

MARTIN ROBERT STYTZ, PH.D.

Computer Science and Engineering
Lieutenant Colonel, USAF, (ret.)

Former Associate Professor of Computer Science and Engineering; Air Force Institute of Technology

~~IPSA SCIENTIA POTESTAS EST~~

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1. EDUCATION

Ph.D., Computer Science and Engineering (1989)

The University of Michigan, Ann Arbor, MI

Thesis: Three-Dimensional Medical Image Analysis Using Local Dynamic Algorithm Selection on a Multiple-Instruction, Multiple-Data Architecture

M.S., Computer Information and Control Engineering (1983)

The University of Michigan, Ann Arbor, MI

Specializations: Software Engineering, Computer Networks, Computer Database Engineering.

M.A., Political Science (1979)

University of Central Missouri (formerly Central Missouri State University), Warrensburg, MO

Specializations: International Relations, International Affairs

B.S., Political Science (1975)

United States Air Force Academy, Colorado Springs, CO

2. BACKGROUND SUMMARY

ACCOMPLISHMENTS

Managed \$62M+ in research programs for the US government

Conducted \$12,894,000 in research for the US government

Authored over 200 technical paper publications, including 20 technical journal papers. Holder of two US patents.

Research interests span the fields of computer science, human behavior and intelligence, and medicine. Current activities include conducting research, development, and analysis related to computer software research and development engineering; with an emphasis on information assurance, intelligent systems, computer security, software protection, security and privacy, software engineering, cyberwarfare, automated software security testing, human behavior modeling, advanced computing, distributed virtual environments, international network centric operations, modeling and simulation, distributed simulation, software security policy, and support for combatant commanders. Additional interests include information technology, large-scale systems, distributed software development, cyber warfare strategy & modeling, graphical user interfaces, user-centered decision support, artificial intelligence, intelligent agents, and information visualization.

Prior to current employment, conducted, managed, and lead large research and development for the us air

force for the last ten years of active duty. Experience includes director of the advanced technologies for information assurance and survivability program (ATIAS), sponsored by DARPA. Director of research and technology development for the software protection initiative, sponsored by the office of the under secretary of defense for science and technology (OUSD(S&T)), and contracting officer’s technical representative for the DARPA Ultra*Log program. Experienced in real-time virtual environments, distributed systems, modeling and simulation, large-scale system architecture design, & development, distributed software development, the web, computer graphics, graphical user interfaces, distributed simulation, large-scale systems design, cyber warfare & modeling, human-computer interaction, “systems of systems” technologies, computer generated actors, intelligent agents, user-centered decision support, medical virtual environments, information security, software engineering, information visualization, medical virtual environments, information security, and software engineering. Prior to research and development activities I worked in space operations, taught Air Force ROTC, and worked in Strategic Air Command as a missile combat crew member.

Languages:	Languages Taught
Java, C, C++, HTML, DHTML, XML, WML, UML, CSS, and others	Java, C, C++, HTML, DHTML, XML, WML, UML

ADDITIONAL INFORMATION

ITEM	PAGE
3. Professional History	3
4. Research Project/Program Management	6
5. Awarded Grants	9
6. Patents	12
7. Publications	13
A. Book Chapters, Reports, and Edited Publications	13
B. Journals	14
C. Conferences	16
D. Reports	32
E. Other	33
8. Awards, Editorial Board Memberships, and Conference Committee Memberships	35
9. Professional Society Memberships	38
10. Teaching and Advising Experience	39
11. References	41

3. PROFESSIONAL HISTORY

Research Staff Member

Institute for Defense Analyses
Alexandria, VA

July 2004 - Present

Conduct research and analysis in fields related to computer science and engineering software research and development related to computer security, security and privacy, software security, cultural modeling, modeling of joint international network centric warfare operations, modeling and simulation, and other topics. Member of NATO RTO SAS panel 050 and co-chair of NATO RTO SAS panel 053.

Chief Principal Research Scientist and Engineer

Integrated Demonstrations and Applications Laboratory
Sensors Directorate/ Human Effectiveness Directorate
Air Force Research Laboratory, Wright-Patterson AFB, OH

February 1999 – December 2003

Director of the Advanced Technologies for Information Assurance and Survivability Program (ATIAS), sponsored by DARPA. Senior Technical Advisor and Contracting Officer's Technical Representative for the DARPA UltraLog (agent-based distributed logistics management and planning) Project and the Cougaar distributed agent system. Director of Research and Technology Development for the Software Protection Initiative, sponsored by the Office of the Under Secretary of Defense for Science and Technology (OUSD(S&T)). Director of the Advanced Technologies for Information Assurance and Survivability Program (ATIAS), sponsored by DARPA. Lead scientist and engineer on projects in the Air Force Research Laboratory for DARPA programs and Air Force Research Laboratory programs in modeling, simulation, information assurance/security, intelligent agents/systems, sensor systems, software architectures and design, and other projects. Awarded over \$4 million in grants and project monies from DARPA and other funding agencies. Developed proposals, lead and managed operations, research, procurements, contracts, and grant monies. Published over 40 technical papers, several patents submitted, chaired, co-chaired and served on technical committees for several technical conferences. Member of NATO RTO SAS panel 050 and co-chair of NATO RTO SAS panel 053.

Associate/Assistant Professor of Computer Science and Engineering

October 1989 – January 1999

Department of Electrical and Computer Engineering
Air Force Institute of Technology, Wright-Patterson AFB, OH

Awarded over \$7.4 million in competitive grants from the Defense Advanced Research Projects Agency (DARPA), Defense Modeling and Simulation Office (DMSO), the Air Force Office of Scientific Research (AFOSR), the Joint National Intelligence Development Staff (JNIDS), Electronic Systems Command, Aeronautical Systems Center, Phillips Laboratory, the State of Ohio, Armstrong Laboratory, and Wright Laboratory. Developed proposals, managed operations, research, procurements, contracts, and grant monies for the Virtual Environments Laboratory (<http://www.afit.af.mil/ENGgraphics/GRAPHICS.html>). Over 100 technical papers published in refereed journals and conferences, 1 US patent, 10 TV interviews (Europe & South America) and 6 general-public magazine publications. Primary research adviser to 27 Masters students and one Ph.D. student.

Associate Professor of Computer Science and Engineering

November 1997 – December 2001

University Of Connecticut (Storrs)

Assistant Professor of Computer Science and Engineering

April 1990 - October 1993

Department of Mathematics and Computer Science
Air Force Institute of Technology, Wright-Patterson AFB, OH

Taught courses in software engineering, FORTRAN, and Ada. One conference paper published, several conference and journal papers submitted. Guest lecturer at Syracuse University, Syracuse, New York.

Ph.D. in Computer Science and Engineering

January 1986 - October 1989

The University of Michigan, Ann Arbor, MI

One of the founders of the Computer Science and Engineering Department's Graduate Student's Organization. Twice elected as the President of the Computer Science and Engineering Department's Graduate Student's Organization. Two conference papers published, several conference and journal papers submitted.

Software Systems Integration Manager

June 1984 - December 1985

2nd Space Wing ADVON & 2nd Space Wing, Falcon Air Force Station, Colorado Springs, CO

Selected by the 2nd Space Wing ADVON commander and approved by the Space Command Commander to be part of the seven-man cadre responsible for planning the activation of the 2nd Space Wing. Simultaneously filled three Wing-level Colonel positions while in the 2nd Space Wing ADVON. Developed Wing cost accounting procedures used in the ADVON and during the first year's operation of the Wing, performed Wing Five-Year Defense Plan (FYDP) budgeting for 1984-1989 period. Developed the 2nd Space Wing information management plan and instituted it on microcomputers. Developed the Wing's SPACENET computer and communications plan for satellite and space operations. Performed initial selection and specification of computer systems and software specification for Wing satellite and shuttle operations facilities, which involved several million dollars worth of equipment.

Orbital Analyst seconded to the NORAD/Space Command

May 1983 - May 1984

North American Air Defense Command, Colorado Springs CO

Assigned to Public Affairs office while awaiting Orbital Analyst compartmented security clearance. Wrote a history of space flight for distribution to NORAD visitors. Wrote the Space Command briefing on the Consolidated Space Operations Center (CSOC) at Falcon AFB (then Falcon AFS). Wrote the Space Command briefing on the CSOC and Falcon AFB civil engineering and construction project.

Assistant Professor of Aerospace Studies/Commandant of Cadets

July 1980 - May 1983

Air Force Reserve Officer Training Corps (AFROTC) Detachment 390

The University of Michigan, Ann Arbor MI

Managed, evaluated, and devised leadership training for the 160 person cadet corps. Designed and instituted cadet regulations for documenting regulation infractions and potential for promotion and commissioning. Designed and instituted a freshman training introduction to AFROTC and a training program to improve freshman training and increase retention. The program became a model for the Ohio Valley AFROTC detachments. Designed and instituted a sophomore training program to better prepare cadets for AFROTC Summer Camp training and to increase cadet retention. Designed and instituted a survival training course taken by Air Force and Army cadets. Designed and instituted a cadet physical fitness program. Guest lecturer and debate panel member in history courses at The University of Michigan related to World War II.

Flight Commander/ Missile Combat Crew Member

July 1975 - June 1980

509th Strategic Missile Squadron, 351st Ballistic Missile Wing

Strategic Air Command

Whiteman AFB MO

Youngest Wing Alternate Command Post flight commander (ever) in Strategic Air Command (SAC) when selected. Selected as Strategic Air Command outstanding crew commander. On alert at the Wing Alternate Command Post in 1980 when the first actual increase in Strategic Air Command readiness occurred and during the subsequent return to normal

alert status. Successfully conducted emergency shutdown of the Wing Alternate Command Post to prevent imminent fire and equipment damage. (one of two ever performed under strategic alert conditions in the field). Coordinated eventual restart of the Wing Alternate Command Post with the Wing Command Post, Eighth Air Force Command Post, and the Strategic Air Command Post. Most junior ranking missile combat crew commander (ever) in the 351st Ballistic Missile Wing when selected and qualified on first attempt. Rated among the top five Missile Combat Crew Commanders in the Wing. Selected as Wing outstanding crew commander.

[**BACK**](#)

4. RESEARCH PROJECT/PROGRAM MANAGEMENT (≅ \$49,429,920)

1. "SPDR: Secure Protected Development Repository," Network Associates, \$694,647, September 2002 – December 2003.
2. "Secure Development Environment," Johns-Hopkins University, \$796,848, September 2002 – September 2004.
3. "A Secure Integrated Development Environment," Florida Institute of Technology, \$795,984, September 2002 – September 2004.
4. "Software Protection: Technique Effectiveness Toolkit (TEK)," ITT Industries, \$499,884, September 2002 – September 2003.
5. "Quantifiable Measures for Software Security Assessment," Florida Institute of Technology, \$499,721, September 2002 – April 2004.
6. "Quantifying the Effectiveness of Software Protection Methods," Arxan Technologies, \$395,401, September 2002 – March 2004.
7. "Benchmarks and Metrics for Software Protection," Architecture Technology Corporation, \$499,969, September 2002 – March 2004.
8. "Software Decompilation Risk Analysis: What Do Executables Reveal?," Alphatech, \$300,000, September 2002 – September 2003.
9. "Protection Against Reverse Engineering: State of the Art in Disassembly and Decompilation," Cigital, \$297,502, September 2002 – September 2003.
10. "State of the Art in Disassembly and Decompilation," Florida Institute of Technology, \$299,434, September 2002 – September 2003.
11. "Protection Against Reverse Engineering," Network Associates, \$299,969, September 2002 – September 2003.
12. "Architectural Degradation Against Software Misuse," The University of Colorado, \$401,725, August 2002 – March 2004.
13. "An Automated Software-Based Approach to Tamper Resistance," University of California at Irvine, \$401,625, August 2002 – June 2003.
14. "The Obfuscation Virtual Machine: An Embeddable, Programmable, and Managed Software Module Providing Computation Precision Security," Washington State University, \$399,090, August 2002 – September 2003.
15. "Software Tamper Detection and Stealthy Response," Secure Software, \$507,275, August 2002 – June 2003.
16. "Binary Code Transformation for Software Tamper Resistance, Ocean State Technologies, Inc., \$499,527, August 2002 – June 2003.
17. "Program Obfuscation and Watermarking: Use of Distributed Consensus." Iowa State University, \$374,677, August 2002 – June 004.
18. "Software Anti-tamper Protection through Obfuscation," Architecture Technology Corp, \$696,021, August 2002 – June 2004.
19. "Protecting Software Against Tampering and Reverse Engineering," University of Arizona, \$470,450, June 2002 – September 2004.
20. "Software Watermarking," Lockheed, \$323,232, May 2002 – May 2003.
21. "Ultra*Log System Development and Integration," BBN, \$22,541,367, April 2002 – December 2003.

22. "Ultra*Log Cluster Mobility and Resource Control," Boeing, \$574,359, April 2002 – December 2003.
23. "Ultra*Log Agent-Based Security Framework," Network Associates, \$5,563,468, April 2002-December 2003.
24. "External Review and Assessment for the Ultra*Log System," Los Alamos Technical Associates, \$2,247,064, April 2002 – December 2003.
25. "Survivability Stress Assessment," SRI International, \$3,899,999, April 2002 – December 2003.
26. "Chaos, Situation Extraction, and Control: A Novel Integrated Approach to Robust and Scalable Cognitive Agent Design," Pennsylvania State University, \$950,000, April 2002 – December 2003.
27. "Ultra*Log Cyber Defense Plan," Zel Technologies, \$449,983, April 2002 – December 2003.
28. "Ultra*Log Function Capability Development," Systems Research and Applications, \$1,149,293, April 2002 – June 2003.
29. "Middleware Data Sources for Intrusion Detection," Odyssey Research Associates, \$136,295, October 2001 –September 2002
30. "CATCHER – Novel Data Sources for Intrusion Detection," University of Southern California, \$148,543, September 2001 – September 2002.
31. "Self-Aware Intrusion Detection Networks," Odyssey Research Associates, \$133,106, September 2001 –September 2002
32. "A Compositional Optimum Network Sensor Utilization System (CONSensUS)," University of California at Davis, \$78,177, September 2001 – September 2002.
33. "Trust Negotiation Technology," Brigham Young University, \$128,172, December 2000 – July 2002.
34. "Privacy Analysis of the Internet Protocol," BBN, \$255,514, June 2001 – August 2002.
35. "Capability Based Client," Combex, \$700,000, June 2001 – July 2002.
36. "EROS-Based Capability Based Client," Johns-Hopkins University, \$852,596, July 2001 – August 2002.
37. "Layered Authentication for Mobile Internet," Harvard, \$385,010, June 2001 – August 2002
38. "GINSU - Guaranteed Internet Stack Utilization," Network Associates, \$747,049, June 2001 – August, 2002.
39. "Dependency Language Representation Using Conceptual Graphs," Bevilacqua Inc., \$110,155, October 2000 – January 2001
40. "UML Based Mission Value and Dependence Abstraction," BBN, \$119,900 September 2000 – March 2002.
41. "Selection, Combination, and Evaluation of Effective Software Sensors for Detecting Abnormal Usage of Computers Running Windows NT/2000," University of Minnesota and Shavlik Inc., \$150,000, October 2000 – May 2002
42. "Insider Anomaly Measurement Processing System (IAMPS) Program," \$113,673, October 2001 – March 2002
43. "File Profiling for Insider Threats," University of California at Los Angeles, \$94,154, November 2000 – June 2002.
44. "Intrusion Tolerance via Multi-Model Predictive Control," Honeywell, \$83,982, September 2000 – October 2001
45. "Encoded Program Counter: Self-Protection from Buffer Overflow Attacks," Iowa State, \$66,614, November 2000 – September 2002.

46. “Novel Applications of Military Science to ITS,” Odyssey Research Associates, \$77,020, November 2000 – December 2001.

[BACK](#)

5. AWARDED GRANTS - ≅ \$12,954,000

Principal Investigator - ≅ \$8,086,000

1. Development of a Knowledge Base for a Computer-Generated Force (CGF) CyberWarfare Opposing Force,” Grant from the Air Force Research Laboratory, Sensors Directorate, February 2004 – June 2004, \$60,000, Stytz.
2. “Research Initiatives in Survivable Wireless Networks,” Grant from Defense Advanced Research Projects Agency (DARPA). December 2000 – December 2001, \$864,000. Stytz
3. “Research Initiatives in Fault Tolerant Networks,” Grant from Defense Advanced Research Projects Agency (DARPA). December 2000 – December 2001, \$2,400,000. Stytz
4. “Experimental Proposal to Evaluate DASADA Technologies for Use In Air Force Sensor Evaluations and Simulations” Grant from Defense Advanced Research Projects Agency (DARPA). December 2000 – September 2001, \$40,000. Stytz
5. “Research Directions in Cyberwarfare and Information Assurance: pt2,” Grant from Defense Advanced Research Projects Agency (DARPA). March 2000 - September, 2000, \$742,000. Stytz.
6. “Research Directions in Cyberwarfare and Information Assurance,” Grant from Defense Advanced Research Projects Agency (DARPA). December 1999 - September, 2000, \$1,000,000. Stytz.
7. “Development of a Probability of Failure and Cost Model for Low-Cost Low-Earth Orbit Launch Systems,” Grant from Defense Advanced Research Projects Agency (DARPA). July 1999 - March, 2000, \$400,000. Stytz.
8. “A Local Area ATM Network for DIS/ADS Based Modeling and Simulation Education and Research Within Large-Scale Distributed Virtual Environments,” Grant from Air Education and Training Command, AETC/XO. November 1996 - September, 1997. \$59,500.
9. “An Improved Computational Capability for Modeling and Simulation DIS/ADS Education At AFIT in the Virtual Environments, 3D Medical Imaging, and Computer Graphics Laboratory,” Grant from Air Education and Training Command, AETC/XO. November 1996 - September, 1997. \$99,200.
10. “Using DIS to Insert GPS Data into Large-scale Exercises,” Grant from Phillips Lab, PL/FMBD. February 1996 - September, 1996. \$50,000.
11. “Visualization of Ultrasound Data for Prosthetic Design,” Grant from Armstrong Labs, Armstrong Laboratory, AL/CFHA CARD Lab. February 1996 - August, 1996. \$39,000.
12. “Developing an ATM-Network Based DIS Capability for Large-Scale Distributed Virtual Environments,” Grant from Armstrong Laboratory, AL/CFA Crew-Centered Cockpit Design Office. January 1996 - September, 1996. \$85,000.
13. “Developing an Autonomous Wingman for DIS Using Fuzzy Logic and Real-time Mission Planning,” Grant from Wright Laboratory ESC/AVM. January 1996 - September, 1996. \$99,900.
14. “Vestigal Limb Visualization in Support of Prosthetic Design,” grant from Armstrong Lab. 1 October 1995 - 30 September 1996. \$40,000.
15. “Solar System Modeler Hardware Upgrades,” grant from Phillips Laboratory, Kirkland AFB. 31 August 1995 - 15 September 1995. \$50,000.
16. “Solar System Modeler Demonstration,” grant from Air Force Headquarters Office for Plans and Requirements (AF/XOM). July 1995 - September 1995. \$25,000.
17. “Standard Software Architecture for Manned and Unmanned Actors in a Distributed Simulation Environment,” grant from Air Education and Training Command, AETC/XO. June 1995 - September 1995. \$34,000.
18. “Using Fuzzy Logic to Implement a Voice-Directed Autonomous Wingman,” Grant from Wright Laboratory, ESC/AVM. June 1995 - December 1995. \$75,000.

19. "Displaying Clouds and Their Dispersal Patterns in a Distributed Virtual Environment," Grant from Armstrong Laboratory/AL/CFDA. April 1995 - September 1995. \$15,000.
20. "Investigation of Factors Involved in Making Command and Control Decisions in a Modern Battlespace," Grant from Advanced Research Projects Agency ASTO. May 1994 - December 1994. \$10,000.
21. "Situation Awareness Tools for Commanders and Their Staffs in Real and Virtual Battlespaces," Grant from the Air Force Office of Scientific Research. March 1994 - March 1997. \$44,000.
22. "Investigation of the Use of High Display Resolution Virtual Environments for Satellite Monitoring, Situation Awareness Assistance, and Multi-ship, Multi-object Tactical Procedures Simulation using the Distributed Simulation Internet," Grant from the Defense Advanced Research Projects Agency ASTO. February 1994 - September 1994. \$250,000.
23. "Use of Distributed Simulation and Virtual Environments for Aircraft Mission Rehearsal and Development of a Synthetic BattleBridge." Grant from the Defense Advanced Research Projects Agency ISTO. December 1992 - April 1993. \$225,000.
24. "3D Audio Cueing in a Virtual Environment." Grant from the Air Force Office of Scientific Research. December 1992 - September 1993. \$22,000.
25. "Assisting Virtual World Operators by Using Fuzzy Logic to Control and Monitor Activity in a Synthetic Environment." Grant from the Defense Advanced Research Projects Agency ISTO. December 1992 - September 1993. \$110,000.
26. "Development of A Synthetic Environment for Satellite Modeling and Motion Simulation." Grant from the Joint National Intelligence Development Staff. January 1993 - September 1993. \$208,500.
27. "Investigation of the Use of High Display Resolution Virtual Environments for Force Level Mission Planning and Multi-ship, Multi-object Tactical Procedures Simulation using the Distributed Simulation Internet." Grant from the Defense Advanced Research Projects Agency DMSO. October 1992 - September 1994. \$700,000.
28. "Proposal for Prototyping on a Macintosh of an Automated Contractor Analysis EDI Pilot Project System," Grant from 1100th National Capital Support Group. August - September 1992. \$7,700.
29. "Development of A Synthetic Environment for Satellite Modeling and Motion Simulation." Grant from the Joint National Intelligence Development Staff. April 1992 - September 1992. \$137,500.
30. "Proposal for Distributed Simulation Internet (DSI) node at AFIT for Distributed Interactive Simulation (DIS)." Grant from the Defense Advanced Research Projects Agency and DMSO. May - September 1992. \$145,000.
31. "Audio Cueing in a Virtual Environment." Grant from the Air Force Office of Scientific Research. March - September 1992. \$23,400.
32. "Use of Virtual Environments for Mission Planning, Mission Rehearsal, and Battle Staff Planning." Grant from USAF Systems Command Aeronautical Systems Division and Wright Laboratories. Grant numbers 91HS281 and 61691HY388. May 1991 - October 1991. \$26,368.

Co-Principal Investigator - ≈ \$4,870,000

1. "Distributed Mission Training Integrated Threat Environment (DMTITE) Threat Upgrade and Intelligence Systems Expansion: Phase 3," Grant from Air Force/XOOI and Aeronautical Systems Center, Air Force Material Command. September 1998 - September 1999. \$841,000. Stytz and Banks.
2. "Distributed Mission Training Integrated Threat Environment (DMTITE) Capability Demonstration," Grant from HQ Air Force/XOC. July 1998 - September 1998. \$50,000. Stytz and Banks.

3. "An Intelligent Interface Agent Architecture and Design and Development Environment for the JFACC-After-Next," Grant from Defense Advanced Research Projects Agency (DARPA). June 1998 - September, 1998, \$85,000. Banks and Stytz.
4. "Workstations for Modeling & Simulation Research and Education at AFIT in the Virtual Environments and Human-Computer Interaction Laboratories." Grant from Air Education and Training Command, AETC/XO. November 1997 - September, 1998. \$54,900. Stytz and Banks.
5. "Authoring Modeling and Simulation Training Systems for Education and Research at AFIT in the Artificial Intelligence Lab." Grant from Air Education and Training Command, AETC/XO. November 1997 - September, 1998. \$51,500. Banks and Stytz.
6. "Development of a Distributed Mission Training Integrated Threat Environment (DMTITE) for ASC and ACC: Phase Two" Grant from Aeronautical Systems Center. December 1997. \$100,000. Stytz and Banks.
7. "Interface and Data Exchange Requirements, Evaluation, and Guidance for the New World Vistas Virtual Testbed Project," Grant from Air Force Research Laboratory (Rome Laboratory). October 1997 - September 1998. \$37,000. Stytz and Banks
8. "An Intelligent Interface Agent Architecture and Design and Development Environment for the JFACC-After-Next," Grant from the Defense Advanced Research Projects Agency. October 1997 - September 1998. \$87,000.
9. "Cognitive Sciences Investigations," Grant from Secretary of the Air Force Office of Science and Technology. May 1997 - Dec 1999. \$507,000. Banks and Stytz.
10. "Development Of A Virtual SpacePlane Demonstrator," Grant from Phillips Laboratory. November 1996. \$272,000. Stytz and Banks
11. "Development of a Distributed Mission Training Integrated Test Environment (DMTITE) for ASC and ACC," Grant from Aeronautical Systems Center. November 1996. \$253,000. Stytz and Banks.
12. "Development of Human-Computer Interaction Design Criteria for Virtual Environments," Grant from Armstrong Laboratory. October 1996. \$50,000. Stytz and Banks.
13. "Inserting the CWTSAR Chemical/Biological Modeling Capability into an ADS Distributed Virtual Environment," Grant from Armstrong Laboratory. May 1996. \$55,000. Stytz and Banks.
14. "Inserting the TSAR Airbase Model into STOW '97," Grant from Electronic Systems Command. May 1996. \$40,000. Stytz and Banks.
15. "Hardware Infrastructure for Virtual Environments Research at AFIT, the University of Dayton, and Wright State University," Grant from the Ohio Board of Regents Information Technology Center Infrastructure. April 1996. \$1,600,000. Garcia and Stytz.
16. "A World Class Debriefing System Using Synthetic Environments." Grant from the Defense Advanced Research Projects Agency ISTO. April 1992 - September 1992. \$984,000. Stytz and Amburn.
17. "Use of Computer Graphics and Virtual Environments for Aircraft Mission Rehearsal and Multi-ship Tactical Procedures Training." Grant from USAF Systems Command Rome Laboratories. March 1991 - October 1994. \$100,000. Amburn and Stytz.
18. "Synthetic Environment Generation in the Knowledge Acquisition and Prototyping Testbed Aerospace Mode." Grant from the Defense Advanced Research Projects Agency and Wright Laboratory. July - September 1991. \$5,000. Amburn and Stytz.

[BACK](#)

6. PATENTS AND INVENTION REGISTRATIONS

Method and Apparatus for Preventing Network Traffic Analysis, Martin R. Stytz and Sheila B. Banks, U.S. Patent and Trademark Office Patent Number 6,917,974, 12 July, 2005.

Dynamic Algorithm Selection for Isocontour and Body Extraction Within a Multiple-Instruction, Multiple-Data Multiprocessor - US Patent Number 5,201,035, Martin R. Stytz, Ophir Frieder, and Gideon Frieder, 6 April 1993.

Software Architecture and Design for Facilitating Prototyping in Distributed Virtual Environments, Martin R. Stytz and Sheila B. Banks, Registration Number: US H2201H, U.S. Patent and Trademark Office serial number 10/094,738, published 4 September, 2007.

Method of Representing Knowledge in a Distributed Virtual Environment, Martin R. Stytz and Sheila B. Banks, U.S. Patent and Trademark Office serial number 10/091,835, (AFD 506), filed March 6, 2002.

Improving Sensor Signal Security by Modulated Signals Containing Encrypted Digital Signatures, Martin R. Stytz, U.S. Patent and Trademark Office serial number 10/010,474 (AFD 525) filed December 10, 2001.

[BACK](#)

7. PUBLICATIONS

A. BOOK CHAPTERS AND EDITED PUBLICATIONS:

1. Stytz, M.R. (2007) "Who are the Experts and What Have They Done for us Lately?," *IEEE Security and Privacy*, vol. 5, no. 6, November-December, pp. 78-80.
2. Banks, S.B. and Stytz, MR. (2007) "Bot Armies: An Introduction," *SPIE OnLine Journal: NewsRoom, Communications and Networking*, 10 July, 10.1117/2.1200707.0795, <http://spie.org/x15000.xml>
3. Stytz, M.R. and Banks, S.B. (2006) "Dynamic Software Security Testing," *IEEE Security and Privacy*, vol. 4, no. 3, May-June, pp. 77-79.
4. Stytz, M.R. (2005) "Protecting Personal Privacy: Hauling Down the Jolly Roger," *IEEE Security and Privacy*, vol. 3, no. 4, July-August, pp. 72-74.
5. Landau, S. and Stytz, M.R. (2005) "Overview of Cyber Security: A Crisis of Prioritization," *IEEE Security and Privacy*, vol. 3, no 3, May-June, pp. 9-11.
6. Atallah, M.J.; Bryant, E.B.; and Stytz, M.R. (2004) "A Survey of Anti-Tamper Technologies," *Crosstalk*, November, pp.
7. Stytz, M.R. (2004) "Considering Defense in Depth for Software Applications," *IEEE Security and Privacy*, vol. 2, no. 1, January-February, pp. 80-82.
8. Stytz, M.R. and Whitaker, J.A. (2003) "Caution: This Product Contains Security Code," *IEEE Security and Privacy*, vol. 1, no. 5, September-October, pp. 86-88.
9. Stytz, M.R. (2003) "The Case for Software Warranties," *IEEE Security and Privacy*, vol. 1, no. 3, May-June, pp. 80-82.
10. Stytz, M.R. and Whitaker, J. (2003) "Software Protection: Security's Last Stand?," *IEEE Security and Privacy*, vol. 1, no. 1, January-February, pp. 95-98.
11. Stytz, M.R. and Banks, S.B. (2002) "Computer Generated Forces in Distributed Simulation: Chapter 3," in *Advances in Intelligent Systems for Defence*, L.C. Jain, N.S. Ichalkaranje, G. Tonfoni, (eds). World Scientific Publishing Company Pte Ltd, New Jersey.
12. Stytz, M.R. and Banks, S.B. (2001) "An Adaptive Interface Approach for Real-time Data Exploration," in *Information Visualization in Data Mining and Knowledge Discovery*, Fayyad, U.; Grinstein, G.; and Wierse, A. (eds). Morgan Kaufman: San Francisco.
13. Stytz, M.R. (Ed). (2000) *Presence: Teleoperators and Virtual Environments* (MIT Press) special issue on Virtual Environments for Medicine, vol. 9, no. 4, August.
14. Stytz, M.R. and Satava, R. (Eds). (2000) *Presence: Teleoperators and Virtual Environments* (MIT Press) special issue on Virtual Environments for Medicine, vol. 9, no. 3, June.
15. Stytz, M.R.; Banks, S.B.; and Santos, E. Jr. (Eds). (1998) *Presence: Teleoperators and Virtual Environments* (MIT Press) special issue on Autonomous Agents, Adaptive Behaviors, and Distributed Simulations, vol. 7, no. 6, December.
16. Banks, S.B.; Stytz, M.R.; and Santos, E. Jr. (Eds). (1998) *Proceedings of the Workshop on Real-Time Intelligent User Interfaces for Decision Support and Information Visualization* held in conjunction with *The Fourth ACM Conference on Intelligent User Interfaces* in, San Francisco, CA, 6 January.
17. Martin R. Stytz. (1998) "Interactive Simulation: Inserting Humans into a Real-Time Distributed Simulation Environment," in *Applied Modeling and Simulation: An Integrated Approach to Development and Operation*, David J. Cloud & Larry B. Rainey (eds.), McGraw-Hill: New York.
18. Stytz, M.R. and Godsell-Stytz, G.M.. (Eds). (1997) *Presence: Teleoperators and Virtual Environments* (MIT Press) special issue on Virtual Environments for Medicine, vol. 6, no. 2, Spring.

19. Martin R. Stytz. (1995) "Virtual Reality Uses, Research, and Development by the United States Department of Defense," Sandra K. Helsel (ed.), *Designing the Future*, Meckler Press.

B. REFEREED JOURNALS:

1. Stytz, M.R. and Banks, S.B. "Progress And Prospects For The Development Of Computer Generated Actors For Military Simulation Part 3 - The Road Ahead," *Presence: Teleoperators and Virtual Environments*, MIT Press, vol. 12, no. 6, December 2003, pp. 629-643.
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 202. Stytz, M. R. and Block, E.G. "Concepts and Initial Implementation of Tools to Visualize Large-Scale, Distributed Air and Space Virtual Environments," *1994 Operational Research Society of America Conference*, Boston, Mass., April 1994.
 203. Kunz, A. and Stytz, M. R. "A Virtual Environment for Satellite Modeling and Orbital Analysis in a Distributed Interactive Simulation," *1994 Society for Computer Simulation Multiconference*, San Diego, California, 11 - 13 April 1994, pp. 55-60.

204. Block, E.G. and Stytz, M. R. "Tools for Commander and Staff Training in Large-Scale, Distributed Virtual Realities: Concepts and Implementation," *1994 Society for Computer Simulation Multiconference*, San Diego, California, 11 - 13 April 1994, pp. 43-48.
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210. Stytz, M. R. "The Synthetic BattleBridge: Objectives, Design, Implementation, and Challenges," *Meckler Virtual Reality '93: Fourth Annual Virtual Reality Conference and Exhibition*, San Jose, California, 19 - 21 May 1993, electronic publication on CD-ROM.
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[BACK](#)

D. TECHNICAL REPORTS

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2. Cohen, B. and Stytz, M.R. *Section 254 Trusted Defense Systems*, Submitted to sponsor, September, 2009, 20 pages.
3. Stytz, M. and Banks, S. *Federating the DoD Enterprise Metadata Environment Using Registry Federations*, Submitted to DoD/NII, September, 2008, 51 pages.
4. Dechant, J.; Ramsbotham, J.; Stytz, M.; Mahacke, F.; Hull, A.; Mahoney, R.; Fleury, J.; and Heberlein, D. *Hostile Applications of Commercial LIDAR Technology*, Submitted to DoD/MSCS and other sponsors, April, 2008.
5. Stytz, M.R. *Bot Army Survey*, Submitted to NSA and DoD/NII and other sponsors, April, 2007, 47 pages.
6. Allen, T.A.; Banks, S.A.; Bracken, J.; Davis, P.K.; Dechant, J.A.; Elton, O.; Fitzsimmons, M.F.; Henninger, A.E.; Kneece, R.; Roske, V.P.; Starr, S.H.; and Stytz, M.R. *Foundation for an Analysis Modeling and Simulation Business Plan*, December, 2007; 166 pages.
7. Stytz, M.R. *Automating Software Application Attacks: The Taxonomy, Strategies, Threat Cases, Activity Sequences Documentation And Knowledge Base Formats*, July, 2004, 229 pages.
8. Pearson, J.; Zukauskas, W.; Weeks, T.; Cass, S.; and Stytz, M.R. *Dual Launch Concept Study*. Submitted to DARPA, August 2000; 74 pages.
9. Banks, S.B. and Stytz, M.R. *Assessment of Potential Modeling and Simulation Research Initiatives: Realistic Modeling of Human Behavior*, Submitted to NATO, May, 2000; 243 pages
10. Banks, S.B. and Stytz, M.R. *Preliminary Assessment of Potential Modeling and Simulation Research Initiatives: Realistic Modeling of Human Behavior*, Submitted to NATO, March, 2000; 145 pages.
11. Banks, S.B. and Stytz, M.R. *Issues and Considerations for Computer-Generated Actors in a Distributed Mission Training Environment*, Submitted to the Office of Naval Research, January, 2000.
12. Stytz, M.R. and Banks, S.B. *System Architecture, Design, And Software Development Document, A Distributed Mission Training Integrated Threat Environment Project Report*, Submitted to AFRL, December 1999; 236 pages.
13. Stytz, M.R. and Banks, S.B. *Actor Frameworks Document, A Distributed Mission Training Integrated Threat Environment Project Report*, Submitted to AFRL, December 1999; 194 pages.
14. Stytz, M.R. and Banks, S.B. *System File Formats, Initializations, and Conventions Document, A Distributed Mission Training Integrated Threat Environment Project Report*, Submitted to AFRL, December 1999; 94 pages.
15. Stytz, M.R. and Banks, S.B. *DMTITE Actor Migration Suitcases Document, A Distributed Mission Training Integrated Threat Environment Project Report*, Submitted to AFRL, December 1999; 96 pages.
16. Stytz, M.R. and Banks, S.B. *The Distributed Mission Training Integrated Threat Environment Simulation Object Model, A Distributed Mission Training Integrated Threat Environment Project Report*, Submitted to AFRL, June 1999; 108 pages.

[BACK](#)

E. TUTORIALS, INTERVIEWS, PRESENTATIONS AND DEMONSTRATIONS:

1. Heuring, T. and Stytz, M.R. "Introduction to Experimentation for Modeling and Simulation," *Interservice, Industry, Training, Simulation, and Education Conference*, Orlando, FL, 4-7 December, 2006.
2. Stytz, M.R. "Bot Armies," *2006 Military Communications Conference (MilCom 2006)*, 23-25 October, 2006.
3. Stytz, M.R., "Modeling and Simulation," *Military Communications Conference 2006 (MILCOM 2006)*, Washington, DC, 23-25 October, 2006.
4. Stytz, M.R. and Banks, S.B. "Introduction to Modeling and Simulation," *SimTecT 2002*, Melbourne, Australia, 13-16 May 2002.
5. Stytz, M.R. and Banks, S.B. "Tutorial on Computer Generated Forces for Distributed Simulation Environments," *Proceedings of SimTecT 2002: Advancing Simulation Technology and Training*, Melbourne, Australia, 13-16 May, 2002.
6. Stytz, M.R. and Banks, S.B. "Tutorial on Distributed Simulation Environment Technologies and the DoD High Level Architecture," *The SCS 2000 Advanced Simulation Technology Conference: 2000 Military, Government, & Aerospace Simulation Conference*, Washington, DC, 16-20 April, 2000.
7. Stytz, M.R.; Best, J.; and Vankov, A. "Tutorial on High Level Architecture Applications," *Proceedings of SimTecT 2000: Advancing Simulation Technology and Training*, Canberra, Australia, 28 February – 2 March, 2000.
8. Stytz, M.R. and Banks, S.B. "Tutorial on Computer Generated Forces for Distributed Simulation Environments," *Proceedings of SimTecT 2000: Advancing Simulation Technology and Training*, Canberra, Australia, 28 February – 2 March, 2000.
9. Stytz, M.R. and Banks, S.B. "Introduction to Modeling and Simulation," *Course at the Australian Defence Forces Academy, Department of Computer Science*, Canberra, Australia, November 23-27, 1999.
10. Stytz, M. R. "Tutorial on Distributed Virtual Environments," *Simulation Industry Association of Australia*, Canberra, Australia, August 27 – 2 September, 1999.
11. Stytz, M.R. and Banks, S.B. "Tutorial on Assembling A Federation Object Model for High Level Architecture-Based Distributed Simulation Environments," *Proceedings of SimTecT '99: Advancing Simulation Technology and Training*, Melbourne, Australia, 29 March – 1 April, 1999.
12. Stytz, M.R. and Banks, S.B. "Introduction to Modeling and Simulation," *Sponsored by the Australian Defense Forces Academy and the Australian Defense Science and Technology Organisation*, Canberra, Australia, July 1998.
13. Stytz, M.R. and Banks, S.B. "Introduction to Modeling and Simulation," *Sponsored by the Royal Melbourne Institute of Technology and the Australian Defense Science and Technology Organisation*, Melbourne, Australia July 1998.
14. Stytz, M.R. and Banks, S.B. "Tutorial on Distributed Virtual Environments," *Proceedings of SimTecT '98: Advancing Simulation Technology and Training*, Adelaide, Australia, 2-6 March, 1998.
15. Stytz, M.R. and Banks, S.B. "Tutorial on Distributed Virtual Environments," *The SCS 1997 Summer Computer Simulation Conference*, Arlington, VA, July 13-17, 1997.
16. Stytz, M.R. and Banks, S.B. "Tutorial on Distributed Virtual Environments," *National Aerospace Engineering Conference*, Dayton, OH, 30 June - 3 July, 1997.
17. Stytz, M.R. and Banks, S.B. "Tutorial on Distributed Virtual Environments," *Eighth Midwest Artificial Intelligence and Cognitive Science Conference*, Dayton, OH, 30 May - 1 June, 1997.

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20. Stytz, M. R. "Solar System Modeler Makes Star Gazing Easier," Callie Jones, *Silicon Graphics World*, vol. 6, no. 8, August 1996, pp. 35-36.
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23. Stytz, M. R. Member and moderator of the panel: "Driving from the Laboratory to the Information Superhighway: Making Multimedia Real," at the *Second International Conference on Multimedia Computing Systems*, Washington, D.C., 15 - 18 May 1995.
24. Stytz, M. R. "Discussion of the AFIT Virtual Cockpit, Synthetic BattleBridge, and Satellite Modeler." Interview aired 15 March 1994 on French channel 3, program called MicroKids, produced by France 3 Alsace, Monsieur Alfred Elter producer for French channel 3, 1994.
25. Stytz, M. R. "Discussion of the AFIT Virtual Environments Research: The Virtual Cockpit and Synthetic BattleBridge," Interview aired 1 March 1994 on Italian RA Uno, produced by AlphaVille Productions for Italian channel 1, 1994.
26. Stytz, M. R. "Discussion of the AFIT Virtual Cockpit," Interview aired 26 February 1994 on French channel 3, produced by Richard Joffo Productions for French channel 3, 1994.
27. Amburn, P. and Stytz, M. R. "Interview with Phil Amburn and Martin Stytz," by Hillary McLellan, *Virtual Reality Report*, vol. 2, no. 8, 1994, pp. 1 - 8.
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29. Wojszynski, T.G.; Terzuoli, A.J.; and Stytz, M. R. "Scientific Visualization of Radar Cross Section Data: An Examination of the State of the Art," *Eighth Annual AIAA Mini-Symposium on Aerospace and Technology*, Dayton, Ohio, 26 March, 1992.

[BACK](#)

8. AWARDS, EDITORIAL BOARD, AND CONFERENCE COMMITTEE SERVICE

A. AWARDS

1. Dr. Fritz J. Russ Bio-Engineering Award, IEEE Dayton Chapter, February 1996.
2. Recipient of the Paradigm Simulation Visual Simulation and Virtual Reality Leadership Award for the Virtual Environments, 3D Medical Imaging, and Computer Graphics Laboratory as Lab Director, July 1995.

B. EDITORIAL BOARD AND CONFERENCE COMMITTEE MEMBERSHIP

IEEE Standards and DoD Standards Development

1. Member, *IEEE Task Force on Security and Privacy*
2. Member, *IEEE Systems, Man and Cybernetics Technical Working Group on Information Assurance*.
3. Working Group Chairman, Simulation Interoperability Standards Organization IEEE Standards Development Working Group on Standards for Human Behavior Representation in Distributed Simulations.
4. Member, Defense Modeling and Simulation Office (DMSO) Human Behavior Modeling Working Group
5. Member, NATO Modeling and Simulation Short Term Study Group on Human Behavior Modeling and Computer Generated Actors Short Term Study Group
6. Member, NATO SAS-053 Panel: A Virtual Institute for Research on Human Behavior Representation (VI/HBR)

Editorial Involvement

1. Department Editor for the Digital Protection Department and Book Review Department for *IEEE Security and Privacy Magazine*
2. Editorial Board Member for *IEEE Security and Privacy Magazine*
3. Editorial Board Member for the *International Journal of Intelligent Defense Support Systems*
4. Editorial Board member for the *International Journal of Computational Intelligence*
5. Editorial Board member for the *International Journal of Signal Processing*
6. Associate Editor for *The International Journal of Hybrid and Intelligent Systems*
7. Associate Editor for *Presence: Teleoperators and Virtual Environments*, a journal concerning virtual environments, telepresence, and teleoperation.
8. Reviewer for *IEEE Computer Graphics & Applications*, a journal concerning all aspects of computer graphics.
9. Reviewer for the *Journal of Systems and Software*.
10. Reviewer for *Academic Press* computer graphics and virtual reality professional books and text books.

Conference Involvement

1. Conference Program Committee: *2nd KES International Conference on Intelligent Decision Technologies*, Baltimore, MD, July, 2010.
2. Conference Technical Committee: *SimTecT 2010: Advancing Simulation Technology and Training Conference*, Brisbane, Australia, May, 2010.
3. Conference Program Committee: *SimTecT 2009: Advancing Simulation Technology and Training Conference*, Adelaide, Australia, June, 2009.

4. Conference Technical Committee: *Society for Photo-Optical Instrumentation Engineers (SPIE) Defense and Security Symposium 2009*, Orlando, FL, April, 2009.
5. Conference Program Committee: *SimTecT 2008: Advancing Simulation Technology and Training Conference*, Melbourne, Australia, June, 2008.
6. Conference Technical Committee: *Society for Photo-Optical Instrumentation Engineers (SPIE) Defense and Security Symposium 2008*, Orlando, FL, April, 2008.
7. Conference Technical Committee, *Systems and Software Technology Conference (SSTC) 2007*, Tampa, FL, 18-21 June.
8. Conference Technical Committee: *SimTecT 2007: Advancing Simulation Technology and Training Conference*, Brisbane, Australia, June, 2007.
9. Conference Technical Committee: *Society for Photo-Optical Instrumentation Engineers (SPIE) Defense and Security Symposium 2007*, Orlando, FL, April, 2007.
10. Conference Technical Committee, *KES2006 10th International Conference on Knowledge-Based & Intelligent Information & Engineering Systems*, Bournemouth, United Kingdom, October 2006.
11. Conference Technical Committee, *CCRTS 2006: 2006 Command and Control Research and Technology Symposium: The State of the Art and the State of the Practice*, San Diego, CA, June, 2006.
12. Conference Technical Committee: *SimTecT 2006: Advancing Simulation Technology and Training Conference*, Melbourne, Australia, May 2006.
13. Conference Technical Committee: *Society for Photo-Optical Instrumentation Engineers (SPIE) Defense and Security Symposium 2006*, Orlando, FL, April, 2006.
14. Conference Technical Committee: *SimTecT 2005: Advancing Simulation Technology and Training Conference*, Sydney, Australia, May 2005.
15. Conference Technical Committee: *Society for Photo-Optical Instrumentation Engineers (SPIE) Defense and Security Symposium 2005*, Orlando, FL, April, 2005.
16. Conference Technical Committee: *SimTecT 2004: Advancing Simulation Technology and Training Conference*, Canberra, Australia, May 2004.
17. Conference Technical Committee: *SimTecT 2003: Advancing Simulation Technology and Training Conference*, Adelaide, Australia, May 2003.
18. Conference Program Committee: *EuroSIW 2002: European Simulation Interoperability Workshop 2002*, Harrow, England, June 2002.
19. Conference Technical Committee Co-Chair: *SimTecT 2002: Advancing Simulation Technology and Training Conference*, Melbourne, Australia, May 2002.
20. Conference Technical Committee and Program Committee: *Working Conference on Complex and Dynamic Systems Architectures*, Brisbane, Australia, December 2001.
21. Conference Program Committee: *EuroSIW 2001: European Simulation Interoperability Workshop 2001*, London, England, June 2001.
22. Conference Program Committee: *Society for Computer Simulation Military, Government and Aerospace Simulation Conference*, Seattle, WA, April, 2001.
23. Conference Technical Committee: *SimTecT 2001: Advancing Simulation Technology and Training Conference*, Canberra, Australia, May 2001.
24. Conference Co-chair for the *Society for Computer Simulation Military, Government and Aerospace Simulation Conference*, San Diego, CA, April, 2000.
25. Chairman, Conference Technical Committee: *SimTecT 2000: Advancing Simulation Technology and Training Conference*, Sydney, Australia, March 2000.

26. Workshop Co-chair and Technical Committee: *Intelligent User Interfaces for Information Retrieval and Decision Support*, in conjunction with the *Twelfth International FLAIRS Conference*, Orlando, FL, May 1999.
27. Program Committee for the *SPIE AeroSense '99 Modeling and Simulating Sensory Response for Real and Virtual Environments Conference*, Orlando, FL., April, 1999.
28. Conference Co-chair for the *Society for Computer Simulation Military, Government and Aerospace Simulation Conference*, Boston, MA., April, 1999.
29. Conference Technical Committee: *SimTecT '99: Advancing Simulation Technology and Training Conference*, Melbourne, Australia, March 1999.
30. Workshop Co-chair and Technical Committee for the *Workshop on Real-Time Intelligent User Interfaces for Decision Support and Information Visualization*, San Francisco, CA, 6 Jan 1998, held in conjunction with the *4th ACM Conference on Intelligent User Interfaces*.
31. Member of the Program Committee for the *Midwest Cognitive Intelligence and AI Conference*, WPAFB, OH, April 1998.
32. Member of the Program Committee for the *SPIE AeroSense '98 Modeling and Simulating Sensory Response for Real and Virtual Environments Conference*, Orlando, FL., 13-17 April, 1998.
33. Conference Co-chair for the *Society for Computer Simulation Military, Government and Aerospace Simulation Conference*, Boston, MA., 5-9 April, 1998.
34. Member of the Program Committee for the *Midwest Cognitive Intelligence and AI Conference*, WPAFB, OH, April 1997.
35. Member of the Program Committee for the *Society for Computer Simulation Military, Government and Aerospace Simulation Conference*, Atlanta, GA., 6 - 10 April, 1997.
36. Member of the Program Committee for the *SPIE AeroSense '97 Modeling and Simulating Sensory Response for Real and Virtual Environments Conference*, Orlando, FL., 21 - 25 April, 1997.
37. Member of the Program Committee for the *Medicine Meets Virtual Reality V Conference*, San Diego, CA., 17 - 20 January 1997.
38. Member of the Program Committee for the *Midwest Cognitive Intelligence and AI Conference*, WPAFB, OH, April 1996.
39. Member of the Program Committee for the *Medicine Meets Virtual Reality IV Conference*, San Diego, CA., 17 - 20 January 1996.
40. Member of the Program Committee for the *Second International Conference on Multimedia Computing Systems*, Washington, D.C., 15 - 18 May 1995.
41. Reviewer for National Science Foundation Interactive Systems, Directorate of Computer and Information Science and Engineering, 1992-1995.
42. Referee for the *IEEE Visualization '94 Conference* proceedings, an IEEE conference in the field of scientific visualization.
43. Referee for the *IEEE Visualization '93 Conference* proceedings, an IEEE conference in the field of scientific visualization.
44. Referee for the *IEEE Visualization '92 Conference* proceedings, an IEEE conference in the field of scientific visualization.

[BACK](#)

9. PROFESSIONAL SOCIETY MEMBERSHIPS

1. Member, Association for Computing Machinery (ACM)
2. Member, Institute of Electrical and Electronics Engineers (IEEE)
3. Member, Institute of Electrical and Electronics Engineers Computer Society
4. Member, IEEE Communications Society
5. Member, IEEE Computational Intelligence Society
6. Member, American Association for Artificial Intelligence (AAAI)
7. Member, Society for Computer Simulation (SCS)
8. Member, Simulation Industry Association of Australia (SIAA).
9. Member, Simulation Interoperability Standards Organization (SISO)
10. Internet Society
11. Air Force Association, Life Member
12. US Air Force Academy Association of Graduates, Life Member
13. Member, Usenix

[BACK](#)

10. TEACHING AND ADVISING EXPERIENCE

A. TEACHING EXPERIENCE.

Associate Professor of Computer Science and Engineering: October 1993 - Present.
Assistant Professor of Computer Science and Engineering: November 1989 - October 1993.
Air Force ROTC Instructor: August 1980 - June 1983.

B. COURSE AND CURRICULUM DEVELOPMENT.

Developed CSCE 650, Human-Computer Interaction for Fall Term 1996 and subsequent terms.
Developed CSCE 650, Advanced Topics in Computer Graphics for Spring term 1991 and subsequent terms.
Developed CSCE 683, Distributed Interactive Simulation for Spring term 1993 and subsequent terms.
Developed CSCE 783, Advanced Topics in Computer Graphics for Spring term 1995 and subsequent terms.
Developed CSCE 200, Introduction to C and C++ for Fall term 1991 and subsequent terms.
Taught CSCE 200, C and C++ Programming; CSCE 286, Principles of Ada Programming; CSCE 362, FORTRAN Programming; CSCE 584, Software Design; MATH 555, Software Design; CSCE 589, Operating Systems; CSCE 594, Software Analysis and Design; CSCE 582, Raster Graphics; CSCE 683, Advanced Topics in Computer Graphics

C. THESIS AND DISSERTATION ADVISING.

Doctoral:

Major Steven Matechik. *Using Kriging to Interpolate Spatially Distributed Volumetric Medical Data.*
Graduated March 1997.

Masters:

1. John Lewis, Capt., USAF. *Requirements, Design, and Prototype of a Virtual User Interface for the AFIT Virtual Spaceplane.* Graduated December, 1997.
2. Troy Johnson, 1Lt, USAF. *The Virtual Spaceplane: Integrating Multiple Motion Models and Hypertext in a Virtual Environment.* Graduated December, 1997.
3. Scott Rothermel, 2Lt, USAF. *Architecture, Design, and Implementation of a Rapidly Prototyped Virtual Environment for a Military Spaceplane.* Graduated December, 1997.
4. Terry Adams, Capt., USAF. *Requirements, Design, and Development of a Rapidly Reconfigurable, Photo-Realistic Virtual Cockpit.* Graduated December, 1996.
5. Min Baker, Capt., USAF. *Evaluation of Segmentation for Bone Structures in 3D Rendering of Ultrasound Residual Limb Images.* Graduated December, 1996.
6. Brian Garcia, Capt., USAF. *Design and Prototype of the AFIT Virtual Emergency Room: A Distributed Virtual Environment for Emergency Medical Simulation.* Graduated December, 1996.
7. David Wells, Capt., USAF. *Collaborative Workspaces within Distributed Virtual Environments.* Graduated December, 1996.
8. Gary Williams, Capt., USAF. *Solar System Modeler: A Distributed Virtual Environment for Space Visualization and GPS Navigation.* Graduated December, 1996.
9. Brian Zurita, Capt., USAF. *A Software Architecture for Computer Generated Forces in Complex Distributed Virtual Environments.* Graduated December, 1996.
10. Mark Edwards, Capt., USAF. *The Automated Wingman: A Computer Generated Companion for Users of DIS Compatible Flight Simulators.* Graduated December, 1995.
11. Lynda Myers, Capt., USAF. *Visualizing Chemical and Biological Cloud Dispersion for Analysis and Distributed Interactive Simulation.* Graduated December, 1995.
12. Neal Schneider, Capt., USAF. *Dynamic Transfer of Control Between Manned and Unmanned Simulation Actors.* Graduated December, 1995.

13. J.J. Rohrer, 1Lt, USAF. *Design and Implementation of Tools to Increase User Control and Knowledge Elicitation in a Virtual Battlespace*. Graduated December, 1994.
14. Jim B. Kesterman, Capt., USAF. *Immersing the User in a Virtual Environment: The AFIT Information Pod Design and Implementation*. Graduated December, 1994.
15. John C. Vanderburgh, Capt., USAF. *Space Modeler: An Expanded, Distributed Virtual Environment for Space Visualization*. Graduated December, 1994.
16. Rex Ellis, 1Lt, USAF. *Global Picture Archiving and Communication Systems (GPACS): An Overview*. Graduated June, 1994.
17. Alain L. M. Jones, Capt., USAF. *Radar Cross Section Visualization Using Sample Buffer Progressive Refinement Volume Rendering*. Graduated December, 1993.
18. Andrea Kunz, Capt., USAF. *A Virtual Environment for Satellite Modeling and Orbital Analysis in a Distributed Interactive Simulation*. Graduated December, 1993.
19. Brian B. Soltz, Capt., USAF. *Graphical Tools for Situation Awareness Assistance for Large Battlespaces*. Graduated December, 1993.
20. Kirk G. Wilson, Capt., USAF. *Synthetic BattleBridge: Information Visualization and User Interface Design Applications in a Large Virtual Reality Environment*. Graduated December, 1993.
21. Rex Haddix, Capt., USAF. *A Synthetic Environment for Force-Level Mission Planning and Battlestaff Planning*. Graduated March, 1993.
22. Bruce Hobbs, Capt., USAF. *A User Interface to a True 3-D Display Device*. Graduated December, 1992.
23. David Pond, Capt., USAF. *A Synthetic Environment for Satellite Modeling and Satellite Orbital Motion*. Graduated December, 1992.
24. David Tisdale, Capt., USAF. *Methods for Viewing Radar Cross Section Data in Three Dimensions*. Graduated December, 1992.
25. Patricia Brightbill, Capt., USAF. *A Distributed Ray Caster for High Speed Volume Rendering*. Graduated January, 1992.
26. Robert Parrott, Capt., USAF. *Evaluation of Scalar Value Estimation Techniques for 3D Medical Imaging*. Graduated December, 1991.
27. Patrick Rizzuto, Capt., USAF. *Design and Implementation of an Image Registration Tool for 3D Medical Imaging*. Graduated December, 1991.

[BACK](#)

11. REFERENCES

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[BACK](#)