne Radar Model for Non-Uniformly Spaced Antenna Arrays. AFIT/GE/ENG/06-58, Faculty Advisor: Maj Todd Hale. Sponsor: AFRL/SNRT.

5.2.2.4 INFORMATION ASSURANCE (GIA)

CLAYCOMB, CRAIG A. Analysis of Windows Rootkit Detection Tools. AFIT/GIA/ENG/06-03, Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SN.

DUBE, THOMAS E. Metamorphism as a Software Protection for Non-Malicious Code. AFIT/GIA/ENG/06-04, Faculty Advisor: Dr. Richard A. Raines. Sponsor: AFRL/SNTA.

FINNIGIN, KEVIN M. Cryptanalysis of Pseudorandom Number Generators in Wireless Sensors Networks. AFIT/GIA/ENG/06-05, Faculty Advisor: Dr. Barry E. Mullins. Sponsor: NSA.

KING, WILLIAM H. Development of a Malicious Insider Composite Vulnerability Assessment Methodology. AFIT/GIA/ENG/06-06, Faculty Advisor: Dr. Robert Mills. Sponsor: NSA.

LEVOY, TERRY E. Development of a Methodology for Customizing Insider Threat Auditing on a Microsoft Windows XP® Operating System. AFIT/GIA/ENG/06-07, Faculty Advisor: Dr. Robert Mills. Sponsor: NSA.

PARK, BARRY W. A Real-Time Wireless Sensor Media Access Control Protocol. AFIT/GIA/ENG/06-08, Faculty Advisor: Dr. Rusty O. Baldwin. Sponsor: AFCA/ENAN.


WEAVER, ROBERT V., III. Leveraging ITIL to Govern AOC Information Technology. AFIT/GIA/ENG/06-01, Faculty Advisor: Dr. Robert F. Mills. Sponsor: AFMC/OC2SG/KQ.

5.2.2.5 INFORMATION RESOURCE MANAGEMENT (GIR)

VALENTINE, JENNIFER R. Application of the Strategic Alignment Model and Information Technology Governance Concepts to Support Network Centric Warfare. AFIT/GIR/ENG/06-01, Faculty Advisor: Dr. Robert F. Mills. Sponsor: N/A.

5.2.2.6 SPACE SYSTEMS (GSS)


NOBLE, LOUIS A. Dual Fine Tracking Control of a Satellite Laser Communication. AFIT/GSS/ENG/06-02, Faculty Advisor: Lt Col Juan R. Vasquez. Sponsor: N/A.
5.2.3 GRADUATE RESEARCH PAPERS

BASS, SAMUEL D.  The Challenges of Information Management in the Networked Battlespace:
Unmanned Aircraft Systems, Raw Data and the Warfighter.  AFIT/IC4/ENG/06-01, Faculty Advisor:
Dr. Guna Seetharaman.  Sponsor:  N/A.

CHACON, MARK A.  Course Curriculum Development of the Future Cyber Warrior.  AFIT/IC4/ENG/06-02, Faculty Advisor:  Dr. Robert Mills.  Sponsor:  N/A.

JENRETTE, BRIAN J.  Establishing a Communications Officer Force Development Program.
AFIT/IC4/ENG/06-04, Faculty Advisor:  Dr. Robert Mills.  Sponsor:  SAF/XC.

AFIT/IC4/ENG/06-05, Faculty Advisor:  Dr. Barry Mullins.  Sponsor:  AFRL/IF.

STOOKEY, DAVID E.  A Notional Battlespace for Simulating and Testing Dynamic Wireless Networks.
AFIT/IC4/ENG/06-06, Faculty Advisor:  Maj Scott Graham.  Sponsor:  N/A.

TRECHTER, JOSEPH.  Information Technology Governance and the Air Force.  AFIT/IC4/ENG/06-07, Faculty Advisor:  Dr. Robert Mills.  Sponsor:  N/A.

WHITE, SAMUEL G., III.  Requirements for Common Bomber Mission Planning Environment.
AFIT/IC4/ENG/06-08, Faculty Advisor:  Dr. Robert Mills.  Sponsor: B2SG/VA.

WOOLLEY, PAMELA.  Defining Cyberspace as a United States Air Force Mission.  AFIT/IC4/ENG/06-09, Faculty Advisor:  Dr. Robert Mills.  Sponsor: AF/XP.
5.2.4 FUNDED RESEARCH PROJECTS

CAIN, STEPHEN C.,
“3-D LADAR Resolution Enhancement.” Sponsor: AFRL/SN. Funding: $5,481.

FELLOWS, JAMES A., Lt Col

GODA, MATTHEW E., Lt Col


GRAHAM, SCOTT R., Maj

HALE, TODD B., Maj
“Technical Support, AFRL/SNRT.” Sponsor: AFRL/SN. Funding: $10,000

HALLORAN, TIMOTHY J., Lt Col
“Towards Practical Late-Lifecycle Verification of Software: Analysis, Interaction and Fusion.” Sponsor: AFRL/AFOSR. Funding: $12,162.

Havrilla, Michael J.,

Hopkinson, Kenneth M.,
“Effective Utilization of a Hybrid Communication Network”. Sponsor: SAF/FMBMB-AFOY. Funding: $46,258. [ANT]


KIM, YONG C.,
“Innovative Space Missions.” Sponsor: AFRL/VS. Funding: $30,000.
MARTIN, RICHARD K.,
“Reception of Non-Cooperative Cyclic-Prefixed Wireless Communications.” Sponsor: AFRL/AFOSR. Funding: $32,836.

MAYBECK, PETER S.,
“Cost-Function-Based Gaussian Mixture Reduction Applied to Target Tracking.” Sponsor: AFRL/AFOSR/NM. Funding: $50,000.

MILLS, ROBERT F.,
“Insider Threat Mitigation”. Sponsor: NSA. Funding: $10,000. [CISER]
“Technical Support, RF Sensing Applications”. Sponsor: AFRL/SN. Funding: $15,000. [CISER]
“Technical Support, RF Sensing Applications”. Sponsor: AFRL/SN. Funding: $13,000. [CISER]

MULLINS, BARRY E.,
“Air Force Communication Systems Modeling”. Sponsor: AFCA. Funding: $64,000. [CISER]
“Investigation of Wireless Sensor Network Research to Department of Defense Applications”. Sponsor: AFRL/IF. Funding: $43,000. [CISER]
“Secure Communication in a Mobile Wireless Network Environment”. Sponsor: NIETP. Funding: $144,281. [CISER]
“Technical Support: Ground Mobile Objective Gateways”. Sponsor: AFRL/MN. Funding: $49,000. [ANT]

PACHTER, MEIR,
“Optimization of MAV Operations”. Sponsor: AFRL/VACA. Funding: $22,000. [ANT]

RAINES, RICHARD A.,
“Development of a Federal Cyber Force at the Air Force Institute of Technology”. Sponsor: NSF. Funding: $90,609. [CISER]
“Collaborative Project -- AFIT and Sinclair Community College: Building Core IA Educational Capacity”. Sponsor: NSF. Funding: $69,121. [CISER]
“Tuition and Resource Support for the AFIT Center for Information Security Education and Research (CISER)”. Sponsor: NSA. Funding: $342,682. [CISER]
RAQUET, JOHN F.,

“Alternative Navigation Techniques”. Sponsor: AFRL/MN. Funding: $50,000. [ANT]

“ANT Center and Laboratory Support per Appendix of the MOA between AFIT and AFRL”. Sponsor: AFRL/SN. Funding: $58,000. [ANT]

“ANT Center and Laboratory Support per Appendix of the MOA between AFIT and AFRL”. Sponsor: AFRL/SN. Funding: 81,956. [ANT]

ANT Center and Laboratory Support per Appendix of the MOA between AFIT and AFRL”. Sponsor: AFRL/SN. Funding: $12,166. [ANT]

“CANIS-Related Navigation Research Projects for the ANT Laboratory”. Sponsor: AFRL/SN. Funding: $93,000. [ANT]

“Geostationary Satellite Positioning using Two-Way Time Transfer and GPS”. Sponsor: SAF/FMBMB-AFOY. Funding: $45,120. [ANT]

“Initial JPALS TSPI System Development”. Sponsor: 746TS. Funding: $30,000. [ANT]


“Sub-Surface Navigation”. Sponsor: AFRL/SN. Funding: $67,636. [ANT]

SEETHARAMAN, GUNA S.,

"Enhancements and Extensions to VSIPL++: Interface, Effectiveness and Testability." Sponsor: AFRL/IF. Funding: $50,000.

STARMAN, LaVERN A., Maj

“Autonomous Power-Scavenging Microrobots.” Sponsor: AFRL/MN. Funding: $25,000.


TEMPLE, MICHAEL A.,

“Detection, Characterization and Location of Spurious Receiver Emissions”. Sponsor: SAF/FMBMB-AFOY. Funding: $43,865. [ANT]

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

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


TERZUOLI, ANDREW J., Jr

“ECM Against Passive Radar.” Sponsor: AFRL/SN. Funding: $33,000

“Remote Sensing and Communications for MASINT”. Sponsor: NASIC/DE. Funding: $100,000

86
VASQUEZ, JUAN R., Lt Col

“ATR Fusion for Identity Experiment: Tracking, Classification, and Estimation”. Sponsor: AFRL/SN. Funding: $40,000. [ANT]


5.2.5 FUNDED EDUCATIONAL PROJECTS

MULLINS, BARRY E.,

“Secure Communication in a Mobile Wireless Network Environment”. Sponsor: NIETP. Funding: $144,281. [CISER]

RAINES, RICHARD A.,

“Anti-Tamper Software Protection Initiative Education, Outreach, and Research (Scope and Budget Revision)”. Sponsor: AFRL/SN. Funding: $257,188. [CISER]

5.2.6 REFEREED JOURNALS

BALDWIN, RUSTY O.,


CAIN, STEPHEN C.,


DAVIS, NATHANIEL J., IV


HAVRILLA, MICHAEL J.,


HOPKINSON, KENNETH M.,


MARTIN, RICHARD K.,


MAYBECK, PETER S.,


MILLS, ROBERT F.,

*Okolica, J.S., Peterson, G.L. and Mills, R.F., “Using PLSI-U to Detect Insider Threats by Datamining Email,” accepted for publication, Special Issue on Network Forensics of the International Journal of Security and Networks. [CISER]


PACHTER, MEIR,


RAINES, RICHARD A.,


RAQUET, JOHN F.,


SEETHARAMAN, GUNA S.,


TEMPLE, MICHAEL A.,


TERZUOLI, ANDREW J., JR.,


5.2.7 OTHER PUBLICATIONS

BALDWIN, RUSTY O.,


CAIN, STEPHEN C.,

Cain, S., “Joint Blind Deconvolution and Imaging Correlography via a Bayesian Image Reconstruction Algorithm,” Accepted for presentation at the *IEEE Aerospace Conference*, March 2006


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.,


PACHTER, MEIR,


PETERSON, GILBERT L.,


RAINIER, RICHARD A.,


RAQUET, JOHN F.,


SEETHARAMAN, GUNA S.,


TEMPLE, MICHAEL A.,


**TERZUOLI, ANDREW J., Jr**


5.2.8 SUBSTANTIAL CONSULTATIONS

MULLINS, BARRY E.,


PACTER, MEIR,

Consulting with AFRL/VACA on a regular basis, Cooperative Control of UAVs.

Consulting with AFOS: Estimation, System Identification and Signal Processing, and Optimal Control.

5.2.9 PRESENTATIONS

BALDWIN, RUSTY O.,


CAIN, STEPHEN C.,

Cain, S., “Joint Blind Deconvolution and Imaging Correlography via a Bayesian Image Reconstruction Algorithm,” Accepted for presentation at the IEEE Aerospace Conference, March 2006


DAVIS, NATHANIEL J., IV


FELLOWS, JAMES A., Lt Col


GUSTAFSON, STEVEN C.,


HAVRILLA, MICHAEL J.,


HOPKINSON, KENNETH M.,


MARTIN, RICHARD K.,


MAYBECK, PETER S.,

MAYER, CHRISTOPHER B., Maj


MILLS, ROBERT F.,


**MULLINS, BARRY E.,**


PACHTER, MEIR,


Pachter, Meir, “Cooperative Control and Estimation: Optimal Sequential Inspection,” AFOSR Contractors Meeting, August 10, 2006, Atlanta, GA.


PETE RSON, GILBERT L.,


**RAINES, RICHARD A.,**


Raines, Richard A., “Cyberspace and Developing a Cyberspace Workforce,” presented to NRO (MG Latiff), Wright Patterson AFB, OH, February 2006. [CISER]

Raines, Richard A., “Cyberspace and Developing a Cyberspace Workforce,” presented to AF/XP (Dr. Lani Kass), Pentagon, January 2006. [CISER]


Raines, Richard A., “The Center for Information Security Education and Research,” presented to Congressman David Hobson's Chief of Staff (Mr. Wayne Struble) WPAFB, OH., December 2005. [CISER]


RAQUET, JOHN F.,


SEETHARAMAN, GUNA S.,


STARMAN, LaVERN A., Maj


TEMPLE, MICHAEL A.,


TERZUOLI, ANDREW J., Jr


5.2.10 BOOKS AND CHAPTERS IN BOOKS

MILLS, ROBERT F.


PACHTER, MEIR


PETERSON, GILBERT L.


RAQUET, JOHN F.


5.2.11 PATENTS

MARTIN, RICAHRD K.,


5.2.12 OTHER SIGNIFICANT 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
Member: AFIT Commandant’s Advisory Committee on Air Force Emerging Technical Competencies and Educational Requirements

Fellows, James A., Lt Col
Member: AFIT/ENG Steering Committee; AFIT/ENG Faculty Search Committee
Proposal Reviewer: Army Research Office (ARO)
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
HALE, TODD B., Maj

Tau Beta Pi Faculty EE Advisor: Tau Beta Pi


Tutorial Program Chair: 2006 Waveform Diversity and Design Conference Committee

Consultant: National Air and Space Intelligence Center (NASIC)

HALLORAN, TIMOTHY J., Lt Col

Program Committee Member: *Specification and Verification of Component-Based Systems (2006)*

HAVRILLA, MICHAEL J.,


Reviewer for IEEE Transactions on Microwave Theory and Techniques, IEEE Transactions on Instrumentation and Measurement

Invited to teach at the “High Power Microwave Short Course,” College Park, MD, April 2006

AFIT Electromagnetics Curriculum Chair and AFIT Low Observables Curriculum Chair

HOPKINSON, KENNETH M.,


KIM, YONG CHANG,

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

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


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.,

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

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

Representative: AFIT/EN Doctoral Council, AFIT/ENG

MILLS, ROBERT F.,

Technical Paper Referee: *IEEE Transactions on Communications, Aug 2006*

Reviewer: 2006 IEEE Vehicular Technology Conference, Transmission Technology track

Reviewer, NASA Advanced Information Systems Technology Program, Earth Sciences Technical Office, April 2006

Consultant: AFRL/SNRW (Electronic Warfare Branch), close in urban spectrum sensing

MULLINS, BARRY E.,

Technical Paper Referee: Military Communications Conference (MILCOM 2006) and American Society for Engineering Education Annual Conference

Moderator: American Society for Engineering Education Annual Conference

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”
Department of Electrical and Computer Engineering

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/SNP
Member of AFRL/VACA AFOSR Star Team
AFIT NRC Postdoctoral Advisor
Associate Fellow of the AIAA
Fellow of the IEEE

PETERSON, GILBERT L.,

Reviewer: Florida Artificial Intelligence Research Society (FLAIRS); IFIP WG 11.9 Digital Forensics; and 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

Session Chairman: IFIP WG 11.0 Digital Forensics

RAINES, RICHARD A.,

Member: Program Committee, 10\textsuperscript{th} Colloquium for Information Systems Security Education (CISSE), Maryland, June 2006

Panel Member: Scholarship for Service Proposal Review, National Science Foundation, Arlington VA, February 2006

Technical Paper Referee: IEEE International Communications Conference; 40\textsuperscript{th} Hawaii International Conference on System Sciences; IEEE Information Assurance Workshop; 10\textsuperscript{th} Colloquium for Information Systems Security Education (CISSE); IEEE Security and Privacy; IEEE Communications Letters

RAQUET, JOHN F.,


Reviewer: IEEE Transactions on Aerospace Electronics Systems; GPS Solutions

Executive Secretary: Satellite Division of the Institute of Navigation

SEETHARAMAN, GUNA S.,


Reviewer for the following journals: The IEEE Transactions on Computer; Intl Journal of Distributed Parallel Computing; Photogrammetry and Remote Sensing and, Optics Express.

STARMAN, LaVERN A., Maj

Program Co-Chair and Session Chair: SPIE Great Lakes Photonics Symposium, Dayton, OH, Jun 2006

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

Steering Committee: WPAFB MASINT Development Consortium
5.3 DEPARTMENT OF ENGINEERING PHYSICS

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5.3.1 **DOCTORAL DISSERTATIONS**

HAWKS, MICHAEL R.  *Passive Ranging Using Atmospheric Oxygen Absorption Spectra.* AFIT/DS/ENP/06-02, Faculty Advisor: Dr. Glen P. Perram. Sponsor: NASIC/DEM.

GRIMES, BRENT W.  *Multiple Channel Laser Beam Combination and Phasing Using Stimulated Brillouin Scattering in Optical Fibers.* AFIT/DS/ENP/06-01, Faculty Advisor: Dr. Won Roh. Sponsor: AFRL/DELO.

PHILLIPS, GRADY T.  *Spatially-Resolved Temperature Diagnostic for Supersonic Flow Using Cross-Beam Doppler-Limited Laser Saturation Spectroscopy.* AFIT/DS/ENP/06-03 Faculty Advisor: Dr. Glen P. Perram. Sponsor: N/A

5.3.2 **MASTERS THESES**

5.3.2.1 **APPLIED PHYSICS (GAP)**

BROWN, KIRK C.  *Passive Multiple Beams Combination in Optical Fibers via Stimulated Brillouin Scattering.* AFIT/GAP/ENP 06-01, Faculty Advisor: Maj Timothy Russell. Sponsor: AFRL/DELO.

CHARLES, CHRISTOPHER S.  *Computational Modeling of the Dielectric Barrier Discharge (DBD) Device for Aeronautical Applications.* AFIT/GAP/ENP/06-02, Faculty Advisor: Dr. William F. Bailey. Sponsor: N/A.

FLUSCHE, BRIAN M.  *Development of a Multiple Beam Combiner Using Stimulated Raman Scattering in Multimode Fiber.* AFIT/GAP/ENP/06-04, Faculty Advisor: Lt Col Thomas Alley. Sponsor: AFRL/DELO.

GALLAGHER, JEFFREY E.  *Singlet Delta Oxygen: A Quantitive Analysis Using Off-Axis Integrated-Cavity-Output-Spectroscopy (ICOS).* AFIT/GAP/ENP/06-06, Faculty Advisor: Dr. Glen P. Perram. Sponsor: AFRL/PRAS.

GRAVELY, LIESEBET E.  *Comparison of Climatological Optical Turbulence Profiles of Standard, Statistical and Numerical Modes using HELEEOS.* AFIT/GAP/ENP/06-06, Faculty Advisor: Lt Col Steven Fiorino. Sponsor: NA.

KLEIN, TIMOTHY R.  *Macroscopic Computational Model of Dielectric Barrier Discharge Plasma Actuators.* AFIT/GAP/ENP/06-07, Faculty Advisor: Dr. William Bailey. Sponsor: N/A.

LEMER, JADE M.  *Electro-Optic Sensor Detection Via Optically Augmented Retroflection.* AFIT/GAP/ENP/06-08, Faculty Advisor: Dr. Michael Marciniak. Sponsor: AFRL/MLPJ.

LIEVJEN, KATHERINE B.  *Radiometric Analysis of Daytime Satellite Detection.* AFIT/GAP/ENP/06-09, Faculty Advisor: Dr. Michael Marciniak. Sponsor: AFRL/SNJW.


MORGAN, JESSE D.S.  *Backward Amplification and Beam Cleanup of a Raman Fiber Laser Oscillator a Multi-Mode Graded Index Fiber Amplifier.* AFIT/GAP/ENP/06-11, Faculty Advisor: Lt Col Thomas Alley. Sponsor: AFRL/DELO.

MULLER, PAUL L.  *A Study of Collapse Events in Ultraviolet Light Filaments Due to Transient Edge Effects.* AFIT/GAP/ENP/06-12, Faculty Advisor: Capt Thomas Niday. Sponsor: AFOSR/NM.
NORMAN, JAMES D.  Characterization of Optical Blooming in Indium Antimonide Focal Plane Arrays Under High Irradiance Conditions.  AFIT/GAP/ENP/06-13, Faculty Advisor: Dr. Michael Marciniak.  Sponsor: AFRL/MLPJ.

PARSON, ANNETTE M.  Modeling E & F Region Response to X-Ray Solar Flares.  AFIT/GAP/ENP/06-14, Faculty Advisor: Maj Christopher Smithro.  Sponsor: AFWA/DN.

SATTLER, MATTHEW P.  Prediction of Flight-Level Radiation Hazards due to Solar Energetic Particles.  AFIT/GAP/ENP/06-15, Faculty Advisor: Maj Christopher Smithro.  Sponsor: AFWA/DN.

SCOVILLE, JAMES A.  Type II Quantum Computing Algorithm for Computational Fluid Dynamics.  AFIT/GAP/ENP/06-16, Faculty Advisor: Maj Christopher Smithro.  Sponsor: AFWA/DN.

SIEFERT, NICHOLAS S.  Shockwave Interactions with Argon Glow Discharges.  AFIT/GAP/ENP/06-17, Faculty Advisor: Dr. William Bailey.  Sponsor: N/A.

STEWART, BRYAN J.  Reproductability, Distinguishability, and Correlation of Fireball and Shockwave Dynamics in Explosive Munitions Detonations.  AFIT/GAP/ENP/06-19, Faculty Advisor: Dr. Glen Perram.  Sponsor: NASIC/DEMI.

WARREN, TREvor W.  Characterization of Detonation Phenomena Observed in High-Speed, Visible Imagery.  AFIT/GAP/ENP/06-20, Faculty Advisor: Dr. Glen Perram.  Sponsor: NASIC/DEMI.

WILLIAMS, AARON J.  Prediction of the Temporal Evolution of Solar X-Ray Flares.  AFIT/GAP/ENP/06-21, Faculty Advisor: Maj Christopher Smithro.  Sponsor: AFWA/DN.

5.3.2.2  ELECTRO-OPTICS (GEO)

CLARK, JEFFERY D.  Characteristics of Two-Dimensional Triangular and Three-Dimensional Face-Centered-Cubic Photonic Crystals.  AFIT/GEO/ENP/06-01, Faculty Advisor: Dr. Michael Marciniak.  Sponsor: N/A.

PARADA, FRANCISCO E.  Characterization of Stress in GaN-on-Sapphire Microelectromechanical Systems (MEMS) Structures Using Micro-Raman Spectroscopy.  AFIT/GEO/ENP/06-02, Faculty Advisor: Dr. Michael Marciniak.  Sponsor: AFRL/MNMF.

TAYLOR, CATHERINE ANN.  Characterization of Passivated Indium Antimonide.  AFIT/GEO/ENP/06-03, Faculty Advisor: Dr. Michael Marciniak.  Sponsor: N/A.

5.3.2.3  NUCLEAR ENGINEERING (GNE)

DENTON, JAMES L.  Optimizing the Destruction of Chemical and Biological Munitions Stockpiles using Conventional Weapons while Minimizing Collateral Damage via Weather Exploitation.  AFIT/GNE/ENP/06-01, Faculty Advisor: Lt Col Steven Fiorino.  Sponsor: NA.

HOBBS, EDWARD L.  Efficient and Accurate Computation of Elastic Cross Sections in the Single-Level Breit-Wigner Resonance Region.  AFIT/GNE/ENP/06-02, Faculty Advisor: Maj David W. Gerts.  Sponsor: N/A.

KIM, WON S.  Determining Source and Shield/Scatter Geometry Using Spectra Collected from a Portable High Purity Germanium Detector.  AFIT/GNE/ENP/06-03, Faculty Advisor: Dr. Larry Burggraf.  Sponsor: Defense Threat Reduction Agency.

MCHALE, STEPHEN, R.  Development of a Three-Dimensional Air Blast Propagation Model Based Upon the Weighted Average Flux Method.  AFIT/GNE/ENP/06-04, Faculty Advisor Dr. Kirk A. Matthews.  Sponsor: N/A.
OVERBEEK, ROBERT J. *The Sensitivity of Radioactive Fallout Predictions to Source Term Parameters.*
AFIT/GNE/ENP/06-05, Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: Defense Threat Reduction Agency.

PACE, KEVIN D. *Terrain and Spatial Effects on Hazard Prediction and Assessment Capability (HPAC) Software Dose-Rate Contour Plot predictions as Compared to a Sample of Local Fallout Data from Test Detonations in the Continental United States, 1945-1962.*
AFIT/GNE/ENP/06-06m, Faculty Advisor: Lt Col Steven Fiorino. Sponsor: N/A.

WILLIFORD, RUSSELL S. *High-Altitude Neutron Transport Using a Ray-Integrating Monte Carlo Method.*
AFIT/GNE/ENP/06-07, Faculty Advisor: Maj David W. Gerts. Sponsor: AFTAC/TT.

5.3.2.4 SPACE SYSTEMS (GSS)

BELTON, SCOTT L. *The Simulation of Off-Axis Laser Propagation Using HELEEOS.*
AFIT/GSS/ENP/06-01, Faculty Advisor: Lt Col Steven Fiorino. Sponsor: N/A.

5.3.3 GRADUATE RESEARCH PAPERS

BAUER, KURT P., II. *Using Remote Sensing for Nuclear Event Attribution.*
AFIT/ILM/ENP/06-01, Faculty Advisor: Dr. James Petrosky. Sponsor: N/A.

5.3.4 FUNDED RESEARCH PROJECTS

ALLEY, THOMAS G., Lt Col

“Nonlinear Optical Effects in Fibers and Their Applications to High Energy Lasers”. Sponsor: AFRL/DE.
Funding: $90,000. [CDE]

BOHN, MATTHEW J., Lt Col

“Optical Diagnostics for the Production of Carbon Nanotubes from PLD”. Sponsor: AFOSR. Funding: $30,580. [CDE]

BURGGRAF, LARRY W.,


“Role of Water in Heat Inactivation of Bacillus Anthracis Spores and Spores of Related Organisms.” Sponsor: NWCA/AT. Funding: $60,000.

CUSUMANO, SALVATORE J.,

“Delivered Irradiance Assessment Tool (DIAT)”. Sponsor: U.S. ARMY/Directed Energy Test and Evaluation Capability (DETEC). Funding: $191,000. [CDE]

“Robust Characterization of DEW Weapons: HELEEOS Intel”. Sponsor: NASIC. Funding: $75,000. [CDE]

“Subject Matter Expert (SME) Consultation to Air Force Flight Test Center -Airborne Laser”. Sponsor: 412 TW/DRP. Funding: $30,000. [CDE]
Fiorino, Steven T., Lt Col

“HELEEOS-based Laser Propagation Module for AFRL Wargaming Simulation Software”. Sponsor: AFRL/VA. Funding: $30,000. [CDE]


Gerts, David W., Maj

“Neutral Particle Transport for High Altitude Nuclear Detonation.” Sponsor: AFTAC. Funding: $26,000.

LaGriffe, David A., LTC

“DTRA/AFIT Nuclear Partnership.” Sponsor: DTRA. Funding: $90,000.

Marciniak, Michael A.,

“Infrared Counter-Countermeasure Research”. Sponsor: AFRL/ML. Funding: $25,000. [CDE]

“Infrared Optical Signature Measurement Research”. Sponsor: AFRL/SN. Funding: $6,090. [CDE]

“Infrared Optical Signature Measurement Research”. Sponsor: AFRL/SN. Funding: $30,000. [CDE]


Mathews, Kirk A.,


Niday, Thomas A., Capt

“Modeling and Simulation of the Dynamics and Applications of Light Filaments”. Sponsor: AFOSR/MOA. Funding: $11,391. [CDE]

Perram, Glen P.,

“Closed Cycle Chemical Laser: ElectriCOIL”. Sponsor: AFOSR/NL. Funding: $81,1058. [CDE]


“Lineshape and Collisional Dynamics of Hyperfine and Magnetically-Split Cs (2P1/2,3/2) for the Optically-Pumped Cesium Laser”. Sponsor: AFRL/DE. Funding: $30,000. [CDE]
“Near Infrared Radiometric Signatures of Flashless Gunpowder”. Sponsor: Navy. Funding: $35,000. [CDE]

“Support for Establishment of an IPA Appointment to Lead Gas Phase Laser Research Effort Collaboration between AFIT and University, Government and Industry Partners”. Sponsor: AFRL/DE. Funding: $95,472. [CDE]

“Technical and Administrative Support for the AFOSR Center of Excellence in High Power Gas Phase Electric and Hybrid Lasers”. Sponsor: AFRL/DE. Funding: $120,000. [CDE]

**SMITHRO, CHRISTOPHER G., Maj**


**YEO, YUNG KEE,**

“Electrical and Optical Activation Studies of Acceptor Ion Implanted Wide Bandgap Semiconductors.” Sponsor: AFRL/AFOSR. Funding: $30,000

“Magnetic Properties of Cr- and Mn-implanted GaN.” Sponsor: AFRL/AFOSR. Funding: $100,000.

### 5.3.5 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.,**


**TUTTLE, RONALD F.,**

“Advanced Geospatial Intelligence Education”. Sponsor: National Geospatial-Intelligence Agency. Funding: $375,000. [CMSR]

“Advanced Geospatial Intelligence Education”. Sponsor: National Geospatial-Intelligence Agency. Funding: $375,000. [CMSR]

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

### 5.3.6 REFEREED JOURNALS

**BURGGRAF, LARRY W.,**


JOHN, GEORGE,


HENGHEOLD, ROBERT L.,


*Ryu, M.Y., Y.K. Yeo, M.A. Marciniak, and R.L. Hengehold “Electrical and optical activation studies of high dose Si-implanted Al\textsubscript{0.18}Ga\textsubscript{0.82}N,” Solid State Communication, Vol. 139, pp. 284-288 (2006). [CDE]


MARCINIAK, MICHAEL A.,


NIDAY, THOMAS A., Capt

SMITHTRO, CHRISTOPHER G., Maj


WEEKS, DAVID E.,


YEO, YUNG KEE,


5.3.7 OTHER PUBLICATIONS

ALLEY, THOMAS G., Lt Col


BUNKER, DAVID J.,


Marciniak, Michael A.,


S.A. Uzpen, M.A. Marciniak, J.W. Burks and J.P. Costantino, “A measurement-base examination of optical signature changes due to weathering effects on aircraft paint,” Proceedings of 29th Exhaust Plume Technology Subcommittee (EPTS) and 11th SPIRITS User Group, Littleton, CO, 19-23 June 2006. [CMSR]

Roh, Won B.,


Tuttle, Ronald F.,


5.3.8 SUBSTANTIAL CONSULTATIONS

BUNKER, DAVID J.,


CUSUAMNO, SALVATORE J.,


Cusumano, Salvatore J., “Subject Matter Expert (SME) Consultations” to Air Force Flight Test Center, member of the Safety Review Board for the Airborne Laser. [CDE]


GERTS, DAVID W., Maj


MARCINIAK, MICHAEL A.,


MATHEWS, KIRK A.,


TUTTLE, RONALD F.,


5.3.9 PRESENTATIONS

ALLEY, THOMAS G., Lt Col.


BAILEY, WILLIAM F.,


BUNKER, DAVID J.,

CUSUMANO, SALVATORE J.,

Cusumano, Salvatore J., Houle, Marken, “AFRL-AFIT Collaboration on the SMART Program”, AFRL/SN, Nov 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT’s Center for Directed Energy”, NRO, Nov 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFRL-AFIT Collaboration on the SMART Program”, AFRL/VA, Jan 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT”, ABL SPO, KAFB, NM, Jan 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT and the Center for Directed Energy”, AFRL/DE, KAFB, NM, Feb 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT and the SMART Program”, 452nd FTW, EAFB, CA, Feb 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “How the Center can work within the Intel Community”, DIA, Mar 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “The Center for Directed Energy”, ACC, Langley AFB, VA, Apr 2006. [CDE]

FIORINO, STEVEN T., Lt Col


Department of Engineering Physics


GERTS, DAVID W., Maj


HENGEHOLD, ROBERT L.,


*Ryu, M.Y., Y.K. Yeo, and R.L. Hengehold, “Electrical and Optical Activation Studies of Si-implanted Al_xGa_1-xN,” the 4th International Conference on Advanced Materials and Devices (ICAMD), Jeju Island, Korea, 5-7 December 2005. [CDE]


MARCINIAK, MICHAEL A.,


S.A. Uzpen, M.A. Marciniak, J.W. Burks and J.P. Costantino, “A measurement-base examination of optical signature changes due to weathering effects on aircraft paint,” 29th Exhaust Plume Technology Subcommittee (EPTS) and 11th SPIRITS User Group, Littleton, CO, 19-23 June 2006. [CMSR]


MATHEWS, KIRK A.,


PERRAM, GLEN P.,


Kevin C. Gross, 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, Ohio 7-9 Nov 2006. [CDE]


Michael R. Hawks and Glen P. Perram, “Monocular Passive Ranging (MPR) for tracking boost-phase missiles based on $\text{O}_2(\text{X}^3\Sigma_g^+ \rightarrow \text{b}^1\Sigma_g)$ atmospheric absorption”, Directed Energy Professional Society 8th Annual Symposium, Lihue, HI, November 2005. [CDE]

PETROSKY, JAMES C.,


SMITHTRIO, CHRISTOPHER G., Maj


TUTTLE, RONALD F.,


*Kevin C. Gross, 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, Ohio 7-9 Nov 2006. [CDE]


WEEKS, DAVID E.,


YEO, YUNG KEE,

Ryu, M.Y., Y.K. Yeo, and R.L. Hengehold, “Electrical and Optical Activation Studies of Si-implanted \( \text{Al}_x\text{Ga}_{1-x}\text{N} \),” the 4th International Conference on Advanced Materials and Devices (ICAMD), Jeju Island, Korea, 5-7 December 2005.


5.3.10 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

BUNKER, DAVID J.,

Member: National Consortium for MASINT Research, Nov 2004 - present

Member: Wright-Patterson MASINT Development Consortium, Sep 2004 - present

Chair: Planning Committee, 2006 Advanced Signatures Technology Symposium

CUSUMANO, SALVATORE J.,

AFIT’s Representative on the Air Force Futures Group

Session Chair, Technical Program for DEPS Modeling and Simulation Conference, Mar 2006-06-15

FIORINO, STEVEN T., Lt Col

President: Wright Memorial Chapter, American Meteorological Society

HENGEHOLD, ROBERT L.,

Chair: Honors and Awards Committee; Ohio Section of the American Physical Society

Member: Executive Committee, Ohio Section of the American Physical Society

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LAGRAFFE, DAVID A., LTC
Established new Professional Science Master’s Degree Program in Combating Weapons of Mass Destruction at AFIT
Established new AFIT Graduate Certificate course in Combating Weapons of Mass Destruction

MARCINIAK, MICHAEL A.,
Undergraduate research advisor: “A short study of copper-indium-gallium-selenide amorphous polycrystalline thin-film solar cells CuIn_{1-x}Ga_xSe_2 (CIGS) through photoluminescence spectroscopy,” John M. Callahan, Wright State University, Oct 2005-Jun 2006.

MATHEWS, KIRK A.,
Member: Satellite Sensor Review Panel (SSRP), Air Force Technical Applications Center

PERRAM, GLEN P.,
Monterey, CA, Mar 2006.

PETROSKY, JAMES C.,
Chair: QASPR Independent Review Team, NNSA
Member: Nuclear Engineering Department Heads Organization
Radiation Effects Judge, ANS student conference, March, 2006

SMITHTRO, CHRISTOPHER G., Maj
Scientific Advisor to NASA’s Community Coordinated Modeling Center (CCMC) Steering Group, August 2005 – present.
Member of the Extreme-ultraviolet Variability Experiment (EVE) Science Team, 2002 – present.

TUTTLE, RONALD F.,

WOLF, PAUL J.,
Councilor: American Physical Society Council
Member: Executive Committee, Ohio Section of the American Physical Society

YEO, YUNG KEE,
5.4 DEPARTMENT OF MATHEMATICS AND STATISTICS

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5.4.1 MASTERS THESES

5.4.1.1 APPLIED MATHEMATICS (GAM)

MIXON, DUSTIN G. Doppler-Only Multistatic Radar. AFIT/GAM/ENC/06-01, Faculty Advisor: Dr. Matthew Fickus. Sponsor: N/A

PROANO, ZACHARY. Existence of Explosive Solutions to Non-Monotone Semilinear Elliptic Equations. AFIT/GAM/ENC/06-03, Faculty Advisor: Dr. Aihua W. Wood. Sponsor: N/A.

SAMLER, JENNIFER J. Statistical Approach to Background Subtraction for Production of High-Quality Silhouettes for Human Gait Recognition. AFIT/GAM/ENC/06-04, Faculty Advisor: Maj Samuel A. Wright. Sponsor: N/A.

SMITH, DAVID N. Existence of Large Solutions to Semi-Linear Elliptic Equations with Multiple Terms. AFIT/GAM/ENC/06-05, Faculty Advisor: Dr. Aihua W. Wood. Sponsor: N/A.

TISDEL, JASON E. Small Sample Confidence Intervals in Log Space Back-Transformed from Normal Space. AFIT/GAM/ENC/06-02, Faculty Advisor: Dr. Edward White. Sponsor: N/A.

5.4.1.2 INFORMATION RESOURCE MANAGEMENT (GIR)

CROSS, STEVEN M. Data Analysis and its Impact on Predicting Schedule & Cost Risk. AFIT/GIR/ENC/06M-01, Faculty Advisor: Dr. Edward D. White, III. Sponsor: AFCAA.

5.4.1.3 SPACE SYSTEMS (GSS)


5.4.2 FUNDED RESEARCH PROJECTS

ABRAMSON, MARK A., Lt Col


NEHER, ROBERT E. Jr, Lt Col


OXLEY, MARK E.

“Mathematics and Statistical Research.” Sponsor: AFRL/AFOSR. Funding: $5,000.

“A New Paradigm in Image Location Registration using Polar Wavelets.” Sponsor: AFRL/AFOSR. Funding: $30,000.
5.4.3 REFEREED JOURNALS

ABRAMSON, MARK A., Lt Col


CRITTENDEN, PAUL E.,


FICKUS, MATTHEW C.,


SWIM, EDWARD W.,


WHITE, EDWARD D., III


WOOD, AIHUA W.,


5.4.4 OTHER PUBLICATIONS

CRITTENDEN, PAUL E.,

FICKUS, MATTHEW C.,

KAZISKA, DAVID M., Maj


OXLEY, MARK E.,
*Mindrup, F. M., K. W. Bauer, Jr., and M. E. Oxley “An Investigation of the Effects of Correlation and Autocorrelation on Classifier Fusion with Non-Declarations”, Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2004), Editors: C. Dagli, D. Enke, A. Buczak, M. Embrechts, O. Ersoy, paper TP2.1A, St. Louis MO, 6-9 November 2005


THORSEN, STEVEN N., Maj


5.4.5 SUBSTANTIAL CONSULTATIONS

DUCKRO, DONALD E., Lt Col


NEHER, ROBERT E. JR., Lt Col


5.4.6 PRESENTATIONS

ABRAMSON, MARK A., Lt Col


BAKER, WILLIAM P.,


CRITTENDEN, PAUL E.,

Bahar, E. and P. E. Crittenden, “Radar Cross Section for Composite Gaussian or Pearson-Moskovitz Type Random Rough Surfaces Based on the two-scale Unified Full-wave Approach,” URSI, Jan 2006.


DUCKRO, DONALD E., Lt Col


FICKUS, MATTHEW C.,

Fickus, M., “Gauss sums and a finite chirp-Fourier transform,” AMS Fall Western Section Meeting, Special Session on Wavelets, Frames, and Related Expansions, University of Oregon, November 11, 2005

NOVAK, KYLE A., Maj


OXLEY, MARK E.,


WHITE, EDWARD D., III


5.4.7 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

ABRAMSON, MARK A., Lt Col

Technical Paper Referee, Society for Industrial and Applied Mathematics (SIAM) Journal on Optimization and Global Optimization

BULUTOGLU, DURSUN,

Technical Paper Referee: Journal of Statistical Planning and Inference (Special issue on metaheuristics); Journal of Statistical Planning and Inference; Journal of Statistical Planning and Inference (Special issue on metaheuristics); Technometrics; Metrika

DUCKRO, DONALD E., Lt Col

Technical Paper Referee, Systems Engineering, Nov 2005

LAIR, ALAN V.,

Naval Advisory Panel on Configural Theory (2005)

Reviewer, Mathematical Reviews

OXLEY, MARK E.,


Co-Organizer of Special Session: Category Theory and Information Fusion at 9th International Conference on Information Fusion, Florence Italy, 10-13 July 2006.


WHITE, EDWARD D., III

Associate Editor: Journal of Cost Analysis and Management
5.5 DEPARTMENT OF OPERATIONAL SCIENCES

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5.5.1 DOCTORAL DISSERTATIONS


BURKS, ROBERT E. An Adaptive Tabu Search Heuristic for the Location Routing Pickup and Delivery Problem with Time Windows with a Theater Distribution Application. AFIT/DS/ENS/06-02, Faculty Advisor: Dr. James T. Moore. Sponsor: AFRL/AFOSR/NM.

*HAMILL, JONATHAN T. Analysis of Layered Social Networks. AFIT/DS/ENS/06-03, Faculty Advisor: Dr. Richard F. Deckro. Sponsor: AFRL/HECS and NASIC/FCEB.

SHERMAN, NATHAN P. Analysis and Control of Unreliable, Single-Server Retrial Queues with Infinite-Capacity Orbit and Normal Queue. AFIT/DS/ENS/06-05, Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: AFRL/AFOSR.

5.5.2 MASTERS THESES

5.5.2.1 LOGISTICS MANAGEMENT (GLM)

BANKS, DAWN L. Relationships Between Organizational Commitment, Core Job Characteristics, and Organizational Citizenship Behaviors in United States Air Force Organizations. AFIT/GLM/ENS/06-01, Faculty Advisor: Lt Col John Bell. Sponsor: N/A.

CHRISTENSEN, NEIL E. Hazardous Material Cargo Frustration at Military Aerial Ports of Embarkation. AFIT/GLM/ENS/06-02, Faculty Advisor: Lt Col John Bell. Sponsor: N/A.

CONE, WILLIAM D. Improving Maintenance Data Collection Via Point-of-Maintenance (POMX) Implementation. AFIT/GLM/ENS/06-03, Faculty Advisor: Lt Col John Bell. Sponsor: N/A.

DYE, MICHAEL T. Perceptions of the Pure Pallet Program. AFIT/GLM/ENS/06-04, Faculty Advisor: Dr. William Cunningham, III. Sponsor: HQ AMC/A43.

EVANS, MORGAN J. Understanding Innovation Adoption in the Air Force. AFIT/GLM/ENS/06-05, Faculty Advisor: Maj Kirk Patterson. Sponsor: HQ AMC/A43.

KIERPIEC, WENDY S. An Exploratory Case Study of Information Sharing and Collaboration within Air Force Supply Chain Management. AFIT/GLM/ENS/06-06, Faculty Advisor: Dr. Stephan Brady. Sponsor: N/A.

MAHON, LISA J. Comparison of Variance-to-Mean Ratio Methods for Reparable Inventory Management. AFIT/GLM/ENS/06-07, Faculty Advisor: Maj Bradley Anderson. Sponsor: HQ AFMC/A8S.

MARTIN, MICHAEL H. Implementing Reliability Centered Maintenance Analysis in a Revised Preventive Maintenance Program for the F-15. AFIT/GLM/ENS/06-08, Faculty Advisor: Dr. William Cunningham. Sponsor: AFMC/330 FS.

Mc CRAINE III, RODNEY E. Factors Affecting the Transfer of Basic Combat Skills Training in the U.S. Air Force. AFIT/GLM/ENS/06-09, Faculty Advisor: Maj Kirk Patterson. Sponsor: HQ USAF/A4R.

OVERHOLTS II, DALE L. Improving Inter-Continental Ballistic Missile Maintenance Scheduling through the Use of Location Analysis Methodologies. AFIT/GLM/ENS/06-11, Faculty Advisor: Lt Col Marvin Arostegui. Sponsor: ACC/20 AF/A4.

PENDLEY, SCOTTY A.  *Factors and Interactions that Affect Air Force C-17 Aircraft Mission Capable Rates*. AFIT/GLM/ENS/06-12, Faculty Advisor: Dr. Alan Johnson. Sponsor: HQ AFMC/A44A.

PENNINGTON, JASPER E.  *Access Based Cost Estimation for Beddown Analysis*. AFIT/GLM/ENS/06M-13, Faculty Advisor: Dr. Alan Johnson. Sponsor: HQ AFMC/A75R.


WHITE, DAMELSA D.  *Headquarters Air Force Material Command Customer Relationship Management Study*. AFIT/GLM/ENS/06-17, Faculty Advisor: Lt Col John Bell and Maj Kirk Patterson. Sponsor: AFMC/A4S.

5.5.2.2 OPERATIONS RESEARCH (GOR)


BANG, SUNG WAN.  *Coalition Modeling in Humanitarian Assistance Operations*. AFIT/GOR/ENS/06-02, Faculty Advisor: Dr. Richard Deckro. Sponsor: N/A.

BENTSON, KJIRSTIN A.  *An Epidemiological Approach to Terrorism*. AFIT/GOR/ENS/06-03, Faculty Advisor: Dr. Stephen Baumert. Sponsor: N/A.

BOOHER, TIMOTHY B.  *Optimal Periodic Inspection of a Stochastically Degrading System*. AFIT/GOR/ENS/06-04, Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: N/A.

CARRAS Jr., MICHAEL V.  *BDA Enhancement Methodology using Situational Parameter Adjustments*. AFIT/GOR/ENS/06-05, Faculty Advisor: Dr. Marcus Perry. Sponsor: US ARMY/TRADOC.

DOWNS, DONEDA D.  *Gauging the Commitment of Clandestine Group Members*. AFIT/GOR/ENS/06-06, Faculty Advisor: Dr. Richard Deckro. Sponsor: AFRL/HECS & NASIC/FC.

ERWIN, MICHAEL C.  *Combining Quality of Service and Topology Control in Directional Hybrid Wireless Networks*. AFIT/GOR/ENS/06-07, Faculty Advisor: Lt Col Raymond Staats. Sponsor: AFRL/AFOSR.

FLORY, JOHN A.  *Optimizing Mean Mission Duration for Multiple-Payload Satellites*. AFIT/GOR/ENS/06-08, Faculty Advisor: Dr. Jeffrey Kharoufeh. Sponsor: SAF/FMBMB.

GASTELUM, JASON A.  *A Risk Assessment Methodology for Divesting Military Capability to Allied Nations*. AFIT/GOR/ENS/06-09, Faculty Advisor: Lt Col David Denhard. Sponsor: OSD/PA&E.
HINSHAW, HUYNH A.  Classification Characteristics of Carbon Nanotube Polymer Composite Chemical Vapor Detectors.  AFIT/GOR/ENS/06-10, Faculty Advisor: Dr. Kenneth Bauer.  Sponsor: AFRL/MLPJ.

HONABARGER, JASON B.  Modeling Network Centric Warfare (NCW) with the System Effectiveness Analysis Simulation (SEAS).  AFIT/GOR/ENS/06-11, Faculty Advisor: Dr. John Miller.  Sponsor: ASC/XR.

JONES, ROBERT D.  Assessing Resource Value and Relationships between Objectives in Effects-Based Operations.  AFIT/GOR/ENS/06-12, Faculty Advisor: Lt Col David Denhard.  Sponsor: AFRL/IFSA.

MAYHALL, SANDRA A.  Modeling a Repairable Study Chain and Applying CPFR Concepts.  AFIT/GOR/ENS/06-22, Faculty Advisor: Dr. William Cunningham, III.  Sponsor: N/A.

MCLAMB, WILBURN B.  Reducing Uncertainty in Effects-Based Operations.  AFIT/GOR/ENS/06-13, Faculty Advisor: Lt Col David Denhard.  Sponsor: AFRL/IFSA.

MURPHY, TONY A.  Analysis of Patient Information: An Empirical Modeling Approach.  AFIT/GOR/ENS/06-14, Faculty Advisor: Dr. Sharif Melouk.  Sponsor: N/A.


RUCKER, JEFFREY E.  Using Agent-Based Modeling to Search for Elusive Hiding Targets.  AFIT/GOR/ENS/06-16, Faculty Advisor: Dr. John Miller.  Sponsor: SAF/XCOM.

STEEGER, GREGORY M.  Reliability of Systems using Event Occurrence Networks.  AFIT/GOR/ENS/06-17, Faculty Advisor: Lt Col David Denhard.  Sponsor: N/A.

THARALDSON, DEREK D.  Optimization of a Multi-Echelon Repair System Via Generalized Patterned Search with Ranking and Selection: A Computational Study.  AFIT/GOR/ENS/06-18, Faculty Advisor: Dr. James Chrissis.  Sponsor: N/A.

THARALDSON, MARYKATHRYN W.  Strategic Airlift En Route Analysis to Support the Global War on Terrorism using a Value Focused Thinking Approach.  AFIT/GOR/ENS/06-19, Faculty Advisor: Lt Col Raymond Staats.  Sponsor: AFRL/AFOSR.

THOELE, BENJAMIN A.  A Methodology for Performing Effects-Based Assessments.  AFIT/GOR/ENS/06-20, Faculty Advisor: Lt Col David Denhard.  Sponsor: AFRL/IFSA.

WEINSTEIN, AMANDA L.  Exploring Tanker Fleet Mixes and CONOPS: A Value-Focused Thinking Study.  AFIT/GOR/ENS/06-21, Faculty Advisor: Lt Col Raymond Staats.  Sponsor: AFRL/VAOT.

5.5.2.3 RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)

GAMACHE, JOYCE A.  Review of the Joint Capabilities Integration Development System (JCIDDS) and the National Security Space Acquisition Policy (NSSAP).  AFIT/GRD/ENS/06-01, Faculty Advisor: Dr. Stephan Brady.  Sponsor: N/A.
GRADUATE RESEARCH PAPERS

GRADUATE LOGISTICS MANAGEMENT (ILM)

CLARK, DANIEL P and UDUAK I. UDOAKA. Supporting the Objective Force with the C-17: A Study to Determine Opportunities for Innovation. AFIT/ILM/ENS/06-01, Faculty Advisor: Dr. James Moore. Sponsor: N/A.

CLAXTON, JOHN C. Operational Analysis of Tactical Satellite Orbit Populations. AFIT/ILM/ENS/06-02, Faculty Advisor: Dr. Alan Johnson. Sponsor: AFRL/VS.

COLEMAN, TODD L. and JERRY C. STONECIPHER, A Comparison of the Air Force Institute of Technology and Civilian Institutions Graduate Logistics Curricula. AFIT/ILM/ENS/06-03, Maj Kirk Patterson. Sponsor: N/A.

DAWSON, GARY R. Project Angel Fire: Concept of Operations in a Permissive Tactical Environment. AFIT/ILM/ENS/06-04, Faculty Advisor: Dr. Michael Hicks. Sponsor: US STRATCOM.

GREENLEE, JOSEPH W. Push vs. Pull Supply Distribution in the Stryker Brigade Combat Team. AFIT/ILM/ENS/06-05, Faculty Advisor: Maj Shane Knighton and Maj Barry Brewer. Sponsor: N/A.

HETKE, DALE E. and JACQUELINE M. MONGEON Implementing Aircraft Modifications: Delivering Timely and Effective Support. AFIT/ILM/ENS/06-06, Faculty Advisor: Lt Col John Bell. Sponsor: N/A.

KEFFER, RICHARD E. Multifunctional Medium-Heavy Transportation Company. AFIT/ILM/ENS/06-07, Faculty Advisor: Dr. James Moore. Sponsor: N/A.

KING Jr., DENNIS C. “Look Out Below!” An Analysis of the Joint Precision Airdrop System with 2K Precision Parachute Systems. AFIT/ILM/ENS/06-08, Faculty Advisor: Dr. James Moore. Sponsor: AMC/A3DT and NSC/JPADS/ACTD.

MARTINDALE, MICHAEL J. A Discrete-Event Simulation Model for Evaluating Air Force Reusable Military Launch Vehicle Post-Landing Operations. AFIT/ILM/ENS/06-09, Faculty Advisor: Dr. Alan Johnson. Sponsor: AFRL/V/A.

MONGEON, JACQUELINE M. see HETKE, DALE E.

RIGDON, AARON M. and MICHAEL V. WAGGLE. Municipal Regulation of Hazardous Materials Due to the Threat of Terrorism and its Effects on the Rail Industry. AFIT/ILM/ENS/06-10, Faculty Advisor: Lt Col John Bell. Sponsor: N/A.

SANDLIN, DORAL E. and THOMAS D. TORKELSON. The Trade-Offs of Tanker Air-Refuelability. AFIT/ILM/ENS/06-11, Faculty Advisor: Dr. James Moore. Sponsor: AMC/A59T.

SHERIDON, JAMES D. Civil Reserve Air Fleet (CRAF): A Participation Analysis 1986-2005. AFIT/ILM/ENS/06-12, Faculty Advisor: Dr. Alan Johnson. Sponsor: AMC/A59T.

SPRINGER, STANLEY A. F-22 Aircraft Utilization Impacts from Scheduled and Unscheduled Structural Inspection Implementation. AFIT/ILM/ENS/06-13, Faculty Advisor: Dr. Alan Johnson. Sponsor: F22 SPO.

STONECIPHER, JERRY C. see COLEMAN, TODD L.

SULLIVAN, CHRISTOPHER B. Headquarters Air Force Materiel Command Relationship Management. AFIT/ILM/ENS/06-14, Faculty Advisor: Lt Col John Bell. Sponsor: AFMC/A4SP.
TORKELSON, THOMAS D. see SANDLIN, DORAL E.
UDOAKA, UDUAK I. see CLARK, DANIEL P.
WAGGLE, MICHAEL V. see RIGDON, AARON M.

WALKER, BRIAN P. A Study of Air Force Forward Operating Locations from a Combatant Commander’s Perspective. AFIT/ILM/ENS/06-21, Faculty Advisor: Maj Barry Brewer. Sponsor: HQ USAF.

WHITE, ROBERT T., JOSEPH G. BEAHM (ENY) and BRET D. ANDERSON (ENY) Capability Optimization of the USAF’s F-15C Fleet within a Constrained Budget. AFIT/ILM/ENS/06-22, Faculty Advisors: Lt Col John Colombi and Dr. Dennis Strouble. Sponsor: F-15 SG/VA.

GRADUATE MOBILITY OPERATIONS (IMO)
(NOTE: The Graduate Mobility Operations (IMO) non-thesis management program is a component of Air Command’s Advanced Study of Air Mobility executive development program. Students in the IMO program write graduate research papers supporting topics of interest to AMC.)

COLLINS, BRIAN D. The Impact of Integrated Flight Management on Air Mobility Operations. AFIT/IMO/ENS/06E-01, Faculty Advisor: Dr. James Moore. Sponsor: AMC/A3.


DABROWSKI, PATRICK W. Optimizing Real Time Information in the Cockpit (RTIC) Data In Future Air Mobility Command Situational Awareness Systems. AFIT/IMO/ENS/06E-03, Faculty Advisor: Dr. Rosa Birjandi. Sponsor: AMC/A5Q.

DERMER, JAMES B. Hurricane Katrina: A Lesson in Disaster Preparedness. AFIT/IMO/ENS/06E-04, Faculty Advisor: Dr. William Cunningham, III. Sponsor: USAF EOS/CC

FELTER, KEITH N. Application of Lean Principles to the C-130 Formal Training Unit. AFIT/IMO/ENS/06E-05, Faculty Advisor: Dr. Alan Heminger. Sponsor: 314 AW and 314 OG.

FINCH, MICHAEL J. Applying Air Force Smart Operations for the 21st Century (AFSO21) to the Mobility Air Forces Tactics Development Process. AFIT/IMO/ENS/06E-06, Faculty Advisor: Dr. Alan Heminger. Sponsor: N/A.

GAAB, SCOTT A. Improving the Efficiency and Effectiveness of the United States Military’s Humanitarian Relief Supply Chain. AFIT/IMO/ENS/06E-07, Faculty Advisor: Dr. James Moore. Sponsor: US TRANSCOM/J5.

HANSON, DAVID S. Tip of the Mobility Spear – Developing Joint Precision Airdrop Capability. AFIT/IMO/ENS/06E-08, Faculty Advisor: Dr. James Moore. Sponsor: AMC.

HEASTER, WILLIAM C. Tanker Employment Evolution: Operation Desert Storm Through Operation Iraqi Freedom. AFIT/IMO/ENS/06E-09, Faculty Advisor: Dr. James Moore. Sponsor: HQ USAF/A1M.

JOHNSON, ROGER F. Accelerating the Transition from Mission Support Group Commander to Air Expeditionary Group Commander. AFIT/IMO/ENS/06E-10, Faculty Advisor: Maj Kirk Patterson. Sponsor: USAF AEFC/CC.
LONG, PERRY M.  Contingency Response Groups and the Humanitarian Assistance/Disaster Response Mission: A Case Study.  AFIT/IMO/ENS/06E-11, Faculty Advisor: Dr. William Cunningham, III. Sponsor: USAF EOS/CC.

LUKES, CLARENCE W. The Future Light Cargo Aircraft. AFIT/IMO/ENS/06E-12, Faculty Advisor: Lt Col Donald Duckro. Sponsor: US TRANSCOM.

MOSS, KENNETH E. Aerial Prepositioning of War Material. AFIT/IMO/ENS/06E-13, Faculty Advisor: Dr. Stephen Brady. Sponsor: OUSD/LPP.


GRADUATE OPERATIONS ANALYSIS (IOA)

BAUER II, KURT P. Using Remote Sensing for Nuclear Event Attribution. AFIT/IOA/ENP/06-01, Faculty Advisor: Dr. James Petrosky. Sponsor: N/A.

FRYMIRE, MICHAEL B. Analysis of Alternatives for the Joint Cargo Aircraft A Value-Focused Thinking Approach. AFIT/IOA/ENS/06-01, Faculty Advisor: Maj Shane Knighton. Sponsor: HQAF A5XC-GM.


KENT, GREG A. Model of AWACS Programmed Flying Training. AFIT/IOA/ENS/06-03, Faculty Advisor: Maj Gary Kinney. Sponsor: 552 ACW.

LEVY, CHRISTOPHER P. A Comparison Study of F-15C Fighter Squadron Ready Aircrew Program Flying Hour Scheduling vs. The RAND Corporation’s Flying Hour Scheduling Linear Program. AFIT/IOA/ENS/06-04, Faculty Advisor: Lt Col Raymond Staats. Sponsor: 1 OSS/CC.

MARION, MARIA C. Validation of Selected Sample Agent Rules in EAAGLES. AFIT/IOA/ENS/06-05, Faculty Advisor: Dr. John Miller. Sponsor: SIMAF.

McGLADE, PATRICK E. Effects-Based Operations versus Systemic Operational Design: Is There a Difference? AFIT/IOA/ENS/06-06, Faculty Advisor: Lt Col David Denhard. Sponsor: AFRL/IF.

MESSER, MICHAEL G. Improving the UPT Student Follow-On Assignment Selection Process. AFIT/IOA/ENS/06-07, Faculty Advisor: Dr. John Miller. Sponsor: 80 FTW & AETC/A3FI.

MIRAVITE Jr., ALEXANDER and CHARLES F. SCHLEGEL. Global En Route Basing Infrastructure Location Model. AFIT/IOA/ENS/06-08, Faculty Advisor: Lt Col Raymond Staats. Sponsor: US TRANSCOM JT/TCJ5-A5.
Department of Operational Sciences

*PERIS, WILLIAM E. and SANDY J. RICHARDSON. *F-22 Combined Test Force Options to Improve Flight Test Efficiency.* AFIT/IOA/ENS/06-09, Faculty Advisor: Lt Col David Denhard. Sponsor: ASC/YF.

REYNOLDS, GEORGE M. *An Inventory Management Paradigm for Advanced Academic Degree Officers.* AFIT/IOA/ENS/06-10, Faculty Advisor: Lt Col Raymond Staats. Sponsor: AFIT/CC

RICHARDSON, SANDY J. see PERIS, WILLIAM E.

SCHLEGEL, CHARLES F. see MIRAVITE Jr., ALEXANDER

STEWART, MELANIE J. *Effective Teaming for Expeditionary Combat Support.* AFIT/IOA/ENS/06-11, Faculty Advisor: Maj Gary Kinney. Sponsor: N/A.

STONE, DAVID A. *Creating a Linear Model to Optimize Satellite Communication Bandwidth Utilization.* AFIT/IOA/ENS/06-12, Faculty Advisor: Lt Col David Denhard. Sponsor: JCS/J6CS

TROXELL, AARON D. *Advance Academic Degree Inventory Model.* AFIT/IOA/ENS/06-13, Faculty Advisor: Lt Col Raymond Staats. Sponsor: AFIT/CC.

WAITE, RALPH J. *Viper Way Ahead.* AFIT/IOA/ENS/06-14, Faculty Advisor: Maj Gary Kinney. Sponsor: 56 OG/CC.

WARNOCK Jr., DOUGLAS, see HIGGINBOTHAM, DAVID.

### 5.5.4 FUNDED RESEARCH PROJECTS

**BAUER, KENNETH W., Jr.**

“Classification and Fusion Based Methods for the Analysis of Hyperspectral and Polarimetric Imagery”. Sponsor: SAF/FMBMB-AFOY. Funding: $210,000. [COA]

“Sensor Fusion for Automatic Target Recognition”. Sponsor: ESC. Funding: 23,000. [COA]

“Sensor Fusion for Automatic Target Recognition”. Sponsor: AFOSR. Funding: 50,000. [COA]

**DECKRO, RICHARD F.,**


“SNA and Behavioral Modeling MOA”. Sponsor: AFRL. Funding: $111,000.

**DENHARD, DAVID R., Lt Col**

AFIT Support to AFRL Effects-Based Operations Program”. Sponsor: AFRL/IF Funding: $22,310.00 [COA]

**JOHNSON, ALAN W.,**

“Reusable Military Launch Vehicle Logistics.” Sponsor: AFRL/VA. Funding: $35,000.

**KHAROUFEH, JEFFREY P.,**


MILLER, JOHN O.,

“AFIT Faculty Support to Command and Control Research”. Sponsor: AFRL/IF. Funding: $19,000. [COA]

“Air Force Standard Analysis Toolkit (AFSAT) Support”. Sponsor: AF/XC. Funding: $12,000. [COA]


MOORE, JAMES T.,

“Adaptive Filter using Wavelets with Genetic Algorithms”. Sponsor: AFOSR. Funding: $50,000. [COA]

“Application of Metaheuristics to Air Force Problems”. Sponsor: AFOSR. Funding: $50,000. [COA]

PATTERSON, KIRK A., Maj


5.5.5 REFEREED JOURNALS

BAUER, KENNETH W., Jr,


CUNNINGHAM, WILLIAM A., III


DECKRO, RICHARD F.,


JOHNSON, ALAN W.,


KINNEY, GARY W. Jr., Maj,


MILLER, JOHN O.,


MOORE, JAMES T.,


PERRY, MARCUS B.,


THOMAS, MARLIN U.,


5.5.6 OTHER PUBLICATIONS

BREWER, BARRY L., Maj


DECKRO, RICHARD F.,


JOHNSON, ALAN W.,


KHALOUFEH, JEFFREY P.,


KINNEY, GARY W. Jr., Maj


MELOUK, SHARIF H.,

5.5.7 SUBSTANTIAL CONSULTATIONS

ANDERSON, BRADLEY E., Lt Col

Anderson, Bradley E., Worked with HQ AFMC/A8S on prior research work for Non-Optimized (NOP) items in Materiel Readiness Support Packages (MRSPs). Per their 2005 annual report, currently used NOP formulas were corrected and recommendations were made for future policies (May 2006). [COA]

Anderson, Bradley E., Merged decision theory and different models of decision making in developing an Analytic Network Process (ANP) model of the strategic mobility decision model that helps TRANSCOM choose between sealift and airlift for global mobility in the selection of air or sealift options (Mar 2006). [COA]

DECKRO, RICHARD F.


Deckro, Richard F., Reviewed draft BAA and provided comments for AFOSR, May 2006.

Deckro, Richard F., Invited participate in a meeting on The National R&D Strategy for Regional Stability and Capacity Building, with a primary focus on the interagency development, objectives and structure of the Regional Stability Assessment Teams (RSAT). Meeting was chaired Dr. George Atkinson, the Science and Technology Adviser to the Secretary of State (STAS) as part of a broad outreach on the R&D strategy concept developed by an interagency working group jointly led by State (STAS) and DOD (USACE), March 2006.

Deckro, Richard F., At request of NASIC/FCEB attend HT VTC brief 17 Feb 06 in support of briefing on FCEB’s influence analysis effort. As a result of interaction, provided additional inputs to the Joint Staff.


MILLER, JOHN O.,

Miller, J.O., Led working group to develop Use Case for HPC in constructive combat modeling, HPC Forces Modeling Simulation IPT, Orlando, FL. Mar 9-10. [COA]

Miller, J.O., AFIT representative on DoD M&S Workforce Development Team/Focus Group, DoD M&S Conference, Baltimore, MD, May 1-5. [COA]
5.5.8 PRESENTATIONS

ANDERSON, BRADLEY E., Lt Col


Anderson, Bradley E., “The Operational Impact of Mobility Readiness Spares Package Configuration During Operation Iraqi Freedom” accepted for publication in the proceedings and presented at the Western Decision Sciences Institute (WDSI) Annual Meeting in Waikoloa, HI Apr, 2006. [COA]

BAUER, KENNETH W., Jr


BREWER, BARRY L., Maj


CHRISSIS, JAMES W.,


CUNNINGHAM, WILLIAM A., III

DECKRO, RICHARD F.,


JOHNSON, ALAN W.,


KHAROUFEH, JEFFREY P.,


KINNEY, GARY W., Jr, Maj

Gary Kinney, J.W. Barnes, and Bruce Colletti, “Reactive Tabu Search Algorithm with Variable Clustering for the Unicost Set Covering Problem” Institute for Operations Research and Management Science Annual Conference in Pittsburgh. [COA]

MELOUK, SHARIF H.,


MILLER, JOHN O.,


MOORE, JAMES T.,


PERRY, MARCUS B.,


THOMAS, MARLIN U.,


5.5.9 BOOKS AND CHAPTERS IN BOOKS

THOMAS, MARLIN U.

Thomas, M.U., Reliability and Warranties: Methods for Product Development and Quality Improvement, Taylor & Francis, Baco Raton, 2006

5.5.10 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

BELL, JOHN E., Lt Col

Technical Paper Reviewer: Military Operations Research; and Western Decision Science
Advisor: AFIT Sigma Iota Epsilon Chapter
Member: Decision Science Institute; INFORMS; Council of Supply Chain Management Professionals; and Logistics Officers Association

BREWER, BARRY L., Maj

Ad hoc Reviewer: Decision Sciences Journal
Reviewer: 18th Annual North American Research/Teaching Symposium on Purchasing and Supply Chain Management

CHRISIIS, JAMES W.,

Member: AIAA Multidisciplinary Design Optimization (MDO)
Reviewer: Technical Committee (TC) September 2006 AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference in Portsmouth, VA
Reviewer: MDO sessions at the January 2006 AIAA Aerospace Sciences Meeting in Reno, NV
Reviewer: April 2006 AIAA SDM Conference/MDO Specialist Conference in Newport, RI
Session Chair: January 2006 AIAA Aerospace Sciences Meeting in Reno, NV
Member: MDO/TC Education Subcommittee

CUNNINGHAM, WILLIAM A., III

Editorial Review Board for Air Force Journal of Logistics
Editorial Review Board for Journal of Transportation Management
Board of Examiners for the American Society of Transportation and Logistics

DECKRO, RICHARD F.,

Editor: Military Operations Research
President: Military Applications Society, INFORMS
Area Editor: Service Systems, Computers & Industrial Engineering
Member: MORS Publication Committee
Member: Peacekeeping and Stability Operations Institute Academic Consortium
Member: Advisory Group on Applications, GMU/CMU MURI “Computational Modeling of Cultural Dimensions in Adversary Modeling”
Organizing Committee Member: MORS Workshop, Agent-Based Models and Other Analytic Tools in Support of Stability Operations
Panelist/Sub-Group Leader: Interagency Working Group on R&D for Regional Stability - Workshop on Models, Simulations, Games and Tools for Regional Stability

DENHARD, DAVID R., Lt Col

Technical Paper Reviewer: MORS

JOHNSON, ALAN W.,

Manuscript reviewed: European Journal of Operational Research

KHAOUFEH, JEFFREY P.,

Associate Editor: IEEE Transactions on Reliability
Associate Editor: Operations Research Letters
Department of Operational Sciences


MELOUK, SHARIF H.,

Committee Member: Membership and Retention, INFORMS Simulation Society


Reviewer: 2006 Industrial Engineering Research Conference and 2006 Western Decision Sciences Institute Annual Conference


Representative: Dayton Area Graduate Studies Institute (DAGSI)

MILLER, JOHN O.,

Representative: INFORMS Simulation Society Council (elected position)

AFIT Representative: DoD and AF M&S Conference in Mar 06

Mentor: Wright Scholar Summer 2006

Associate Editor: International Journal of Operations Research


MOORE, JAMES T.,

Program Co-chair: 2006 INOFRMS' Military Application Section Homeland Security Conference

Associate Editor: Military Operations Research journal and International Journal of Operational Research

PERRY, MARCUS B.,


Member: Editorial Board of Quality Engineering

Associate Editor: Journal of Statistical Computation and Simulation

Invited Participant: INFORMS Young Researchers Roundtable. INFORMS conference on OR/MS Business Practice
STAATS, RAYMOND W., Lt Col

Technical Paper Referee: International Transactions in Operational Research

THOMAS, MARLIN U.,


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/

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5.6.1 MASTERS THESES

5.6.1.1 COST ANALYSIS (GCA)

ARMSTRONG, PATRICK D. Developing an Aggregate Marginal Cost Per Flying Hour Model for the U.S. Air Force’s F-15 Fighter Aircraft. AFIT/GCA/ENV/06M-01, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: Air Force Cost Analysis Agency.

BERNAL, PHIL ANDREW L. Forecasting Mental Health Care Cost for OIF and OEF Veterans. AFIT/GCA/ENV/06J-01, Faculty Advisor: Maj Jeffrey Smith. Sponsor: N/A.

DAVIS, JUDY B. The Impact of the Defense Industry Consolidation on the Aerospace Industry. AFIT/GCA/ENV/06M-03, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

ELLIS, MARC D. A Hedonic Approach to Estimating Software Cost Using Ordinary least Squares Regression and Nominal Attribute Variables. AFIT/GCA/ENV/06M-04, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

HERALD, JENNY O. Buying a Better Air Force. AFIT/GCA/ENV/06M-05, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

SMIRNOFF, JAMES P. The Impact of Economic Factors and Acquisition Reforms on the Cost of Defense Weapon Systems. AFIT/GCA/ENV/06M-06, Faculty Advisor: Dr. Michael J. Hicks. Sponsor: N/A.

5.6.1.2 ENGINEERING MANAGEMENT (GEM)

BULSON, CHRISTOPHER D. Using Value-Focused Thinking to Evaluate the Practicality of Porous Pavement Parking Areas on Air Force Installations. AFIT/GEM/ENV/06M-01, Faculty Advisor: Lt Col Ellen England. Sponsor: AFCEE/ICM.

COOK, JASON J. Estimating Required Contingency Funds for Construction Projects using Multiple Linear Regression. AFIT/GEM/ENV/06M-02, Faculty Advisor: Lt Col Ellen England. Sponsor: N/A.

CROWLEY, RYAN A. Development of an Evaluation Methodology for Hazardous Waste Training Program. AFIT/GEM/ENV/06M-03, Faculty Advisor: Dr. Alfred Thal. Sponsor: AFMC/MSEVQ.

GRAY, MICHAEL J. The Effects of Ability Homophily on Individual Performance. AFIT/GEM/ENV/06M-04, Faculty Advisor: Maj Kent Halverson. Sponsor: N/A.

HUGHES, BRIAN S. Evaluating Alternatives for Drinking Water at Deployment Locations. AFIT/GEM/ENV/06M-03, Faculty Advisor: Dr. Alfred Thal. Sponsor: AFIOH.

HUGHES, FRANK R. The Effects of Major Organizational Policy on Employee Attitudes Toward Graduate Degrees. AFIT/GEM/ENV/06M-05, Faculty Advisor: Dr. Alfred Thal. Sponsor: HQ AFCESA/CE


JOHNSON, MELISSA R. An Analysis of USAF Aircraft Noise and Hedonic Property Values. AFIT/GEM/ENV/06M-07, Faculty Advisor: Maj Sonia Leach. Sponsor: N/A.

JUN, YAN. Evaluation of Chlorinated Solvents Removal Efficiency Among Three Wetland Plant Species: A Mesocom Study. AFIT/GEM/ENV/06M-18, Faculty Advisor: Dr. Charles Bleckmann. Sponsor: N/A.
KELLNER, MOSTYN O.  *A Decision Model for Choosing Among Photovoltaic Technologies to Generate Electricity at Grid-Connected Air Force Facilities: A Value-Focused Approach.*  
AFIT/GEM/ENV/06M-08, Faculty Advisor: Lt Col Ellen England.  Sponsor: N/A.

AFIT/GEM/ENV/06M-09, Faculty Advisor: Maj Kent Halverson.  Sponsor: N/A.

MANTOVANI, KEVIN R.  *Effects of Based Realignment and Closure (BRAC) on Real Estate Values.*  
AFIT/GEM/ENV/06M-10, Faculty Advisor: Dr. Michael Hicks.  Sponsor: N/A.

MOORE, GARY J.  *The Longitudinal Effect of Self-Monitoring and Locus of Control on Social Network Position in Friendship Networks.*  
AFIT/GEM/ENV/06M-11, Faculty Advisor: Maj Kent Halverson.  Sponsor: N/A.

NELSON, RYAN E.  *An Exploration of the Effects of Genetic Drift on the Endangered Red-Cockaded Woodpecker.*  
AFIT/GEM/ENV/06M-12, Faculty Advisor: Dr. Michael Shelley.  Sponsor: N/A.

PHELPS, JENNIFER A.  *Moderating Effects of Perceived Organizational Support on the Relationship Between Job Satisfaction and Turnover Intentions for Recently Retrained USAF Enlisted.*  
AFIT/GEM/ENV/06M-13, Faculty Advisor: Maj Sharon Heilmann.  Sponsor: N/A.

PRATT, DAVID M.  *Selecting Energy Efficient Building Envelope Retrofits to Existing Department of Defense Building Using Value Focused Thinking.*  
AFIT/GEM/ENV/06M-14, Faculty Advisor: Lt Col Ellen England.  Sponsor: HQ AFCESA/CE

RIEKER, DANIEL J.  *An Evaluation of How an Organizational Culture can Perpetuate a Formal Mentoring Relationship.*  
AFIT/GEM/ENV/06M-15, Faculty Advisor: Maj Sharon Heilmann.  Sponsor: HQ AFMC/PK

AFIT/GEM/ENV/06M-17, Faculty Advisor: Dr. Alfred Thal.  Sponsor: N/A.

5.6.1.3  **ENVIRONMENTAL ENGINEERING AND SCIENCE (GES)**

CAMERON, ERIC J.  *Comparative Analysis of Airborne Exposure to Air Force Small Arms Range Instructors.*  
AFIT/GES/ENV/06M-01, Faculty Advisor: Dr. Ellen England.  Sponsor: AFIOH/RSHI.

AFIT/GES/ENV/06M-02, Faculty Advisor: Dr. Charles A. Bleckmann.  Sponsor: National Defense University.

KEMPSTY, DAVID M.  *Comparative Analysis of Biosurveillance Methodologies.*  
AFIT/GES/ENV/06M-04, Faculty Advisor: Dr. Charles A. Bleckmann.  Sponsor: National Defense University.

TUREK, NADJA F.  *Investigation of Copper Contamination and Corrosion Scale Mineralogy in Aging Drink Water Distributions Systems.*  
AFIT/GES/ENV/06M-05, Faculty Advisor: Dr. Mark N. Goltz.  Sponsor: AFMC/88 ABW/CE-2.

WAGNER, ANDREW J.  *In Vitro Toxicity of Aluminum Nanoparticles in Rat Alveolar Macrophages.*  
AFIT/GES/ENV/06M-06, Faculty Advisor: Dr. Charles A. Bleckmann.  Sponsor: AFRL/HEB.

WAGNER, DAVID E.  *Modeling Study to Quantify the Benefits of Groundwater Contaminant Source Remediation.*  
AFIT/GES/ENV/06M-07, Faculty Advisor: Dr. Mark N. Goltz.  Sponsor: AFCEE.
Yoon, Hyouk. *Validations of Methods to Measure Mass Flux of Groundwater Contaminant.* AFIT/GES/ENV/06M-08, Faculty Advisor: Dr. Mark N. Goltz. Sponsor: AFCEE/TD.

5.6.1.4 INFORMATION ASSURANCE (GIA)

Crawford, James, Jr. *A Total Cost of Ownership Model for Software Protection Schemes.* AFIT/GIA/ENV/06-J01, Faculty Advisor: Dr. Michael Grimaila. Sponsor: AFRL/PA.

5.6.1.5 INFORMATION RESOURCE MANAGEMENT (GIR)

Barnier, Mark E. *A Comparative Usability and End-User Satisfaction Analysis of Two Geographic Information System (GIS) Applications.* AFIT/GIR/ENV/06M-01, Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: IITA(USAFA).

Bently, Richard S. *Usability and Accessibility of Air Force Intranet Web Sites.* AFIT/GIR/ENV/06M-02, Faculty Advisor: Dr. Kevin L. Elder. Sponsor: N/A.

Booker, Patrick L. *A Comparative Assessment of Knowledge Management Programs Across the United States Armed Services.* AFIT/GIR/ENV/06M-03, Faculty Advisor: Lt Col Summer E. Bartczak. Sponsor: N/A.

Corrigan, Robert M. *Contemplating a New Model for Aerospace Medical Technician Skills Sustainment Training.* AFIT/GIR/ENV/06M-04, Faculty Advisor: Maj Carolyn Macola. Sponsor: HQ USAF/SCGN.


Lawson, Joseph M. *A Comparative Analysis of Transmission Control Protocol Improvement Techniques Over Space Based Transmission Media.* AFIT/GIR/ENV/06M-08, Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: N/A.


Shin, Yongjoo. *Factors Impacting Key Management Effectiveness In Secured Wireless Networks.* AFIT/GIR/ENV/06M-09, Faculty Advisor: Dr. Michael R. Grimaila. Sponsor: N/A.

Tassiaka, Davis M. *Corporate Entrepreneurship Assessment Instrument: Systematic Validation of a Measure.* AFIT/GIR/ENV/06M-05, Faculty Advisor: Maj Daniel Holt. Sponsor: N/A.

5.6.1.6 LOGISTICS MANAGEMENT (GLM)

Burke, Kenneth W. *Building a Consensus Forecast for Crude Oil Prices.* AFIT/GLM/ENV/06-00, Faculty Advisor: Dr. Michael Hicks. Sponsor: N/A.


WAGONER, DONALD J. *Predicting the Effects of Contingency Contracting on Local Economics.* AFIT/GLM/ENV/06-03, Faculty Advisor: Dr. Michael Hicks. Sponsor: ACC/USCENTAF/A4.

5.6.1.7 **RESEARCH AND DEVELOPMENT MANAGEMENT (GRD)**

CARBAJAL, JENNIFER M. *Influence of Organizational Culture on the Relationship between Psychological Contracts and Organizational Citizenship Behavior.* AFIT/GRD/ENV/06M-01, Faculty Advisor: Dr. Michael Rehg. Sponsor: N/A.

CARDEN, ROBERT D. *A Market Response to DoD Contact Delay.* AFIT/GRD/ENV/06M-02, Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

CODRINGTON, KEVIN W. *Cost as an Independent Variable: A Study of its Continued Use by Aeronautical Systems Center’s Programs and their Contractors to set and Maintain Cost Objectives.* AFIT/GRD/ENV/06M-03, Faculty Advisor: Lt Col Ross McNutt. Sponsor: N/A.

ESPY, WALTER E. *Technology Transition: Guidance Versus Practice.* AFIT/GRD/ENV/06M-04, Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

HUTZEL, JOHN R. *A Graph Theoretic Analysis of the Effects of Organizational Structure on Employee Social Networks.* AFIT/GRD/ENV/06M-07, Faculty Advisor: Dr. Dennis Strouble. Sponsor: N/A.

MCCLAMMA, DYAN E. *Roadblocks to Software Modernization.* AFIT/GRD/ENV/06M-09, Faculty Advisor: Dr. Michael Rehg. Sponsor: N/A.


SUAREZ, TONY A. *Acquisition Program Baselines: Theory & Practice.* AFIT/GRD/ENV/06M-11, Faculty Advisor: Maj Sonia E. Leach. Sponsor: N/A.

WARD, CHRISTOPHER J. *Factors Influencing Effectiveness of the Acquisition Career Field Initial Education Course.* AFIT/GRD/ENV/06M-13, Faculty Advisor: Dr. Michael Rehg. Sponsor: N/A.

5.6.1.8 **SPACE SYSTEMS (GSS)**

STRATTON, MITCHELL D. *Leadership in Groups: Social Networks and perceptions of Formal and Informal Leaders.* AFIT/GSS/ENV/06M-01, Faculty Advisor: Maj Kent C. Halverson. Sponsor: N/A.

5.6.2 **FUNDED RESEARCH PROJECTS**

GOLTZ, MARK N.,

“Reducing Ion Exchange Treatment Costs by Up to 40 Percent using Tailored Activated Carbon.” Sponsor: SERDP. Funding: $25,000.

McNUTT, ROSS T., Lt Col

STROUBLE, DENNIS D.,


5.6.3 REFEREED JOURNALS

BADIRU, ADEDEJI B.,


BLECKMANN, CHARLES A.,


GOLTZ, MARK N.,


HICKS, MICHAEL J.,

Hicks, Michael J. "Transportation Infrastructure, Retail Clustering and Local Public Finance: Evidence from Wal-Mart's Expansion" Regional Economic Development, Vol 2(2) 2006.

HOLT, DANIEL T., Lt Col


5.6.4 OTHER PUBLICATIONS

HICKS, MICHAEL J.,


HOLT, DANIEL T., Lt Col


THAL, ALFED E., Jr


5.6.5 SUBSTANTIAL CONSULTATIONS

WEST, CHRISTOPHER J.,

West, Christopher J. "Developing and Using Distributed Cognition Frameworks to Improve Wartime Control Center Performance in an Air National Guard Wing." Oct 05 - May 06. Old Dominion University, Norfolk, VA.

5.6.6 PRESENTATIONS

BADIRU, ADEDEJI B.,


Badiru, Ade Deji B., “Badiru’s equation for Engineering Success; and the Discipline of Time; under the Constraint of Constant Change; with the requirement of a Socially responsible Future; when the expectation is for Paying it Forward as Independent Thinkers,” Banquet Speech, Tau Beta Pi Banquet, The University of Tennessee, College of Engineering, April 20, 2006.

BLECKMANN, CHARLES A.,


GOLTZ, MARK N.,


HOLT, DANIEL T., Lt Col


TURNER, JASON M.,


WEST, CHRISTOPHER, Maj


5.6.7 BOOKS AND CHAPTERS IN BOOKS

BARTCZAK, SUMMER E., LT COL


HOLT, DANIEL T., Lt Col


5.6.8 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

BADIRU, ADEDEJI B.,

Member, Program Committee, International Conference on Industrial Engineering and Systems Management (IESM 07), Beijing, China, May 30 – June 2, 2007)


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Research Proposal Reviewer, GEAR (Grants to Enhance and Advance Research), University of Houston, 2006.

**HICKS, MICHAEL J.,**


West Virginia Special Reclamation Fund Advisory Council: Written presentation of tax extension to West Virginia Legislature (January, 2006)

**SHELLEY, MICHAEL L.,**

Technical Paper Referee: *Ecological Engineering*

Member: Advisory Board, Regional Water and Wastewater Research and Training Center

Postdoctoral Advisor within the National Research Council’s Resident Research Associateships Program

**THAL, ALFRED E., Jr**

Reviewer: ASEE North Central Section Conference and *Journal of Environmental Management*

**WEST, CHRISTOPHER J., Maj**

Invited Reviewer, *Engineering Management Journal*
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

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6.1.1 FUNDED RESEARCH PROJECTS

BLUE, PAUL A., Maj

“Planning, Guidance, and Control for Multiple UAV Cooperative Operations”. Sponsor: AFRL/VA. Funding: $36,000. [ANT]

COBB, RICHARD A.,

“Evaluation of Innovative Space Missions”. Sponsor: AFRL/VS. Funding: $40,000. [ANT]
“Evaluation of Innovative Space Missions”. Sponsor: AFRL/VS. Funding: $35,000. [ANT]

GRAHAM, SCOTT R., Maj


HOPKINSON, KENNETH M.,

“Effective Utilization of a Hybrid Communication Network”. Sponsor: SAF/FMBMB-AFOY. Funding: $46,258. [ANT]

MULLINS, BARRY E.,

“Technical Support: Ground Mobile Objective Gateways”. Sponsor: AFRL/MN. Funding: $49,000. [ANT]

PACHTER, MEIR,

“Optimization of MAV Operations”. Sponsor: AFRL/VACA. Funding: $22,000. [ANT]

RAQUET, JOHN F.,

“Alternative Navigation Techniques”. Sponsor: AFRL/MN. Funding: $50,000. [ANT]
“ANT Center and Laboratory Support per Appendix of the MOA between AFIT and AFRL”. Sponsor: AFRL/SN. Funding: $58,000. [ANT]
“ANT Center and Laboratory Support per Appendix of the MOA between AFIT and AFRL”. Sponsor: AFRL/SN. Funding: 81,956. [ANT]
ANT Center and Laboratory Support per Appendix of the MOA between AFIT and AFRL”. Sponsor: AFRL/SN. Funding: $12,166. [ANT]
“CANIS-Related Navigation Research Projects for the ANT Laboratory”. Sponsor: AFRL/SN. Funding: $93,000. [ANT]
“Geostationary Satellite Positioning using Two-Way Time Transfer and GPS”. Sponsor: SAF/FMBMB-AFOY. Funding: $45,120. [ANT]
“Initial JPALS TSPI System Development”. Sponsor: 746TS. Funding: $30,000. [ANT]
“Sub-Surface Navigation”. Sponsor: AFRL/SN. Funding: $67,636. [ANT]

TEMPLE, MICHAEL A.,

“Detection, Characterization and Location of Spurious Receiver Emissions”. Sponsor: SAF/FMBMB-AFOY. Funding: $43,865. [ANT]


VASQUEZ, JUAN R., Lt Col

“ATR Fusion for Identity Experiment: Tracking, Classification, and Estimation”. Sponsor: AFRL/SN. Funding: $40,000. [ANT]

6.1.2 REFEREED JOURNAL PUBLICATIONS

MAYBECK, PETER S.,


RAQUET, JOHN F.,


6.1.3 OTHER PUBLICATIONS

BLUE, PAUL A., Maj


PETERSON, GILBERT L.,


RAQUET, JOHN F.,


### 6.1.4 PRESENTATIONS

**MAYBECK, PETER S.,**


**RAQUET, JOHN F.,**


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  177
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6.2.1 FUNDED RESEARCH PROJECTS

ALLEY, THOMAS G., Lt Col

“Nonlinear Optical Effects in Fibers and Their Applications to High Energy Lasers”. Sponsor: AFRL/DE. Funding: $90,000. [CDE]

BOHN, MATTHEW J., Lt Col

“Optical Diagnostics for the Production of Carbon Nanotubes from PLD”. Sponsor: AFOSR. Funding: $30,580. [CDE]

CUSUMANO, SALVATORE J.,

“Delivered Irradiance Assessment Tool (DIAT)”. Sponsor: U.S. ARMY/Directed Energy Test and Evaluation Capability (DETEC). Funding: $191,000. [CDE]

“Robust Characterization of DEW Weapons: HELEEOS Intel”. Sponsor: NASIC. Funding: $75,000. [CDE]

“Subject Matter Expert (SME) Consultation to Air Force Flight Test Center - Airborne Laser”. Sponsor: 412 TW/DRP. Funding: $30,000. [CDE]

FIORINO, STEVEN T., Lt Col

“HELEEOS-based Laser Propagation Module for AFRL Wargaming Simulation Software”. Sponsor: AFRL/VA. Funding: $30,000. [CDE]


MARCINIAK, MICHAEL A.,

“Infrared Counter-Countermeasure Research”. Sponsor: AFRL/ML. Funding: $25,000. [CDE]

“Infrared Optical Signature Measurement Research”. Sponsor: AFRL/SN. Funding: $6,090. [CDE]

“Infrared Optical Signature Measurement Research”. Sponsor: AFRL/SN. Funding: $30,000. [CDE]

NIDAY, THOMAS A., Capt

“Modeling and Simulation of the Dynamics and Applications of Light Filaments”. Sponsor: AFOSR/MOA. Funding: $11,391. [CDE]

PERRAM, GLEN P.,

“Closed Cycle Chemical Laser: ElectriCOIL”. Sponsor: AFOSR/NL. Funding: $81,1058. [CDE]


“Lineshape and Collisional Dynamics of Hyperfine and Magnetically-Split Cs (2P1/2,3/2) for the Optically-Pumped Cesium Laser”. Sponsor: AFRL/DE. Funding: $30,000. [CDE]
Center for Directed Energy

“Near Infrared Radiometric Signatures of Flashless Gunpowder”. Sponsor: Navy. Funding: $35,000. [CDE]

“Support for Establishment of an IPA Appointment to Lead Gas Phase Laser Research Effort Collaboration between AFIT and University, Government and Industry Partners”. Sponsor: AFRL/DE. Funding: $95,472. [CDE]

“Technical and Administrative Support for the AFOSR Center of Excellence in High Power Gas Phase Electric and Hybrid Lasers”. Sponsor: AFRL/DE. Funding: $120,000. [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

Fiorino, Steven T., Lt Col


Hengehold, Robert L.,


Marciniak, Michael A.,


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YEo, YUNG KEE,


6.2.4 OTHER PUBLICATIONS

ALLEY, THOMAS G., Lt Col


BUNKER, DAVID J.,


FIOринo, STEVEN T., Lt Col


MARCINIAK, MICHAEL A.,


ROH, WON B.,


6.2.5 SUBSTANTIAL CONSULTATIONS

CUSUAMNO, SALVATORE J.,


Cusumano, Salvatore J., “Subject Matter Expert (SME) Consultations” to Air Force Flight Test Center, member of the Safety Review Board for the Airborne Laser. [CDE]


MARCINIAK, MICHAEL A.,


6.2.6 PRESENTATIONS

ALLEY, THOMAS G., Lt Col.


CUSUMANO, SALVATORE J.,


Cusumano, Salvatore J., Houle, Marken, “AFRL-AFIT Collaboration on the SMART Program”, AFRL/VA, Jan 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT’s Center for Directed Energy”, NRO, Nov 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT-AFIT Collaboration on the SMART Program”, AFRL/VA, Jan 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT”, ABL SPO, KAFB, NM, Jan 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT and the Center for Directed Energy”, AFRL/DE, KAFB, NM, Feb 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “AFIT and the SMART Program”, 452nd FTW, EAFB, CA, Feb 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “How the Center can work within the Intel Community”, DIA, Mar 2006. [CDE]

Cusumano, Salvatore J., Houle, Marken, “The Center for Directed Energy”, ACC, Langley AFB, VA, Apr 2006. [CDE]

FIORINO, STEVEN T., Lt Col


HENGHEOLD, ROBERT L.,

*Ryu, M.Y., Y.K. Yeo, and R.L. Hengehold, “Electrical and Optical Activation Studies of Si-implanted AlxGa1-xN,” the 4th International Conference on Advanced Materials and Devices (ICAMD), Jeju Island, Korea, 5-7 December 2005. [CDE]


MARCINIAK, MICHAEL A.,


PERRAM, GLEN P.,


Kevin C. Gross, 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, Ohio 7-9 Nov 2006. [CDE]

Skip William, Jeffrey Gallagher and Glen Perram, “Collisional broadening coefficients of singlet (a^1Δ_g) oxygen with helium”, 2006 59th Annual Gaseous Electronics Conference, Columbus, OH, Oct 2006. [CDE]


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Michael R. Hawks and Glen P. Perram, “Monocular Passive Ranging (MPR) for tracking boost-phase missiles based on O2(X3Σg⁺ → b1Σg+) atmospheric absorption”, Directed Energy Professional Society 8th Annual Symposium, Lihue, HI, November 2005. [CDE]

**TUTTLE, RONALD F.,**

*Kevin C. Gross, 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, Ohio 7-9 Nov 2006. [CDE]*

6.3 CENTER FOR INFORMATION SECURITY EDUCATION & RESEARCH

Center for Information Security Education and Research (CISER)
Director 255-6565 x4278
Executive Program Coordinator 255-3636 x6024
Homepage: http://www.afit.edu/ciser/

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6.3.1 FUNDED RESEARCH PROJECTS

MILLS, ROBERT F.,
“Insider Threat Mitigation”. Sponsor: NSA. Funding: $10,000. [CISER]

“Technical Support, RF Sensing Applications”. Sponsor: AFRL/SN. Funding: $15,000. [CISER]

“Technical Support, RF Sensing Applications”. Sponsor: AFRL/SN. Funding: $13,000. [CISER]

MULLINS, BARRY E.,
“Air Force Communication Systems Modeling”. Sponsor: AFCA. Funding: $64,000. [CISER]

“Investigation of Wireless Sensor Network Research to Department of Defense Applications”. Sponsor: AFRL/IF. Funding: $43,000. [CISER]

“Secure Communication in a Mobile Wireless Network Environment”. Sponsor: NIETP. Funding: $144,281. [CISER]

RAINES, RICHARD A.,
“Development of a Federal Cyber Force at the Air Force Institute of Technology”. Sponsor: NSF. Funding: $90,609. [CISER]

“Collaborative Project -- AFIT and Sinclair Community College: Building Core IA Educational Capacity”. Sponsor: NSF. Funding: $69,121. [CISER]

“Tuition and Resource Support for the AFIT Center for Information Security Education and Research (CISER)”. Sponsor: NSA. Funding: $342,682. [CISER]


6.3.2 FUNDED EDUCATIONAL PROJECTS

MULLINS, BARRY E.,
“Secure Communication in a Mobile Wireless Network Environment”. Sponsor: NIETP. Funding: $144,281. [CISER]

RAINES, RICHARD A.,
“Anti-Tamper Software Protection Initiative Education, Outreach, and Research (Scope and Budget Revision)”. Sponsor: AFRL/SN. Funding: $257,188. [CISER]

6.3.3 REFEREED JOURNAL PUBLICATIONS

BALDWIN, RUSTY O.,


MILLS, ROBERT F.,


*Okolica, J. S., Peterson, G. L. and Mills, R. F., “Using PLSI-U to Detect Insider Threats by Datamining Email,” accepted for publication, *Special Issue on Network Forensics of the International Journal of Security and Networks*. [CISER]


RAINES, RICHARD A.,


TEMPLE, MICHAEL A.,


6.3.4 OTHER PUBLICATIONS

**BALDWIN, RUSTY O.,**


**HOPKINSON, KENNETH M.,**

MILLS, ROBERT F.,


*Mullins, BARRY E.,


PETERSON, GILBERT L.,


RAINES, RICHARD A.,


TEMPLE, MICHAEL A.,


6.3.5 SUBSTANTIAL CONSULTATIONS

MULLINS, BARRY E.,


6.3.6 PRESENTATIONS

MILLS, ROBERT F.,


PETE RSON, GILBERT L.,


RA I NES, RICHARD A.,

Raines, Richard A., “Cyberspace and Developing a Cyberspace Workforce,” presented to NRO (MG Latiff), Wright Patterson AFB, OH, February 2006. [CISER]

Raines, Richard A., “Cyberspace and Developing a Cyberspace Workforce,” presented to AF/XP (Dr. Lani Kass), Pentagon, January 2006. [CISER]


Raines, Richard A., “The Center for Information Security Education and Research,” presented to Congressman David Hobson's Chief of Staff (Mr. Wayne Struble) WPAFB, OH., December 2005. [CISER]

6.4 CENTER FOR MASINT STUDIES AND RESEARCH

Center for Measurement and Signature Intelligence (CMSR)
Chair 255-3636 x4536
Executive Program Coordinator 255-7287
FAX 656-6000
Homepage: http://www.afit.edu/cmsr/

6.4.1 FUNDED EDUCATIONAL PROJECTS

6.4.2 OTHER PUBLICATIONS

6.4.3 SUBSTANTIAL CONSULTATIONS

6.4.4 PRESENTATIONS
6.4.1 FUNDED EDUCATIONAL PROJECTS

TUTTLE, RONALD F.,

“Advanced Geospatial Intelligence Education”. Sponsor: National Geospatial-Intelligence Agency. Funding: $375,000. [CMSR]

“Advanced Geospatial Intelligence Education”. Sponsor: National Geospatial-Intelligence Agency. Funding: $375,000. [CMSR]

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

6.4.2 OTHER PUBLICATIONS

MARCINIAK, MICHAEL A.,


S.A. Uzpen, M.A. Marciniak, J.W. Burks and J.P. Costantino, “A measurement-base examination of optical signature changes due to weathering effects on aircraft paint,” Proceedings of 29th Exhaust Plume Technology Subcommittee (EPTS) and 11th SPIRITS User Group, Littleton, CO, 19-23 June 2006. [CMSR]

TUTTLE, RONALD F.,


6.4.3 SUBSTANTIAL CONSULTATIONS

BUNKER, DAVID J.,


MARCINIAK, MICHAEL A.,


MATHEWS, KIRK A.,

TUTTLE, RONALD F.,

6.4.4 PRESENTATIONS

BAILEY, WILLIAM F.,

BUNKER, DAVID J.,

FIORINO, STEVEN T., Lt Col
MARCIJNIK, MICHAEL A.,

S.A. Uzpen, M.A. Marciniak, J.W. Burks and J.P. Costantino, “A measurement-base examination of optical signature changes due to weathering effects on aircraft paint,” 29th Exhaust Plume Technology Subcommittee (EPTS) and 11th SPIRITS User Group, Littleton, CO, 19-23 June 2006. [CMSR]


PERRAM, GLEN P.,


TUTTLE, RONALD F.,


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/

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6.5.1 FUNDED RESEARCH PROJECTS

BAUER, KENNETH W., Jr.

“Classification and Fusion Based Methods for the Analysis of Hyperspectral and Polarimetric Imagery”. Sponsor: SAF/FMBMB-AFOY. Funding: $210,000. [COA]

“Sensor Fusion for Automatic Target Recognition”. Sponsor: ESC. Funding: 23,000. [COA]

“Sensor Fusion for Automatic Target Recognition”. Sponsor: AFOSR. Funding: 50,000. [COA]

DENHARD, DAVID R., Lt Col

AFIT Support to AFRL Effects-Based Operations Program”. Sponsor: AFRL/IF Funding: $22,310.00 [COA]

MILLER, JOHN O.,

“AFIT Faculty Support to Command and Control Research”. Sponsor: AFRL/IF. Funding: $19,000. [COA]

“Air Force Standard Analysis Toolkit (AFSAT) Support”. Sponsor: AF/XC. Funding: $12,000. [COA]


MOORE, JAMES T.,

“Adaptive Filter using Wavelets with Genetic Algorithms”. Sponsor: AFOSR. Funding: $50,000. [COA]

“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.,


KINNEY, GARY W. Jr., Maj


MILLER, JOHN O.,


MOORE, JAMES T.,


6.5.3 OTHER PUBLICATIONS

JOHNSON, ALAN W.,


*KINNEY, GARY W. Jr., Maj


6.5.4 SUBSTANTIAL CONSULTATIONS

ANDERSON, BRADLEY E., Lt Col

Anderson, Bradley E., Worked with HQ AFMC/A8S on prior research work for Non-Optimized (NOP) items in Materiel Readiness Support Packages (MRSP’s). Per their 2005 annual report, currently used NOP formulas were corrected and recommendations were made for future policies (May 2006). [COA]

Anderson, Bradley E., Merged decision theory and different models of decision making in developing an Analytic Network Process (ANP) model of the strategic mobility decision model that helps TRANSCOM choose between sealift and airlift for global mobility in the selection of air or sealift options (Mar 2006). [COA]
MILLER, J. O.,

Miller, J.O., Led working group to develop Use Case for HPC in constructive combat modeling, HPC Forces Modeling Simulation IPT, Orlando, FL. Mar 9-10. [COA]

Miller, J.O., AFIT representative on DoD M&S Workforce Development Team/Focus Group, DoD M&S Conference, Baltimore, MD, May 1-5. [COA]

6.5.5 PRESENTATIONS

ANDERSON, BRADLEY E., Lt Col


Anderson, Bradley E., “The Operational Impact of Mobility Readiness Spares Package Configuration During Operation Iraqi Freedom” accepted for publication in the proceedings and presented at the Western Decision Sciences Institute (WDSI) Annual Meeting in Waikoloa, HI Apr, 2006. [COA]

BAUER, KENNETH W., Jr


JOHNSON, ALAN W.,


KINNEY, GARY W., Jr, Maj

Gary Kinney, J.W. Barnes, and Bruce Colletti, “Reactive Tabu Search Algorithm with Variable Clustering for the Unicost Set Covering Problem” Institute for Operations Research and Management Science Annual Conference in Pittsburgh. [COA]
MILLER, JOHN O.,


MOORE, JAMES T.,


APPENDICES

APPENDIX A: FACULTY CREDENTIALS

DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

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 autonomous collision avoidance and path planning for UAVs and robust control of high-performance aircraft. 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. Tel. 937-255-3636 x7485 (DSN 785-3636 x7485), 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 31 journal articles and 45 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.

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, vibration isolation and suppression, system identification techniques and applied 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 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 a member and past chair (2001-2006) 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.

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 aeroskimming flows, and an Associate Professor in the University of Texas at Tyler establishing a startup 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. 505-853-3381 (DSN 263-3381), email: robert.greendyke@afit.edu.

HICKS, KERRY D., Lt Col, USAF Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2004 (AFIT/ENY), BS Aeronautical and Astronautical Engineering, University of Illinois (UIUC), 1985; MS Astronautical Engineering, Air Force Institute of Technology, 1986; PhD Astronautical Engineering, Air Force Institute of Technology, 1989. Lt Col Hicks' research interests include astrodynamics, re-entry dynamics, and electric space propulsion with emphasis on numerical solutions and mathematical modeling. He has published several conference papers and journal articles as well as DoD publications. He is a member of Tau Beta Pi and a Senior Member of AIAA. Tel. 937-255-3636 x4568 (DSN 785-3636 x4568), email: Kerry.Hicks@afit.edu.

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.

KING, PAUL I., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 1991 (AFIT/ENY); BS, Arizona State University, 1971; MS, Air Force Institute of Technology, 1972; PhD, Oxford University, England, 1986. Former faculty member at the U.S. Air Force Academy and Cleveland State University, Cleveland, Ohio. Dr. King's research interests include internal and external aerodynamics and heat transfer (wings and bodies, turbomachinery and other applications). His research emphasizes experimentation and simulations. Tel. 937-255-3636 x4628 (DSN 785-3636 x4628), email: Paul.King@afit.edu.
Faculty Credentials
Department of Aeronautics and Astronautics

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, multibody 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.

MAPLE, RAYMOND C., Lt Col, Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, AFIT Appointment Date: 2002 (AFIT/ENY); BS, Cornell University, 1985; MS, Air Force Institute of Technology, 1989; PhD, Air Force Institute of Technology, 2002. Lt Col Maple's interests include computational fluid dynamics and parallel computing, with an emphasis on algorithm development, visualization, fluid-structure interaction, and aircraft store separation applications. Lt Col Maple is a senior member of the American Institute of Aeronautics and Astronautics (AIAA). Tel. 937-255-3636 x4577 (DSN 785-3636 x4575), email: Raymond.Maple@afit.edu.

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 also a member of ASME and AIAA. 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 include experimental investigation of nonlinear and time-dependent material behavior, viscoplasticity, composite materials, nano-composites, and high-temperature structural design methods. Dr. Ruggles-Wrenn has published over 40 technical papers in refereed journals and conference proceedings, over 25 technical reports, and has co-authored 5 books on fatigue, fracture, and high temperature design methods. Dr. Ruggles-Wrenn received several research and best paper awards, as well as the ASME PVPD Distinguished Service Award. She has served as an associate technical editor of the ASME Journal of Pressure Vessel Technology (1996-2002). Dr. Ruggles-Wrenn is a Fellow of the ASME. Tel. 937-255-3636 x4641 (DSN 785-3636 x4641), email: Marina.Ruggles-Wrenn@afit.edu.

SONI, SOM R., Associate Professor of Aerospace Engineering, AFIT Appointment Date: 2006 (AFIT/ENY); BS (Hons), Punjab University, 1967; MS, University of Roorkee (renamed as IIT Roorkee) India, 1969; PhD, University of Roorkee (renamed as IIT Roorkee) India, 1972. Dr. Soni’s interests include teaching and research related to systems engineering design, analytical and experimental mechanics of composite materials and structures. Recent studies include: a) Systems Engineering Approach to Integrated Health Monitoring System for Aging Aircrafts. b) Ballistic response of co-cured adhesive bonded composite joints; c) Embedded MEMS devices in composite material structures and measure pressure and strain; d) “CrackTrack” electronic system to measure high strain rate crack growth in DCB specimens; e) Bonded and Bolted Joints which resulted in a fully documented software package called BBJ; f) Failure Mechanisms in Braided and Woven Fabric Composites; g) Multidirectional analytical and experimental failure of composite cruciform specimens. Dr. Soni is author/ co-author of 80+ research publications in the field of mechanics of solids and structures with special emphasis on composites. Dr. Soni is a Fellow of the American Society for Composites, an Associate Fellow of AIAA and a member of SAMPE. He has won numerous awards including Cleary Award, Edison Emerging Technology Award, Enterprise Spirit Award, and Dayton Affiliate Society Council Award for his professional accomplishments. Tel. 937-255-3355 x3420 (DSN 785-3636 x3420), email: som.soni@afit.edu.

SWENSON, ERIC D., Assistant Professor of Aerospace Engineering, AFIT Appointment Date: August 2005 (AFIT/ENY); BS Civil Engineering, The Ohio State University, 1993, MS Astronautical Engineering, AFIT; PhD(ABD) Aerospace Engineering, University of Texas at Austin. Maj Swenson’s research interests include computational and experimental structural dynamics of complex structures with passive and active damping. Previous research has focused on solving multi-million degree of freedom finite element models with viscoelastic materials, damage detection techniques, and system identification through optimization. He is a member of AIAA, Chi Epsilon, SAME, and Tau Beta Pi. Tel. 937-255-3636 x4628 (DSN 785-3636 x4628), email: eric.swenson@afit.edu.
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Department of Systems and Engineering Management

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APPENDIX B: POST-DOCTORAL RESEARCH ASSOCIATES CREDENTIALS

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APPENDIX C: ABBREVIATIONS FOR ORGANIZATIONS

There are a number of abbreviations for organizations and scientific journals and terms that are used in this report. This alphabetical listing includes only selected organizations, journals, and terms.

AFMC/46SK  Air Force Seek Eagle Office (AFSEO)
ACC    Air Combat Command
ACES   Applied Computational Electromagnetic Society
AETC   Air Education and Training Command
AFCEE   Air Force Center for Environmental Excellence
AFCESA  Air Force Civil Engineer Support Agency
AFIT    Air Force Institute of Technology
AFLMA   Air Force Logistics Management Agency
AFMC    Air Force Materiel Command
AFOTEC  Air Force Operational Test and Evaluation Center
AFRL    Air Force Research Laboratory
AFRL/AFOSR AFRL/Air Force Office of Scientific Research
AFRL/DE  AFRL/Directed Energy Directorate
AFRL/HE  AFRL/Human Effectiveness Directorate
AFRL/IF  AFRL/Information Directorate
AFRL/ML  AFRL/Materials and Manufacturing Directorate
AFRL/MN  AFLR/Munitions Directorate
AFRL/PR  AFRL/Propulsion Directorate
AFRL/SN  AFRL/Sensors Directorate
AFRL/VA  AFRL/Air Vehicles Directorate
AFRL/VS  AFRL/Space Vehicles Directorate
AFCA    Air Force Communication Agency
AFSC    Air Force Security Agency (AF Security Police Agency)
AFSEO   Air Force Seek Eagle Office (46 SK/SKE)
AFSPC   Air Force Space Command
AFTAC   Air Force Technical Applications Center
AFWA    Air Force Weather Agency (Air Weather Service)
AHS     American Helicopter Society
AIA     Air Intelligence Agency
AIAA    American Institute of Aeronautics and Astronautics
AMC     Air Mobility Command
ARDA    Advanced Research and Development Activity
ASME    American Society of Mechanical Engineers
ASC     Aeronautical Systems Center
AU      Air University
BAA     Broad Agency Announcement
CCD     Charge-Coupled Device
CRADA   Cooperative Research and Development Agreement
CRC     Cyclic Redundancy Check
CuPIDS  Co-Processing Intrusion Detection System
DAGSI   Dayton Area Graduate Studies Institute
DARPA   Defense Advanced Research Projects Agency
DE      Directed Energy Directorate
DISA    Defense Information Systems Agency
DoD     Department of Defense
DOE     Department of Energy
doi:    Digital Object Identifier
DoS     Department of State
DTRA    Defense Threat Reduction Agency

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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>ECCOMAS</td>
<td>European Community on Computational Methods in Applied Sciences</td>
</tr>
<tr>
<td>EM</td>
<td>Electro-magnetic</td>
</tr>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<tr>
<td>ESTCP</td>
<td>Environmental Security Technology Certification Program</td>
</tr>
<tr>
<td>FDTD</td>
<td>Finite Difference Time Domain</td>
</tr>
<tr>
<td>FPGA</td>
<td>Field-Programmable Gate Arrays</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>HELEEOS/SHARE</td>
<td>High Energy Laser End to End Operational Simulation / Scaling for HEL and Relay Engagement</td>
</tr>
<tr>
<td>HEL</td>
<td>High Energy Laser</td>
</tr>
<tr>
<td>HPC</td>
<td>High Performance Computing</td>
</tr>
<tr>
<td>HQ AU</td>
<td>Headquarters, Air University</td>
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<tr>
<td>IDE</td>
<td>Intermediate Developmental Education</td>
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<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>INFORMS</td>
<td>Institute for Operations Research and the Management Sciences</td>
</tr>
<tr>
<td>INS</td>
<td>Inertial Navigation Systems</td>
</tr>
<tr>
<td>ISSMO</td>
<td>International Society for Structural and Multidisciplinary Optimization</td>
</tr>
<tr>
<td>LADAR</td>
<td>Laser Radar</td>
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<tr>
<td>MASINT</td>
<td>Measurement and Signatures Intelligence</td>
</tr>
<tr>
<td>MC-CDMA</td>
<td>Multi-Carrier Code Division Multiple Access</td>
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<tr>
<td>MEMS</td>
<td>Micro-Electro-Mechanical Systems</td>
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<tr>
<td>MORS</td>
<td>Military Operations Research Society</td>
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<tr>
<td>MPSK</td>
<td>M-ary Phase Shift Keying</td>
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<tr>
<td>MRF</td>
<td>Markov Random Field</td>
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<td>NAIC</td>
<td>National Air and Space Intelligence Center (NASIC)</td>
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<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>
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<tr>
<td>NSF</td>
<td>National Science Foundation</td>
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<tr>
<td>NSSA</td>
<td>National Security Space Architect</td>
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<tr>
<td>NSSO</td>
<td>National Security Space Office</td>
</tr>
<tr>
<td>OFDM</td>
<td>Orthogonal Frequency Division Multiplexing</td>
</tr>
<tr>
<td>OO-ALC</td>
<td>Ogden Air Logistics Center</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>RCS</td>
<td>Radar Cross Section</td>
</tr>
<tr>
<td>RFID</td>
<td>Radio Frequency Identification</td>
</tr>
<tr>
<td>ROC</td>
<td>Receiver Operating Characteristic</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers</td>
</tr>
<tr>
<td>SAF</td>
<td>Secretary of the Air Force</td>
</tr>
<tr>
<td>SAR</td>
<td>Synthetic Aperture Radar</td>
</tr>
<tr>
<td>SERDP</td>
<td>Strategic Environmental Research &amp; Development Program</td>
</tr>
<tr>
<td>SBS</td>
<td>Stimulated Brillouin Scattering</td>
</tr>
<tr>
<td>SIBR</td>
<td>Small Business Innovation Research</td>
</tr>
<tr>
<td>SPC</td>
<td>Statistical Process Control</td>
</tr>
<tr>
<td>SPIE</td>
<td>The International Society for Optical Engineering</td>
</tr>
<tr>
<td>STRATCOMM</td>
<td>United States Strategic Command</td>
</tr>
<tr>
<td>STTR</td>
<td>Small Business Technology Transfer Program</td>
</tr>
<tr>
<td>Stupid’s</td>
<td>Standard Unit-Processor Intrusion Detection System</td>
</tr>
<tr>
<td>SWC</td>
<td>Space Warfare Center</td>
</tr>
<tr>
<td>TDACS</td>
<td>Transform Domain Communications System</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>WPAFB</td>
<td>Wright-Patterson Air Force Base</td>
</tr>
</tbody>
</table>
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Website: http://www.afit.edu
Email: research@afit.edu
Air Force Institute of Technology Research Report 2006

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.