

Mikel D. Petty, Ph.D.

University of Alabama in Huntsville

301 Sparkman Drive, Technology Hall OKT N353, Huntsville AL 35899

Telephone 256-824-6140 Email pettym@uah.edu

Summary

- Over 40 years of professional experience in computing
 - Computer science education (2012–present)
 - Modeling and simulation research and development (1990–present)
 - Software development and database administration (1979–1990)
- Ph.D., M.S., and B.S. degrees, all in Computer Science
- Over 140 research proposals funded, totaling over \$17.6 million awarded
- Over 250 research publications, including 30 journal articles and 20 book chapters
- Over 1,770 citations and h-index 22 (per Google Scholar)
- 34 graduate students graduated, including 15 Ph.D.s in four different academic disciplines

Contents

Education.....	2
Current Employment	2
Previous Employment	3
Computing Skills.....	4
Academic Activities	5
Graduate student advising	5
Teaching	7
Service to the professional discipline	8
Service to the university, college, and department.....	9
Conference program committees, tutorial boards, and paper reviewing.....	10
Invited presentations, professional education courses, tutorials, and guest lectures.....	13
Research Funding.....	21
Publications	28
Journal articles.....	28
Book chapters	30
Conference papers	31
Other	41
Certifications, Honors, Awards, and Memberships	43
Additional Details	44

Education

- Ph.D. Computer Science, University of Central Florida, 1997
Advisor: Amar Mukherjee, Ph.D.
Dissertation: “Computational Geometry Techniques for Terrain Reasoning and Data Distribution Problems in Distributed Battlefield Simulation”
- M.S. Computer Science, University of Central Florida, 1988
Advisor: J. Michael Moshell, Ph.D.
Thesis: “Tactical Simulation in an Object Oriented Animated Graphics Environment”
- B.S. Computer Science, California State University Sacramento, 1980

Current Employment

University of Alabama in Huntsville, Huntsville AL

Department of Computer Science

- Professor August 2022–Present
- Associate Professor January 2012–July 2022
- Research Professor June 2005–December 2011

Information Technology and Systems Center

- Senior Scientist for M&S September 2015–Present

Center for Modeling, Simulation, & Analysis

- Center Director June 2005–August 2015

Current responsibilities

- Perform research in modeling and simulation (M&S), including: cybersecurity modeling, verification and validation, missile defense analytics, and distributed simulation.
- Teach university courses in Computer Science and M&S.
- Advise graduate students in Computer Science and M&S.
- Secure external funding for Computer Science and M&S research; write proposals and develop customer relationships.

Selected accomplishments

- 2022 • Promoted to Professor.
- 2021 • Reached productivity milestones: 30 journal articles, 20 book chapters, 1600 citations.
- 2020 • Converted four computer science courses to asynchronous online instruction.
- 2019 • Graduated four Ph.D. students in a single calendar year.
- 2018 • Awarded tenure by the University of Alabama in Huntsville.
- 2017 • Graduated eight graduate students (2× Ph.D., 6× M.S.) in Computer Science and M&S.
- 2016 • Selected as Editor-in-Chief of scholarly journal *SIMULATION*.
- 2015 • Published journal articles on machine learning and agent-based modeling.
- 2014 • Published journal articles on model frameworks, crowd modeling, and machine learning.
- 2013 • Served as Drafting Group Editor and primary author of new IEEE Standard 1730.1.
- 2010 • Started new M&S graduate degree programs (M.S. and Ph.D.) at UAH.
- 2009 • Expanded research center to ~\$2M yearly expenditures.
- 2006 • Expanded research center to ~20 employees and ~\$1M yearly expenditures.
- 2005 • Established new research center, starting from single project and single employee.

Previous Employment

Old Dominion University, Norfolk VA

Virginia Modeling Analysis & Simulation Center

- Chief Scientist October 1999–May 2005

Department of Engineering Management and Systems Engineering

- Research Professor October 1999–May 2005

Responsibilities

- Performed research in M&S; selected projects included: Crowd Modeling; Composability Theory; Software Architecture Description Languages.
- Developed M&S research programs, including: contributed to center research strategy; evaluated funding opportunities; wrote proposals.
- Taught courses in Old Dominion University's M&S degree program.

Selected accomplishments

- 2004 • Led Crowd Modeling project, which was widely praised by sponsors and community.
- 2003 • Advised ODU's first, world's first student to receive Ph.D. in M&S.
- 2002 • Co-authored National Research Council report on M&S for defense acquisition.
- 2001 • Certified as a Modeling & Simulation Professional by the M&SPCC.
- 2000 • Served as an officer of Simulation Interoperability Standards Committee, which secured approval for the High Level Architecture as IEEE standard 1516.

University of Central Florida, Orlando FL

Institute for Simulation and Training

- Assistant Director February 1998–September 1999
- Program Manager August 1993–January 1998
- Principal Investigator June 1991–July 1993
- Associate Engineer September 1990–May 1991

Responsibilities

- As Assistant Director, led all center research projects in Distributed Simulation, which included simulation interoperability, multi-resolution simulation, and computer generated forces
- Managed as many as 7 research contracts simultaneously, with a combined staff of up to 20 faculty research scientists and student research assistants; wrote proposals; and personally performed research in distributed simulation.
- As Program Manager, consecutively led multiple research projects in three areas: High Level Architecture, Emergency Management, Computer Generated Forces.
- As Principal Investigator, led IST research project in intelligent autonomous behavior generation for computer generated forces in battlefield simulation.
- As Associate Engineer, designed and implemented real-time battlefield simulation software.
- Taught graduate and undergraduate computer science courses.

Selected accomplishments

- 1999 • Designed system architecture for first medical HLA distributed simulation federation.
- 1998 • Unified disparate projects in distributed simulation into a coherent R&D program.
- 1997 • Developed new terrain reasoning algorithm for defensive positioning that outperformed best existing algorithm by ratio of 2:1.
- 1996 • Led team that was first to integrate virtual human-in-the-loop simulator into an HLA distributed simulation federation (HLA Platform Proto-Federation).
- 1995 • Led team that implemented emergency management command training simulation.
- 1994 • Designed heuristics that reduced number of intervisibility determinations up to 50%.
- 1993 • Contributed to the design of an algorithm for automated reconnaissance route planning which performed at a level comparable to that of human military experts.
- 1992 • Developed new algorithms for linking simulations at different levels of resolution.
 - Implemented first computer generated dismounted infantry simulation.

University of Central Florida, Orlando FL

Computer Services

- Database Administrator December 1988–August 1990
- Programmer/Analyst Supervisor September 1986–November 1988
- Programmer/Analyst II December 1985–August 1986

Responsibilities

- Performed database design, table normalization, and query optimization for mainframe relational database applications (SQL/DS and DB2).
- Supervised four programmer/analysts, responsible for supporting University applications.
- Wrote technically complex applications programs.

General Mills Restaurants, Inc., Orlando FL

Compensation and Benefits

- Programmer/Analyst II July 1984–November 1985
- Programmer/Analyst I July 1983–June 1984

University of Texas at El Paso, El Paso TX

Computer Services

- Database Administrator August 1982–June 1983
- Systems Analyst I July 1981–July 1982

California State University Sacramento, Sacramento CA

Administrative Computing

- Computer Programmer I June 1980–June 1981
- Computer Programmer Trainee June 1979–May 1980

<i>Computing Skills</i>

- Programming languages: R, Java, C, Lisp, COBOL, FORTRAN
- Software: MS Office, MS Windows, Linux

Academic Activities

Graduate student advising

Discipline	Ph.D.	M.S. (thesis)	M.S. (non-thesis)
Computer Science	4	2	5
Modeling and Simulation	9	5	8
Computer Engineering	1	0	0
Industrial and Systems Engineering	1	0	0
Totals	15	7	13

Graduate students for whom I served as Advisor are listed in reverse chronological order by year and alphabetical order within year. Only students who have graduated are listed; current and non-graduated students are not listed.

- 2022
 - Katia P. Maxwell, Ph.D. Computer Science, University of Alabama in Huntsville, Dissertation “Selecting and Composing Cyberattack Component Models”
 - Carson J. Laudadio, M.S. Computer Science, University of Alabama in Huntsville, Non-thesis
- 2021
 - W. Alan Cantrell, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “Verification and Validation Methods for Extended Petri Nets Modeling Cyberattacks”
 - Kevin L. Foster, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “Improving Military Robot Swarm Tactics Using Constructive Combat Simulation”
 - Joy. E. Pinckard, M.S. Computer Science, University of Alabama in Huntsville, Non-thesis
- 2019
 - William T. Garrison, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “Stochastic Simulation Optimization by Filtering Static Surrogate Models”
 - Swetha Govindaiah, Ph.D. Computer Science, University of Alabama in Huntsville, Dissertation “Applying Reinforcement Learning to Plan Manufacturing Material Handling”
 - Samuel E. Nuckols, M.S. Computer Science, University of Alabama in Huntsville, Non-thesis
 - Daniel A. O’Neil, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “Generating Synthetic Social Networks Based on Personality Compatibility”
 - Tymaine S. Whitaker, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “Generating Cyberattack Component Models from an Attack Pattern Database”
- 2018
 - John A. Bland, Ph.D. Computer Engineering, University of Alabama in Huntsville, Dissertation “Machine Learning of Cyberattack and Defense Strategies”
 - Erica Ram, M.S. Computer Science, University of Alabama in Huntsville, Non-thesis
- 2017
 - Kevin M. Betts, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “Search-Based Automated Robustness Testing of Autonomous Vehicle Software”
 - Nicholas M. Christensen, M.S. Modeling and Simulation, University of Alabama in Huntsville, Thesis “Validating Petri Net Models of Cyberattacks”
 - Charles B. Collins, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
 - Erik M. Mayhan, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
 - Geoffrey W. Paul, M.S. Modeling and Simulation, University of Alabama in Huntsville, Thesis “A Bayesian Testing Strategy for the Model-Test-Model Paradigm”
 - Ryan A. Preston, M.S. Modeling and Simulation, University of Alabama in Huntsville, Thesis “Utilizing a Discrete Event Simulation of Material Handling Plans to Calculate Reinforcement Learning Rewards”
 - Rui Wang, M.S. Computer Science, University of Alabama in Huntsville, Non-thesis
 - Robert W. Youngren, Ph.D. Computer Science, University of Alabama in Huntsville, Dissertation “Multi-Resolution Data Structures for Spherically Mapped Point Data”

- 2016 • Kayla D. Bullock, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
- Michael E. Dunning, M.S. Modeling and Simulation, University of Alabama in Huntsville, Thesis “Application and Validation of a Physics-Based Flight Simulator for Optimized Airfoil Testing”
- Samantha L. Knight, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
- Whitney K. Schueler, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
- 2014 • Salvador E. Barbosa, Ph.D. Computer Science, University of Alabama in Huntsville, Dissertation “Exploiting Spatio-Temporal Patterns for Event Response Using Reinforcement Learning in a Synthetically-Augmented Environment”
- Konstantinos Prapiadis, M.S. Computer Science, University of Alabama in Huntsville, Thesis “Software Component Metadata for Selecting and Verifying Model Compositions in Semi-Automated Forces Systems”
- 2013 • Gregg T. Hanold, Ph.D. Industrial and Systems Engineering and Engineering Management, University of Alabama in Huntsville, Dissertation “Validating and Generating Realistic Routes for Individual Human Characters in Virtual Urban Terrain”
- Sean P. Muratet, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
- Gregory S. Reed, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “A Quantitative Model of Relative Ethical Violation for Use in Military Decision-Making”, 1st M&S Ph.D. at University of Alabama in Huntsville
- 2012 • Frederick M. Segrest, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
- Retonya L. Dunning, M.S. Modeling and Simulation, University of Alabama in Huntsville, Non-thesis
- 2011 • Shreyas S. Purohit, M.S. Computer Science, University of Alabama in Huntsville, Thesis “Modeling CPU Utilization and Network Traffic in a Distributed Interactive Simulation System using Discrete Event Simulation”
- 2005 • Karl D. Neal, M.S. Modeling & Simulation, Old Dominion University, Thesis “An Application and Evaluation of a Methodology for Testing Operational Level Training Simulations”
- 2004 • Eric W. Weisel, Ph.D. Modeling & Simulation, Old Dominion University, Dissertation “Models, Composability, and Validity”
- 2003 • John A. Sokolowski, Ph.D. Modeling & Simulation, Old Dominion University, Dissertation “Modeling the Decision Process of a Joint Task Force Commander”, 1st M&S Ph.D. at Old Dominion University

Graduate students for whom I served as Committee Chair or Committee Member, but not as Advisor, are listed here. These students are not counted in the table above. Only students who have graduated are listed; current students who have not yet graduated are not listed.

- 2021 • Garima V. Bhatia, Ph.D. Industrial and Systems Engineering, University of Alabama in Huntsville, Dissertation “A Mathematical Theory for Guiding the Establishment of Organizational Architectures for Systems Engineers”, Committee Member
- 2019 • Mitchell J. Bott, Ph.D. Modeling and Simulation, University of Alabama in Huntsville, Dissertation “An Examination of the Theoretical Basis for Agile Engineering using Function-Behavior-Structure Framework and Agent-Based modeling”, Committee Chair
- 2011 • Nitin S. Sharma, Ph.D. Industrial and Systems Engineering, University of Alabama in Huntsville, “Multi-Objective Optimization using Evolutionary Algorithms for Geographical Zone Partitioning”, Committee Member
- 2006 • Lloyd L. Copeland, M.S. Computer Science, University of Alabama in Huntsville, Thesis “Line of Sight Decomposition Using a Terrain Server of Commodity PCs”, Committee Member
- 1999 • G. S. Creech, M.S. Industrial Engineering and Management Systems, University of Central Florida, Thesis “Increasing the Resolution of Simulated Combat Trauma Injuries in a High Level Architecture (HLA) Environment”, Committee Member

Teaching

University	Department/Program	All Courses	Different Courses
University of Alabama in Huntsville	Computer Science	49	10
	Modeling & Simulation	5	1
	Industrial and Systems Engineering	2	2
Old Dominion University	Modeling & Simulation	7	3
University of Central Florida	Computer Science	2	2
University of Texas at El Paso	Computer Science	2	1
Totals	6	67	19

Courses are listed in reverse chronological order by the most recent semester the course was taught. Graduate courses are marked with an asterisk*. Regular courses and special topics courses are included; independent study, thesis and dissertation courses are not included.

Courses taught at University of Alabama in Huntsville	Most recent	Times taught
• CS 581 Modeling & Simulation I*	Fall 2022	9
• CS 617 Design and Analysis of Algorithms*	Spring 2022	2
• CS 330 Artificial Intelligence and Game Development	Spring 2022	5
• CS 317 Introduction to the Design and Analysis of Algorithms	Fall 2021	2
• CS 582 Modeling & Simulation II*	Summer 2021	4
• CS 317 Introduction to the Design and Analysis of Algorithms	Fall 2020	1
• CS 214 Introduction to Discrete Structures	Fall 2020	19
• CS 105 Ethics and Professionalism	Fall 2019	4
• CS 603 Formal Languages and Automata Theory*	Spring 2019	2
• MOD 501 Survey of Modeling & Simulation*	Fall 2014	5
• CS 796 Collaborative Construction of Virtual Environments*	Spring 2012	1
• ISE 639 Modeling and Simulation Data Strategies*	Fall 2008	1
• ISE 639 Modeling and Simulation Environments*	Summer 2008	1
Courses taught at Old Dominion University	Most recent	Times taught
• MSIM 602 Computer Science Concepts for Modeling and Simulation*	Spring 2005	4
• MSIM 601 Introduction to Modeling and Simulation*	Fall 2004	2
• ENMA 707/807 Project Management for Modeling & Simulation*	Spring 2001	1
Courses taught at University of Central Florida	Most recent	Times taught
• COP 2213 Pascal Programming	Spring 1999	1
• COT 5520 Computational Geometry*	Fall 1997	1
Courses taught at University of Texas at El Paso	Most recent	Times taught
• COSC 224 COBOL Programming	Fall 1983	2

Service to the professional discipline

- *Editor*, academic journal *SIMULATION: Transactions of the Society for Modeling and Simulation International*
 - *Editor-in-Chief*, 2016-2021
 - *Associate Editor*, 2008-2016, 2021-present
 - *Area Editor*, 2003-2008
 - *Advisory Editor*, 2002-2003
- *Member*, Certified Modeling and Simulation Professional (CMSP) Planning Committee, 2019-2020.
- *Advisory Editor*, Wiley Series in Modeling and Simulation, John Wiley & Sons, 2013-present.
- *Invited external reviewer*, Promotion of R. Paul Wiegand to Research Associate Professor, Institute for Simulation and Training, University of Central Florida, Orlando FL, July 25 2016.
- *Invited external reviewer*, Modeling, Simulation, and Visualization Engineering degree program, Old Dominion University, Norfolk VA, June 23-24 2016.
- *Invited participant*, National Science Foundation Workshop on Research Challenges in Modeling and Simulation for Engineering Complex Systems, Arlington VA, January 13-14 2016.
- Technical contributor to nine M&S-related IEEE standards (listed in reverse chronological order)
 - *Drafting Group Editor*, *Product Development Group*, Distributed Simulation Engineering and Execution Process Multi-Architecture Overlay, IEEE Std 1730.1-2013
 - *Member*, *Product Development Group*, Recommended Practice for Distributed Simulation Engineering and Execution Process, IEEE Std 1730-2012
 - *Member*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) High Level Architecture (HLA)–Framework and Rules, IEEE Std 1516-2010
 - *Member*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) High Level Architecture (HLA)–Federate Interface Specification, IEEE Std 1516.1-2010
 - *Member*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) High Level Architecture (HLA)–Object Model Template (OMT) Specification, IEEE Std 1516.2-2010
 - *Member*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) Recommended Practice for Verification, Validation, and Accreditation of a Federation – An Overlay to the High Level Architecture Federation Development and Execution Process, IEEE Std 1516.4-2007
 - *Secretary*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) High Level Architecture (HLA)–Framework and Rules, IEEE Std 1516-2000
 - *Secretary*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) High Level Architecture (HLA)–Federate Interface Specification, IEEE Std 1516.1-2000
 - *Secretary*, *Standard Working Group*, Standard for Modeling and Simulation (M&S) High Level Architecture (HLA)–Object Model Template (OMT) Specification, IEEE Std 1516.2-2000
- *Member*, Proposal Preparation Team, North American Industry Classification System Code for M&S, 2014
- *External proposal reviewer*
 - National Institutes for Health, Special Emphasis Panel/Scientific Review Group, 2014
 - National Science Foundation, CMMI – Engineering Design and Innovation, CAREER, 2013
 - Army Research Office, Proposals by Army Research Laboratory scientists, 2012
- *External reviewer for faculty tenure*, School of Arts and Humanities, University of Texas at Dallas, 2013
- *Editor*, scholarly journal *Journal of Defense Modeling and Simulation*
 - *Editorial Board*, 2004-present
 - *Special Issue Co-Editor*, “Cyber Modeling and Simulation”, 2017
- *Referee* for eleven peer-reviewed scholarly journals
 - *SIMULATION: Transactions of the Society for Modeling and Simulation International*, 35 papers
 - *Journal of Defense Modeling and Simulation*
 - *ACM Transactions on Modeling and Computer Simulation*
 - *Simulation Modelling Practice and Theory*
 - *Simulation & Gaming*
 - *IEEE Transactions on Parallel and Distributed Systems*,
 - *International Journal of Simulation Modeling*
 - *Journal of Simulation*
 - *Computer Software – Japan Society for Software Science and Technology Journal*
 - *Intelligent Decision Technologies*
 - *Photogrammetric Engineering and Remote Sensing*

- *Member*, National Research Council, Army Research Laboratory Technical Assessment Board (ARL external review board), Panel on Digitization and Communications Science, 2008, 2010, 2012.
- *Member*, Army Research Office Board of Visitors (ARO external review board)
 - Network Sciences Division, 2012
 - Computing Sciences Division, 2008, 2010, 2012
- *Member*, Science & Technology Roadmap for Alabama Committee, Modeling & Simulation, 2009.
- *Member*, Advisory Board, Modeling and Simulation Body of Knowledge Index Program, 2009-2010.
- *Member*, Quality Committee, Certified Modeling and Simulation Professional Examination, 2008-2010.
- *Member*, Board of Directors, Modeling and Simulation Professional Certification Commission, 2007-2010.
- *Member*, Board of Directors, Alabama Modeling and Simulation Council, 2007-2008.
- *Member*, Selection Committee, Interservice/Industry Training, Simulation, and Education Conference Modeling and Simulation Education Post-Graduate Scholarships, 2007.
- *Reviewer*, Pre-publication textbooks
 - C. A. Smith and S. W. Campbell, *A First Course in Differential Equations, Modeling, and Simulation, Second Edition*, CRC Press, 2016
 - J. L. Gersting, *Mathematical Structures for Computer Science, Seventh Edition*, W. H. Freeman, 2013
 - J. L. Gersting, *Mathematical Structures for Computer Science, Sixth Edition*, W. H. Freeman, 2006
 - N. Dale, D. T. Joyce, and C. Weems, *Object-Oriented Data Structures Using Java, Second Edition*, Jones and Bartlett, 2005
- *Reviewer*, National Research Council, *Retooling Manufacturing: Bridging Design and Manufacturing*, National Academy Press, Washington DC, 2004
- *Member*, National Research Council, Committee on Modeling and Simulation Enhancements for 21st Century Manufacturing and Acquisition, 2000-2002

Service to the university, college, and department

- Faculty Search Committees, Computer Science Department
 - *Member*, Lecturer, October 2019
 - *Member*, Lecturer, October 2018
 - *Member*, Lecturer, April 2018
 - *Member*, Lecturer, August 2016
 - *Member*, Assistant Professor, January 2014
- Faculty and Staff Search Committees, Other departments
 - *Member*, Mathematical Sciences Department, Department Chair, March 2018
 - *Member*, Office of Sponsored Programs, Contract Administrator, May 2017
 - *Member*, Psychology Department, Assistant Professor 2009
 - *Member*, Vice President for Research, 2008
 - *Member*, Associate Vice President for Research, 2007
- Faculty Reappointment Committees, Computer Science Department
 - *Chair*, T. Mukherjee, March 2022
 - *Member*, J. Hauenstein, March 2022
 - *Chair*, T. Mukherjee, February 2021
 - *Chair*, K. Preston, February 2021
 - *Chair*, M. Allen, February 2020
 - *Member*, T. Mukherjee, February 2020
 - *Member*, M. Weisskopf, March 2019
 - *Member*, C. Peng, March 2019
 - *Member*, T. Mukherjee, January 2019
 - *Member*, K. Preston, January 2019
 - *Chair*, M. Allen, February 2018
 - *Member*, C. Peng, February 2018
 - *Member*, M. Weisskopf, April 2017
 - *Member*, C. Peng, March 2017
 - *Member*, C. Peng, March 2016
 - *Member*, C. Peng, February 2015

- Other Committees and Activities, Computer Science Department
 - *Member*, Program Advisory Board, September 2021
 - *Member*, ABET Evaluation Committee, Entertainment Computing, September 2021
 - *Member*, ABET Evaluation Committee, Theory and Data Science, September 2021
 - *Procter*, Modeling and Simulation Ph.D. Preliminary Examinations, November 2017
 - *Coordinator*, Computer Science M.S. Comprehensive Examinations, January 2017
 - *Substitute instructor*, CS 617, four lectures and final exam, (for P. Slater), April 2016
 - *Member*, ABET Course Evaluation Committee, Theoretical and Mathematical Foundations, February 2015
 - *Member*, ABET Course Evaluation Committee, Theoretical and Mathematical Foundations, April 2014
 - *Member*, Curriculum Development Committee, Entertainment Computing, 2013-2014
 - *Author*, Modeling & Simulation M.S. and Ph.D. programs proposal, 2010
 - *Member*, Reorganization Committee, School of Computing and Electrical Engineering, 2010
 - *Member*, ETS Algorithms/Discrete Test Scores Committee, 2008
- Other Committees and Activities, Other departments
 - *Member*, College of Science Strategic Planning Committee, 2022.
 - *Member*, College of Science Promotion and Tenure Advisory Committee, 2019-2020.
 - *Member*, Student Instructor Evaluation (SIE) Focus Group, April 2018.
 - *Member*, Review Committee, New Faculty Research Grants, 2019
 - *Member*, Review Committee, New Faculty Research Grants, 2015
 - *Member*, Review Committee, Research Infrastructure Funding Grants, 2015
 - *Member*, Review Committee, Research Infrastructure Funding Grants, 2014
 - *Member*, Review Committee, Individual Investigator Distinguished Research Grants, 2013
 - *Member*, Review Committee, University Research Infrastructure Initiative Grants, 2012
 - *Member*, Review Committee, University Research Infrastructure Initiative Grants, 2011
 - *Member*, Review Committee, University Research Infrastructure Initiative Grants, 2010
 - *Member*, UAH Recruiting Team, Oak Ridge Affiliated Universities Graduate Student Recruiting Fair, 2013
 - *Member*, UAH Recruiting Team, Oak Ridge Affiliated Universities Graduate Student Recruiting Fair, 2012
 - *Member*, Review Committee, UAH Foundation Awards for Research and Creative Achievement, 2009
 - *Member*, Strategic Planning Committee, Vice President for Research, 2008
 - *Member*, Health Programs Task Force, College of Nursing, 2008
 - *Member*, Advisory Committee, Professional Development Test and Evaluation Certificate, 2007-2008
 - *Member*, Review Board, Mechanical and Aerospace Engineering Integrated Project Team Course, 2006
- University independent observer at graduate student Ph.D. and M.S. defenses
 - T. A. Hodge, M.S. Chemistry, March 5 2014
 - J. T. Mooney, Ph.D. Physics, October 9 2013
 - C. M. Allen, M.S. Biology, February 25 2013
 - J. L. Waters, M.S. Electrical Engineering, August 1 2012
 - R. Markow, M.A. English, March 30 2011
 - M. Owen, M.S. Mechanical and Aerospace Engineering, February 26 2009
 - D. Kim, Ph.D. Atmospheric Science, February 11 2008

Conference program committees, tutorial boards, and paper reviewing

- *Program committee member*, 2022 ACM Southeast Conference, Jacksonville State University, Jacksonville AL, April 18-20 2022.
- *Program committee member*, 2021 ACM Southeast Conference, Jacksonville State University, Jacksonville AL, April 15-17 2021.
- *Program committee member*, 2019 Winter Simulation Conference, Cybersecurity track, National Harbor MD, December 8-11 2019.
- *Best paper committee member*, 2017 Spring Simulation Multi-Conference, Society for Modeling and Simulation International, Virginia Beach VA, April 23-26 2017.
- *Program committee member*, SENSORNETS 2016, Fifth International Conference on Sensor Networks, Rome Italy, February 17-19 2016.
- *Program committee member*, Nineteenth IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications, Chengdu China, October 14-16 2015.
- *Paper reviewer*, 2015 Southeastern Cyber Security Summit, Huntsville AL, June 3-4 2015.
- *Paper reviewer*, 2015 Conference on Systems Engineering Research, Hoboken NJ, March 17-19 2015.

- *Paper reviewer*, 2014 Winter Simulation Conference, Savannah GA, December 7-10 2014.
- *Program committee member*, Eighteenth IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications, Toulouse France, October 1-3 2014.
- *Program committee member*, International Defense and Homeland Security Simulation Workshop, Bordeaux France, September 10-12 2014.
- *Program committee member*, Seventeenth IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications, Delft The Netherlands, October 30-November 1 2013.
- *Program committee member*, Sixteenth IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications, Dublin Ireland, October 25-27 2012.
- *Program committee member*, Fifteenth IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications, Salford UK, September 4-7 2011.
- *Program committee member*, 1st International Conference on Simulation and Modeling Methodologies, Technologies, and Applications, Noordwijkerhout The Netherlands, July 29-31 2011.
- *Tutorial board member*, 2010 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 29-December 2 2010.
- *Program committee member*, Fourteenth IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications, Fairfax VA, October 17-20 2010.
- *Program committee member*, Symposium on Very Large and Complex Systems, 2010 Conference on Grand Challenges in Modeling and Simulation, Ottawa Canada, July 11-15 2010.
- *Tutorial board member*, 2009 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 30-December 3 2009.
- *Program committee member*, Thirteenth IEEE/ACM International Symposium on Distributed Simulation and Real-Time Applications, Singapore, October 25-28 2009.
- *Paper reviewer*, Simulation Interoperability Workshop, Human Decision Making and Behavior Representation Forum, Orlando FL, September 21-25 2009.
- *Program committee member*, 2009 Conference on Grand Challenges in Modeling and Simulation (GCMS'09) at 2009 Summer Simulation Multiconference, Istanbul Turkey, July 13-16 2009.
- *Paper reviewer*, Eighteenth Behavior Representation in Modeling and Simulation Conference, Sundance UT, March 30-April 2 2009.
- *Tutorial board member*, 2008 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 1-4 2008.
- *Program committee member*, 2008 Conference on Grand Challenges in Modeling and Simulation (GCMS'08) at 2008 Summer Simulation Multiconference, Edinburgh Scotland, June 16-19 2008.
- *Program committee member*, Modeling and Simulation of Very Large Systems (M&S-VLS'08) at 2008 Summer Simulation Multiconference, Edinburgh Scotland, June 16-19 2008.
- *Paper reviewer*, Seventeenth Behavior Representation in Modeling and Simulation Conference, Providence RI, April 14-17 2008.
- *Tutorial board member*, 2007 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 26-29 2007.
- *Program committee member*, Eleventh IEEE International Symposium on Distributed Simulation and Real-Time Applications, Crete Greece, October 22-24 2007.
- *Paper reviewer*, Summer Computer Simulation Conference 2007, San Diego CA, July 15-18 2007.
- *Program committee member*, Sixteenth Conference on Behavior Representation in Modeling and Simulation, Norfolk VA, March 26-29 2007.
- *Paper reviewer*, Winter Simulation Conference 2006, Monterey CA, December 3-6 2006.
- *Paper reviewer*, 27th American Society for Engineering Management National Conference, Huntsville AL, October 22-28 2006.
- *Program committee member*, Tenth IEEE International Symposium on Distributed Simulation and Real-Time Applications, Torremolinos Spain, October 2-6 2006.
- *Paper reviewer*, 10th World Multi-Conference on Systemics, Cybernetics, and Informatics (WMSCI 2006), Orlando FL, July 16-19 2006.
- *Program committee member*, Fifteenth Conference on Behavior Representation in Modeling and Simulation, Baltimore MD, May 15-18 2006.

- *Paper reviewer*, Winter Simulation Conference 2005, Orlando FL, December 4-7 2005.
- *Program committee member*, Ninth IEEE International Symposium on Distributed Simulation and Real-Time Applications, Montreal Canada, October 10-12 2005.
- *Program committee member*, Fourteenth Conference on Behavior Representation in Modeling and Simulation, Universal City CA, May 16-19 2005.
- *Program committee member*, Eighth IEEE International Symposium on Distributed Simulation and Real-Time Applications, Budapest Hungary, October 21-23 2004.
- *Program committee member*, Thirteenth Conference on Behavior Representation in Modeling and Simulation, Arlington VA, May 17-20 2004.
- *Program committee member*, Seventh IEEE International Workshop on Distributed Simulation and Real-Time Applications, Delft The Netherlands, October 23-25 2003.
- *Program committee member*, Twelfth Conference on Behavior Representation in Modeling and Simulation, Scottsdale AZ, May 12-15 2003.
- *Program committee co-chair*, Sixth IEEE International Workshop on Distributed Simulation and Real-Time Applications, Fort Worth TX, October 11-13 2002.
- *Program committee member*, Eleventh Conference on Computer-Generated Forces and Behavior Representation, Orlando FL, May 7-9 2002.
- *Program committee member*, Fifth IEEE International Workshop on Distributed Simulation and Real-Time Applications, Cincinnati OH, August 13-15 2001.
- *Program committee member*, Second Conference on Simulation Methods and Applications, Orlando FL, October 29-31 2000.
- *Program committee member*, Fourth IEEE International Workshop on Distributed Simulation and Real-Time Applications, San Francisco CA, August 25-27 2000.
- *Program committee member*, Third IEEE International Workshop on Distributed Simulation and Real-Time Applications, College Park MD, October 24-28 1999.
- *Program committee chair*, Seventh Conference on Computer Generated Forces and Behavioral Representation, Orlando FL, May 12-14 1998.
- *Paper reviewer*, Simulation Interoperability Workshop, Run-Time Infrastructure and Communications Forum, Orlando FL, September 14-18 1998.
- *Program committee member*, Sixth Annual Conference on AI, Simulation, and Planning in High Autonomy Systems, La Jolla CA, March 23-27 1996.
- *Program committee member*, Fifth Annual Conference on AI, Simulation, and Planning in High Autonomy Systems, Gainesville FL, December 7-9 1994.
- *Program committee member*, Fourth Conference on Computer Generated Forces and Behavioral Representation, Orlando FL, May 4-6 1994.
- *Program committee member*, Third Conference on Computer Generated Forces and Behavioral Representation, Orlando FL, March 17-19 1993.
- *Program committee member*, Second Behavioral Representation and Computer Generated Forces Symposium, Orlando FL, May 6-7 1991.

Invited presentations, professional education courses, tutorials, and guest lectures

Category	Count
Invited presentations	88
Professional education courses	28
Conference tutorials	30
Guest lectures	30
Panels, workshops, and sessions	27
Total	203

Presentations, courses, tutorials, and guest lectures are listed in reverse chronological order. Normal conference paper presentations, project status briefings, and regular course lectures are **not** included.

Tutorials prefixed with a dagger (†) were nominated and/or selected for Best Tutorial awards.

- † *Conference tutorial*, “Addressing the Challenges of Rigorous Model Validation”, 2021 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 29 2021.
- *Panel moderator*, “Opportunities for Federal Funding in Support of University-based Research”, 2020 Interservice/Industry Training, Simulation, and Education Conference, Virtual, December 2 2020.
- *Conference tutorial (contributor)*, “Addressing the Challenges of Rigorous Model Validation”, 2019 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 2 2019.
- *Professional education course*, “Fundamentals of Modeling and Simulation”, Missile Defense Agency, Huntsville AL, September 17-18 2019.
- *Professional education course*, “Verification, Validation, and Accreditation”, Air Force Research Laboratory, Kirtland AFB, Albuquerque NM, July 16-17 2019.
- *Invited presentation*, “Monte Carlo Simulation with R for Combat Applications”, Intelligence Community Center for Academic Excellence, University of Alabama in Huntsville, Huntsville AL, June 12 2019.
- *Conference tutorial*, “Addressing the Challenges of Rigorous Model Validation”, 2018 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 26 2018.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2018 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 26 2018.
- *Invited presentation*, “Monte Carlo Simulation with R for Environmental Applications”, Mathematics Club, University of Alabama in Huntsville, Huntsville AL, November 2 2018.
- *Professional education course*, “Introduction to R Programming”, Professional and Continuing Studies, University of Alabama in Huntsville, Huntsville AL, July 24-25 2018.
- *Professional education course*, “Fundamentals of Modeling and Simulation”, Missile Defense Agency, Huntsville AL, May 14-15 2018.
- *Invited presentation*, “Data Visualization and Simulation with R: Examples and Assessment”, University of Alabama System Scholars Institute, Birmingham AL, May 10 2018.
- *Professional education course*, “Verification, Validation, and Accreditation”, Missile Defense Agency, Colorado Springs CO, May 1-2 2018.
- *Professional education course*, “Monte Carlo Simulation”, Missile Defense Agency, Colorado Springs CO, April 11-12 2018.
- *Professional education course*, “Verification, Validation, and Accreditation”, Missile Defense Agency, Huntsville AL, January 23-24 2018.
- *Professional education course*, “Monte Carlo Simulation”, Missile Defense Agency, Huntsville AL, December 13-14 2017.
- *Professional education course*, “Certified Modeling and Simulation Professional Examination Preparation”, 2017 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 1 2017.
- *Conference tutorial*, “Addressing the Challenges of Rigorous Model Validation”, 2017 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 27 2017.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2017 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 27 2017.

- *Invited presentation*, “Missile Defense Agency (MDA) Research and Course Development – Verification, Validation, and Accreditation and Monte Carlo Simulation”, Systems Engineering Research Center Sponsored Research Review, Washington DC, November 8 2017.
- *Session chair*, “Modeling and Simulation”, American Institute of Aeronautics and Astronautics, Young Professionals Symposium, Huntsville AL, October 23 2017.
- *Professional education course*, “Verification, Validation, and Accreditation”, Missile Defense Agency, Colorado Springs CO, September 26-27 2017.
- *Professional education course*, “Monte Carlo Simulation”, Missile Defense Agency, Colorado Springs CO, September 6-7 2017.
- *Professional education course*, “Verification, Validation, and Accreditation”, Missile Defense Agency, Huntsville AL, August 9-10 2017.
- *Professional education course*, “Monte Carlo Simulation”, Missile Defense Agency, Huntsville AL, August 7-8 2017.
- *Professional education course*, “Models and Simulations 101”, Missile Defense Agency, Colorado Springs CO, May 15-18 2017.
- *Invited presentation*, “Exploring Possible Futures with Monte Carlo Simulation”, Introduction to Physical Science and Research Methods (for Space Camp participants), University of Alabama in Huntsville, Huntsville AL, March 30 2017.
- *Professional education course*, “Certified Modeling and Simulation Professional Examination Preparation”, 2016 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 2 2016.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2016 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 28 2016.
- *Professional education course*, “Models and Simulations 101”, Missile Defense Agency, University of Alabama in Huntsville, Huntsville AL, August 9-12 2016.
- *Conference tutorial*, “Web-based Space Mission Visualization”, Alabama Modeling and Simulation Council, 2016 AlaSim International Conference and Exposition, Huntsville AL, May 5 2016.
- *Conference tutorial*, “Monte Carlo Simulation”, 2016 AlaSim International Conference and Exposition, Huntsville AL, May 4 2016.
- *Invited presentation*, “Monte Carlo Simulation”, Alabama Agricultural and Mechanical University, Normal AL, April 8 2016.
- *Guest lectures*, “Minimum Spanning Trees” and “NP-Completeness”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, April 7, 14, 19, and 21, 2016.
- *Professional education course*, “Models and Simulations 101”, Missile Defense Agency, Huntsville AL, March 28-31 2016.
- *Professional education course*, “Certified Modeling and Simulation Professional Examination Preparation”, 2015 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 4 2015.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2015 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 30 2015.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2015 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 30 2015.
- *Invited presentation*, “Recreating the Battle of 73 Easting with a Constructive Combat Model”, Alabama Agricultural and Mechanical University, Normal AL, November 20 2015.
- *Guest lectures*, “Model Types and Modeling Methods”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, September 3, 8, 10, 15, and 17 2015.
- *Professional education course*, “Models and Simulations 101”, Missile Defense Agency, University of Alabama in Huntsville, Huntsville AL, August 3-6 2015.
- *Professional education course*, “M&S Fundamentals and CMSP Preparation Course”, Marine Corps Systems Command Professional Education, Quantico VA, July 6-10 2015.
- *Professional education course*, “Models and Simulations 101”, Missile Defense Agency, Colorado Springs CO, June 9-12 2015.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2015 AlaSim International Conference and Exposition, Huntsville AL, May 6 2015.
- *Conference tutorial*, “Defense-related Applications of Discrete Event Simulation”, 2015 AlaSim International Conference and Exposition, Huntsville AL, May 6 2015.

- *Guest lecture*, “Validating Combat Models”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, April 9 2015.
- *Guest lecture*, “Modeling Crowd Behavior in Combat Simulation”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, February 24 2015.
- *Professional education course*, “Simulation Verification, Validation, and Accreditation”, Professional and Continuing Studies, University of Alabama in Huntsville, Huntsville AL, February 3-27 2015.
- *Guest lecture*, “Scale, Resolution, and Abstraction: Comparing Three Models of the Battle of Waterloo”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, January 29 2015.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2014 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 1 2014.
- *Conference tutorial*, “Defense-related Applications of Discrete Event Simulation”, 2014 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 1 2014.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2014 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 1 2014.
- *Professional education course*, “Fundamentals of Modeling and Simulation”, Professional and Continuing Studies, University of Alabama in Huntsville, Huntsville AL, November 10 2014-January 22 2015.
- *Invited presentation*, “Research Activities at the UAH Center for Modeling, Simulation, and Analysis”, University of Texas at Arlington, Arlington TX, September 11 2014.
- *Presenter*, “Workshop to Identify Modeling and Simulation Capabilities and Synergistic Relationships Among Industry, Academia, Army, NASA, and the State of Alabama”, 2014 AlaSim International Conference and Exposition, Huntsville AL, May 7 2014.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2014 AlaSim International Conference and Exposition, Huntsville AL, May 7 2014.
- *Conference tutorial*, “Defense-related Applications of Discrete Event Simulation”, 2014 AlaSim International Conference and Exposition, Huntsville AL, May 6 2014.
- *Discussion leader*, “Virtual environment technologies for cultural familiarization training”, 2014 AlaSim International Conference and Exposition, Huntsville AL, May 7 2014.
- † *Conference tutorial*, “Model Verification and Validation Methods”, 2013 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 2 2013.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2013 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 2 2013.
- *Guest lecture*, “Model Verification and Validation Methods”, Computer Engineering Department, University of Alabama in Huntsville, Huntsville AL, September 11 2013.
- *Invited presentation*, “Simulation Based Approaches for Systems Engineering”, IEEE Aerospace and Electronic Systems Society, Huntsville AL, July 29 2013.
- † *Conference tutorial*, “Model Verification and Validation Methods”, 2012 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 3 2012.
- *Conference tutorial*, “The New Certified Modeling and Simulation Professional Examination”, 2012 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 3 2012.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2012 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 3 2012.
- *Professional education course*, “Simulation Verification, Validation, and Accreditation”, Professional and Continuing Studies, University of Alabama in Huntsville, Huntsville AL, November 29-30 2012.
- *Professional education course*, “Verification, Validation, and Accreditation”, U. S. Army Aviation and Missile Research Development and Engineering Command, Software Engineering Directorate, Redstone Arsenal AL, November 14-16 2012.
- *Guest lecture*, “A Simulationist’s Perspective on Modeling and Simulation as Science”, Physics Department, University of Alabama in Huntsville, Huntsville AL, October 26 2012.
- *Professional education course*, “Fundamentals of Modeling and Simulation”, Professional and Continuing Studies, University of Alabama in Huntsville, Huntsville AL, October 4-5 2012.

- *Guest lecture*, “Center for Modeling, Simulation, and Analysis: Center Overview and Research Portfolio”, Industrial and Systems Engineering and Engineering Management Department, University of Alabama in Huntsville, Huntsville AL, September 17 2012.
- *Invited presentation*, “SISO Smackdown as M&S Education: 2012 UAHuntsville Student Experience”, Fall 2012 Simulation Interoperability Workshop, Orlando FL, September 10 2012.
- *Invited presentation*, “Expanded Analysis of the Correlation of Characterizing Attributes and Success in Military M&S Standards”, U. S. Army Research Development and Engineering Command, Redstone Arsenal AL, June 28 2012.
- *Invited presentation*, “The Problem of Determining the Financial Implications of Modeling and Simulation Standards”, U. S. Army Research Development and Engineering Command, Redstone Arsenal AL, June 28 2012.
- *Panel*, “Modeling and Simulation of Large and Complex Systems”, 2012 AlaSim International Modeling and Simulation Conference, Huntsville AL, May 2 2012.
- *Panel*, “Modeling and Simulation in K-12 and Higher Education”, 2012 AlaSim International Modeling and Simulation Conference, Huntsville AL, May 2 2012
- *Invited presentation*, “Determining the Financial Implications of Modeling and Simulation Standards”, 2012 AlaSim International Modeling and Simulation Conference, Huntsville AL, May 2 2012.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2012 AlaSim International Modeling and Simulation Conference, Huntsville AL, May 1 2012.
- *Invited presentation*, “Modeling and Simulation (M&S) Body of Knowledge (BoK) Index Supporting the Certified M&S Professionals (CMSP) Initiative”, 2012 Spring Simulation Developers’ Working Group, Las Vegas NV, April 25 2012.
- *Invited presentation*, “Topics, Structure, and Delivery of the New Certified Modeling and Simulation Professional Examination”, National Defense Industrial Association, Arlington VA, April 17 2012.
- *Invited presentation*, “Simulation Composability and Frameworks”, Republic of Korea Agency for Defense Development, Daejeon Korea, February 21 2012.
- *Invited presentation*, “Center for Modeling, Simulation, and Analysis”, College of Engineering, Technology, and Computer Science, Indiana University-Purdue University Fort Wayne, Fort Wayne IN, January 23 2012.
- *Panel*, “Correlation of Characterizing Attributes and Success in Military M&S Standards”, Winter Simulation Conference 2011, Phoenix AZ, December 11 2011.
- *Panel*, “Comparing the M&S Graduate Degree Program and Professional Certificate Programs at the University of Alabama in Huntsville”, Winter Simulation Conference 2011, Phoenix AZ, December 11 2011.
- *Conference tutorial*, “Certified Modeling and Simulation Professional Prep Course”, 2011 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 2 2011.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2011 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 28 2011.
- *Conference tutorial (contributor)*, “Fundamentals of Modeling and Simulation”, 2011 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 28 2011.
- *Invited presentation*, “A Theory of Simulation Composability”, Decision Theater, Arizona State University, Tempe AZ, November 18 2011.
- *Guest lecture*, “A Simulationist’s Perspective on Modeling and Simulation”, Physics Department, University of Alabama in Huntsville, Huntsville AL, November 11 2011.
- *Invited presentation*, “Simulation Based Approaches for Systems Engineering”, Institute for Defense and Government Advancement, Washington DC, October 25 2011.
- *Panel*, “Modeling and Simulation in Engineering Design and Manufacturing”, U. S. Department of Education, Washington DC, July 27 2011.
- *Invited presentation*, “Center for Modeling, Simulation, and Analysis”, School of Computer and Information Sciences, University of South Alabama, Mobile AL, May 31 2011.
- *Invited presentation*, “Metrics and Measures: Assessing the Impact of Standards”, Old Dominion University, Workshop on Standards in Modeling and Simulation, Suffolk VA, May 11 2011.
- *Guest lecture*, “Case Studies in Modeling and Simulation for Test and Evaluation”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, April 13 2011.
- *Professional education course*, “Simulation Verification, Validation, and Accreditation”, Professional and Continuing Studies, University of Alabama in Huntsville, Huntsville AL, April 11-12 2011.

- *Invited presentation*, “UAHuntsville Modeling and Simulation Degree Programs”, Lockheed Martin Space Systems Company, Huntsville AL, March 17 2011.
- *Invited presentation*, “CMSA Overview and Research Portfolio”, Lockheed Martin Space Systems Company, Huntsville AL, March 17 2011.
- *Guest lecture*, “Verification, Validation, and Accreditation”, Computer Science Department, University of Alabama in Huntsville, Huntsville AL, February 9 2011.
- *Conference tutorial*, “Model Verification and Validation Methods”, 2010 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 29 2010.
- *Panel*, “Modeling the Economic Impact of the Gulf Oil Spill”, Louisiana EPSCoR and National Science Foundation, New Orleans LA, November 1 2010.
- *Conference tutorial*, “Verification and Validation Methods”, Huntsville Simulation Conference 2010, Huntsville AL, October 28 2010.
- *Panel*, “Predictive Analysis of Patient Outcomes as a Function of Nurse Staffing Levels”, Huntsville Simulation Conference 2010, Huntsville AL, October 28 2010.
- *Guest lecture*, “A Simulationist’s Perspective on Modeling Methods and Applications”, Physics Department, University of Alabama in Huntsville, Huntsville AL, September 1 2010.
- *Invited presentation*, “Games and Simulation: Fun vs. Realism”, Honors Forum, Huntsville AL, August 26 2010.
- *Invited presentation*, “Verification and Validation Methods”, National Academy of Sciences, Committee on Mathematical Foundations of Verification, Validation, and Uncertainty Quantification, Washington DC, August 23 2010
- *Invited presentation*, “Technical Characteristics and Governance Processes in Military M&S Standards”, Old Dominion University, Workshop on Standards in Modeling and Simulation, Suffolk VA, August 4 2010.
- *Invited presentation*, “Games and Simulation: Fun vs. Realism”, University of Alabama System Scholars Institute, Huntsville AL, May 18 2010
- *Invited presentation*, “Systems Engineering Process”, Spring 2010 Simulation Interoperability Workshop, Orlando FL, April 15 2010.
- *Invited presentation*, “Asset Reuse Mechanisms”, Spring 2010 Simulation Interoperability Workshop, Orlando FL, April 15 2010.
- *Invited presentation*, “Evolution and Governance of Military M&S Standards”, Old Dominion University, Workshop on Standards in Modeling and Simulation, Suffolk VA, April 1 2010.
- *Invited presentation*, “Modeling and Validation Challenges for Complex Systems”, Complex Systems M&S Technical Workshop, Huntsville AL, February 3 2010.
- *Invited Subject Matter Expert*, “Workforce Development Working Group,” 2010 Modeling & Simulation Leadership Summit, Virginia Beach VA, February 1 2010.
- *Conference tutorial*, “Verification and Validation Methods”, Huntsville Simulation Conference 2009, Huntsville AL, October 29 2009.
- *Panel*, “Validation of Models of Large and Complex Systems”, Huntsville Simulation Conference 2009, Huntsville AL, October 28 2009.
- *Invited presentation*, “Modeling the Huntsville Technical Workforce”, Fall 2009 Simulation Interoperability Workshop, Orlando FL, September 23 2009.
- *Invited presentation*, “Verification, Validation, and Accreditation”, Presentation to Congressman Parker Griffith, Huntsville AL, September 3 2009.
- *Panel*, “Workforce Development: Education and Modeling”, Oak Ridge-Huntsville Partnership Office, Huntsville AL, April 16 2009.
- *Panel*, “Regional Initiatives in Modeling and Simulation: Southeast/South Central”, 2009 Modeling & Simulation Leadership Summit, Norfolk VA, February 2 2009.
- *Invited presentation*, “Test & Evaluation and Modeling & Simulation at CMSA”, Testing and Evaluation: Educating the Future, International Testing and Evaluation Association, Huntsville AL, October 29 2008.
- *Invited presentation*, “Modeling the Huntsville Technical Workforce”, Huntsville Simulation Conference 2008, Huntsville AL, October 23 2008.
- *Guest lecture*, “Modeling and Simulation Research and Development at CMSA”, Industrial and Systems Engineering and Engineering Management Department, University of Alabama in Huntsville, Huntsville AL, September 3 2008.

- *Panel*, “Motivation and Education”,
Spring Simulation Multiconference 2008, Ottawa Canada, April 14 2008.
- *Moderator*, Workshop on Conceptual Modeling,
Alabama Modeling and Simulation Council, Huntsville AL, October 26 2007.
- *Invited presentation*, “Simulation and Gaming: Realism vs. Fun”, Salmon Library Fall Frolic 2007,
University of Alabama in Huntsville, Huntsville AL, August 30 2007.
- *Invited presentation*, “Modeling Methods” and “M&S Paradigms”,
Preparation for the Modeling and Simulation Professional Certification Exam Course,
Huntsville AL, June 25 2007.
- *Guest lecture*, “A Theory of Simulation Composability”,
Computer Engineering Department, University of Alabama in Huntsville, Huntsville AL, March 15 2007.
- *Guest lecture*, “Introduction to Distributed Simulation and the High Level Architecture”,
Computer Engineering Department, University of Alabama in Huntsville, Huntsville AL, March 1 2007.
- *Discussion leader*, “Modeling & Simulation Research and Development”
2007 Modeling & Simulation Leadership Summit, Chesapeake VA, February 26 2007.
- *Invited presentation*, “A Theory of Simulation Composability”, Computer Science Department,
University of Alabama in Huntsville, Huntsville AL, February 2 2007.
- *Guest lecture*, “Constructive Battlefield Simulation”, Computer Science Department,
University of Alabama in Huntsville, Huntsville AL, January 24 2007.
- *Professional education course*, “Hands-on Simulation”,
Professional and Continuing Education, University of Alabama in Huntsville, Huntsville AL, January 22-23 2007.
- *Conference tutorial*, “Certified Modeling and Simulation Professional Examination Preparation Course”,
2006 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 8 2006.
- *Panel*, “Composition and Complexity Challenges of Open Source: Is it Really so Easy to Reuse?”,
Fall 2006 Simulation Interoperability Workshop, Orlando FL, September 12 2006.
- *Invited presentation*, “Crowd Behavior Models for M&S”,
Fall 2006 Simulation Interoperability Workshop, Orlando FL, September 10 2006.
- *Invited presentation*, “A Simulation of Crowd Behavior in Military Scenarios”,
Computer Science Department, University of Alabama in Huntsville, Huntsville AL, September 8 2006.
- *Invited presentation*, “M&S Degree Plans at UAH”,
Defense Modeling and Simulation Conference, Baltimore MD, May 4 2006.
- *Panel*, “Education Focus”,
Defense Modeling and Simulation Conference, Baltimore MD, May 3 2006.
- *Panel*, “M&S as a Profession”,
2006 Spring Simulation Multiconference, Huntsville AL, April 5 2006.
- *Panel*, “Is There a Real Discipline/Science of M&S?”,
Spring 2006 Simulation Interoperability Workshop, Huntsville AL, April 4 2006.
- *Invited presentation*, “How Universities Help to Attract and Retain Young Professionals”,
Leadership Huntsville/Madison County, Best Practices Workshop, Huntsville AL, March 16 2006.
- *Panel*, “Recommendations Roundtable”,
2006 Modeling & Simulation Leadership Summit, Suffolk VA, February 6 2006.
- *Keynote speaker*, “Trends in M&S Technology: Mergence, Emergence, Convergence, and Divergence”,
Alabama Modeling and Simulation Council, Annual Meeting, Huntsville AL, October 28 2005.
- *Guest lecture*, “Introduction to Distributed Simulation”,
Computer Science Department, University of Alabama in Huntsville, Huntsville AL, October 11 2005.
- *Panel*, “Research Requirements for Simulation Based Acquisition”,
American Institute of Aeronautics and Astronautics, Huntsville AL, May 20 2005.
- *Invited presentation*, “Crowd Modeling Federate”,
Defense Modeling and Simulation Office, Alexandria VA, May 17 2005.
- *Invited presentation*, “Introduction to the High Level Architecture”,
Defense Threat Reduction Agency, M&S Professional Education, Alexandria VA, May 13 2005.
- *Invited presentation*, “Distributed Simulation”,
National Institute of Aerospace, M&S Professional Education, Suffolk VA, January 25-26 2005.
- *Invited presentation*, “History and Goals of HLA”,
National Institute of Aerospace, M&S Professional Education, Suffolk VA, January 25-26 2005.

- *Invited presentation*, “HLA Federation Examples”, National Institute of Aerospace, M&S Professional Education, Suffolk VA, January 25-26 2005.
- *Invited presentation*, “HLA Concepts”, National Institute of Aerospace, M&S Professional Education, Suffolk VA, January 25-26 2005.
- *Invited presentation*, “Crowd Modeling for Military Simulation”, U. S. Joint Forces Command, Suffolk VA, October 29 2004.
- *Invited presentation*, “Crowd Modeling for Military Simulation”, Huntsville Simulation Conference 2004, Huntsville AL, October 21 2004.
- *Keynote speaker*, “Overview of a Theory of Composability”, Object Management Group, Arlington VA, October 14 2004.
- *Panel*, “Technical Requirements for a Composability Business Case”, Object Management Group, Arlington VA, October 14 2004.
- *Invited presentation*, “Verification, Validation, and Accreditation”, National Institute of Aerospace, M&S Professional Education, Hampton VA, October 5 2004.
- *Panel*, “Virginia Modeling Analysis and Simulation Center”, Simulation Interoperability Standards Organization, Orlando FL, September 21 2004.
- *Invited presentation*, “Crowd Modeling – An HLA Federate to Enhance Military Simulation”, North Atlantic Treaty Organization, Suffolk VA, September 14 2004.
- *Invited presentation*, “Distributed Simulation”, National Institute of Aerospace, M&S Professional Education, Hampton VA, August 3 2004.
- *Invited presentation*, “M&S Categories”, National Institute of Aerospace, M&S Professional Education, Hampton VA, July 20 2004.
- *Invited presentation*, “Modeling Methods”, National Institute of Aerospace, M&S Professional Education, Hampton VA, July 15 2004.
- *Invited presentation*, “Basic M&S Concepts and Definitions”, National Institute of Aerospace, M&S Professional Education, Hampton VA, July 13 2004.
- *Panel*, “Modeling & Simulation Body of Knowledge Recommendations”, Simulation Interoperability Standards Organization, Arlington VA April 21 2004.
- *Invited presentation*, “Developing a Crowd Model for Military Simulation”, Old Dominion University, Norfolk VA, April 8 2004.
- *Invited presentation*, “Developing a Crowd Model for Military Simulation”, Computer Science Department, Old Dominion University, Norfolk VA, February 5 2004.
- *Invited presentation*, “Modeling and Simulation Research and Development at VMASC”, Office of the Vice President for Research, University of Alabama in Huntsville, Huntsville AL, January 16 2004.
- *Invited presentation*, “Introduction to Modeling & Simulation”, Object Management Group, Reston VA, October 27 2003.
- *Invited presentation*, “Modeling and Simulation Research & Development at ODU”, Board of Visitors Meeting, Old Dominion University, Norfolk VA, September 11 2003.
- *Invited presentation*, “Towards a Theory of Semantic Composability”, Spring 2003 Simulation Interoperability Workshop, Orlando FL, April 1 and 3 2003.
- *Invited presentation* (with J. Sokolowski and A. Tolk), “Introduction to DOD/Military Simulations”, 2002 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, December 2 2002.
- *Invited presentation*, “Basic Modeling & Simulation Concepts & Definitions”, Booz Allen Hamilton, M&S Professional Education, McLean VA, August 13 2002.
- *Invited presentation*, “Modeling Methods”, Booz Allen Hamilton, M&S Professional Education, McLean VA, August 13 2002.
- *Invited presentation*, “Modeling & Simulation Categories”, Booz Allen Hamilton, M&S Professional Education, McLean VA, August 13 2002.
- *Invited presentation*, “Simulation Project Management”, Booz Allen Hamilton, M&S Professional Education, McLean VA, August 13 2002.
- *Invited presentation*, “Two Aspects of Composability: Lexicon and Theory”, Defense Modeling and Simulation Office, Washington DC, July 9 2002.
- *Invited presentation* (with J. Sokolowski), “HBR Requirements for Joint M&S”, Eleventh Conference on Computer-Generated Forces and Behavior Representation, Orlando FL, May 8 2002.

- *Guest lecture*, “Introduction to the High Level Architecture and Managing HLA Projects”, Engineering Management Department, Old Dominion University, Norfolk VA, January 23 2002.
- *Invited presentation*, “Automated and Autonomous Decision Making in Joint Operational Command and Control”, U. S. Joint Forces Command, Joint Experimentation Futures Workshop, Suffolk VA, December 4 2001.
- *Invited presentation* (with R. Mielke, T. Mastaglio), “Modeling and Simulation of Commercial Enterprises”, 2001 Interservice/Industry Training, Simulation, and Education Conference, Orlando FL, November 26 2001.
- *Guest lecture*, “Introduction to Modeling and Simulation for Operational Test and Evaluation”, U.S. Navy Commander Operational Test and Evaluation Force, Operational Test Directors’ Course, Norfolk VA, August 28 2001.
- *Guest lecture*, “Modeling and Simulation”, U.S. Navy Commander Operational Test and Evaluation Force, Operational Test Director’s Course, Norfolk VA, April 6 2001.
- *Invited presentation*, “Intention Prediction Systems Concept Description”, U. S. Joint Forces Command, Joint Experimentation Futures Workshop, Quantico VA, March 6 2001.
- *Guest lecture*, “Modeling and Simulation”, U.S. Navy Commander Operational Test and Evaluation Force, Operational Test Directors’ Course, Norfolk VA, February 9 2001.
- *Guest lecture*, “A Terrain Reasoning Algorithm to Defend a Fire Zone”, U.S. Navy Commander Operational Test and Evaluation Force, M&S Staff Officers’ Course, Norfolk VA, January 31 2001.
- *Invited presentation*, “Theoretical Results Regarding HLA Data Distribution Management”, Computer Science Department, Old Dominion University, Norfolk VA, November 8 2000.
- *Invited presentation*, “A Terrain Reasoning Algorithm to Defend a Fire Zone”, Electrical and Computer Engineering Department, Old Dominion University, Norfolk VA, September 8 2000.
- *Invited presentation*, “A Brief Introduction to the High Level Architecture”, National Research Council, Woods Hole MA, August 29 2000.
- *Invited presentation*, “Modeling and Simulation at VMASC”, Saab Training Systems. Orlando FL, March 28 2000.
- *Invited presentation*, “A Terrain Reasoning Algorithm to Defend a Fire Zone”, Computer Science Department, Old Dominion University, Norfolk VA, February 15 2000.
- *Invited presentation*, “Distributed Simulation and Interoperability”, Electrical and Computer Engineering Department, Old Dominion University, Norfolk VA, January 28 2000.
- *Invited presentation*, “Interoperability in Modeling and Simulation”, Institute for Simulation and Training, M&S Functional Course, Orlando FL, June 9 1999.
- *Invited presentation*, “Interoperability in Modeling and Simulation”, Institute for Simulation and Training, M&S Functional Course, Orlando FL, January 27 1999.
- *Guest lecture*, “Observations on Object-Oriented Modeling and Simulation Interoperability”, Electrical and Computer Engineering Department, University of Central Florida, Orlando FL, January 27 1999.
- *Invited presentation*, “Applications of Computational Geometry in Computer Generated Forces”, Computer Science Department, University of Central Florida, Orlando FL, September 26 1997.
- *Panel*, “Research Proposal Preparation Strategies”, Enabling Strategies for Obtaining Federal Research Dollars Workshop, University of Central Florida, Orlando FL, November 14 1997.
- *Invited presentation*, “Computer Generated Forces, Terrain Representation, and Intervisibility Algorithms”, Computer Science Department, University of Central Florida, Orlando FL, March 28 1997.
- *Invited presentation*, “Computational Geometry Research Opportunities”, Computer Science Department, University of Central Florida, Orlando FL, November 11 1996.
- *Invited presentation*, “HLA BDS-D PPF Results”, Defense Modeling and Simulation Office, University of Central Florida, Orlando FL, October 18 1996.
- *Invited presentation*, “Reconnaissance Planning in Polygonal Terrain”, Institute for Simulation and Training, Orlando FL, April 21 1993.
- *Invited presentation*, “Battlefield Simulation and Computer Generated Forces”, Computer and Information Sciences Department, University of Florida, Gainesville FL, October 16 1992.

Research Funding

Year	Awards	Value
2022	3	168,600
2021	2	87,815
2020	1	110,700
2019	9	312,517
2018	2	9,716
2017	5	393,505
2016	3	49,389
2015	6	184,759
2014	5	334,029
2013	5	1,038,626
2012	9	524,900
2011	5	308,293
2010	9	1,210,662
2009	7	491,020
2008	4	553,650
2007	7	661,226
2006	3	44,693
2005	4	57,585
2004	6	741,305
2003	4	1,090,796
2002	4	556,390
2001	2	119,349
2000	4	266,938
1999	6	394,558
1998	11	1,500,394
1997	2	148,826
1996	2	958,365
1995	2	1,123,390
1994	6	1,454,846
1993	3	892,944
1992	3	1,862,720
Totals	144	17,652,506

Funded proposals summarized in the table above are listed individually on the following pages.

Funded proposals are listed in reverse chronological order. Pending and declined proposals are not listed. Each entry includes two codes indicating my role in proposal authorship and project execution:

- Proposal preparation: SA=Sole author, PA=Primary author, CA=Co-author
- Project execution: PM=Project Manager, PI=Principal Investigator, CI=Co-Investigator, N=None

- 2022**
 - Verification and Validation of Machine Learning Models and Data in Armaments Systems; US Army (via OptTek Inc.), \$69,164; SA, PI.
 - Modification 3 to Decision Support Technology; Office of the Under Secretary of Defense for Acquisition and Sustainment (via Frontier Technologies Inc.), \$54,496; SA, PI.
 - Modification 1 to Decision Support Technology; Office of the Under Secretary of Defense for Acquisition and Sustainment (via Frontier Technologies Inc.), \$45,000; SA, PI.
- 2021**
 - Decision Support Technology; Office of the Under Secretary of Defense for Acquisition and Sustainment (via Frontier Technologies Inc.), \$30,147; SA, PI.
 - Cyber Tool Suite and Modernization; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$51,612; SA, PI.
 - Modification 8 to UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems, (via Frontier Technologies Inc.), \$6,056; SA, PI.
- 2020**
 - Modification 7 to UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$110,700; SA, PI.
- 2019**
 - Modification 5 to UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$74,360; SA, PI.
 - Modification 4 to UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$33,000; SA, PI.
 - Modification 3 to UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$18,000; SA, PI.
 - Modification 2 to UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$21,150; SA, PI.
 - Physics-Based Modeling Course, U. S. Missile Defense Agency; \$3,779; SA, PI.
 - Fundamentals of Modeling and Simulation Course, U. S. Missile Defense Agency; \$4,468; SA, PI.
 - AFRL M&S Courses – Verification, Validation, and Accreditation; Air Force Research Laboratory, \$7,760; SA, PI.
 - UAH Analysis Support Related to Game Theory, Human Behavior Modeling, and Cyber Attack Modeling; Office of the Under Secretary of Defense for Command, Control, Communications, Cyber, and Business Systems (via Frontier Technologies Inc.), \$50,000; SA, PI.
 - UAH Support with Model and Improvements/Algorithm Development/Database Framework Activities; Corvid Technologies, \$100,000; SA, PI.
- 2018**
 - Physics-Based Modeling Course, U. S. Missile Defense Agency; \$4,622; SA, PI.
 - Fundamentals of Modeling and Simulation Course, U. S. Missile Defense Agency; \$5,094; SA, PI.
- 2017**
 - Mod 1 to Missile Defense Agency (MDA) Research and Course Development – Verification, Validation, and Accreditation (VV&A) and Monte Carlo Simulation, U. S. Missile Defense Agency; \$6,560; SA, PI.
 - Systems Engineering Services for AFAMS under SNIM-14-0801, Change Order #5, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$11,645; SA, PI.
 - UAH Support to Post Intercept Debris Predictions for EO/IR Scene Modeling, U. S. Missile Defense Agency (via Corvid Technologies); \$299,966; SA, PI.
 - Missile Defense Agency (MDA) Research and Course Development – Verification, Validation, and Accreditation (VV&A) and Monte Carlo Simulation, U. S. Missile Defense Agency; \$59,481; SA, PI.
 - Models & Simulation 101 Course for Government Engineers, U. S. Missile Defense Agency; \$15,853; SA, PI.

- 2016
 - Virtual Learning Environments Programmatic Support to the Lower Tier Project Office, Intuitive Research and Technology; \$25,539; SA, PI.
 - Models & Simulation 101 Turnkey Course for Government Engineers, U. S. Missile Defense Agency; \$11,850; SA, PI.
 - Modeling and Simulation Fundamentals for MDA and AMRDEC Personnel Short Course, U. S. Missile Defense Agency; \$12,000; SA, PI.
- 2015
 - Systems Engineering Services for AFAMS under SNIM-14-0801, Change Order #2, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$42,647; SA, PI.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 2, Change Order #3, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$5,503; SA, PI.
 - M&S Fundamentals and CMSP Preparation Course, U. S. Marine Corps Systems Command; \$24,932; SA, PI.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 2, Change Order #2, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$14,122; SA, PI.
 - AMRDEC Modeling and Simulation University, U. S. Missile Defense Agency; \$70,190; SA, PI.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 2, Change Order #1, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$27,365; SA, PI.
- 2014
 - Systems Engineering Services for AFAMS under SNIM-14-0801, Base Year U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$106,292; PA, PI.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 2, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$211,400; PA, PI.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 1, Change Order #4 U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$20,581; SA, PI.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 1, Change Order #2 U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$10,000; CA, PI.
 - Student Expenses for Simulation Exploration Experience, AEgis Technologies; \$4,000; SA, PI.
- 2013
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Option Year 1, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$209,987; PA, PI.
 - Exploiting Emerging Modeling and Simulation Technologies to Increase Training Effectiveness; Office of the Secretary of Defense; \$242,677; SA, PI.
 - Concurrent Model Validation and Operational Test Using Bayesian Experimental Design; University of Alabama in Huntsville Office of the Vice President for Research; \$38,962; SA, PI.
 - Best Practices from Eight County Oil Spill Relief Grant: Replication and Deployment of Key Data and Technologies Across Alabama; Economic Development Partnership of Alabama; \$542,000; PA, PI.
 - Student Expenses for Simulation Interoperability Standards Organization Smackdown, AEgis Technologies; \$5,000; SA, PI.
- 2012
 - ART-SAM Long Endurance Multi-intelligence Vehicle Simulation; U. S. Army (via Science Applications International Corporation); \$47,896; CA, PI.
 - Research on Common SAF Simulation Composition Technique; Republic of Korea Agency for Defense Development (via REALTIMEVISUAL); \$100,200; SA, PI.
 - Certified Modeling and Simulation Professional Product Maintenance; National Training and Simulation Association; \$7,100; CA, PM.
 - Systems Engineering Services for AFAMS under SNIM-12-0408 Year 1, U. S. Air Force Agency for Modeling and Simulation (via Wyle Laboratories); \$209,917; PA, PI.
 - Verification, Validation, and Accreditation Short Course for AMRDEC SED, U. S. Army Aviation and Missile Research Development and Engineering Center; \$6,164; SA, PI.
 - Extension to Collaborative and Regional Framework for Economic Renewal of the Alabama Gulf Coast, Economic Development Partnership of Alabama; \$21,174; CA, PI.
 - UAHuntsville CAVE Installation, Training, and Demonstration, University of Alabama in Huntsville, Office of the Vice President for Research; \$65,659; SA, PI.
 - Live–Virtual–Constructive Simulation Subject Matter Expertise, Follow-On, Johns Hopkins University Applied Physics Laboratory; \$21,949; SA, PI.

- Alternative Aggregate Unconventional Option, Defense Advanced Research Projects Agency (via Gnosys Systems); \$44,841; SA, PI.
- 2011**
 - CMSP Project Implementation, National Training and Simulation Association; \$18,364; CA, CI.
 - High Fidelity Obscurant Modeling for Sensor Simulation, U. S. Army via Simulation Technologies; \$35,417; CA, PM.
 - Collaborative and Regional Framework for Economic Renewal of the Alabama Gulf Coast, Economic Development Partnership of Alabama; \$149,642; PA, PI.
 - Research on a Standard Modeling & Simulation Framework for Modular Simulation Components, REALTIMEVISUAL, Seoul South Korea; \$86,840; SA, PI.
 - Live–Virtual–Constructive Simulation Subject Matter Expertise Extension, Johns Hopkins University Applied Physics Laboratory; \$18,030; SA, PI.
- 2010**
 - Modeling and Simulation Standards Study, Phase II; Naval Air Warfare Center Training Systems Division (via Old Dominion University); \$237,887; SA, PI.
 - CMSP Content Support; Boeing Company; \$7,235; SA, PI.
 - Virtual Environment Simulation Laboratory; National Aeronautics and Space Administration; \$500,000; PA, PI.
 - Live–Virtual–Constructive Simulation Subject Matter Expertise, Johns Hopkins University Applied Physics Laboratory; \$21,850; SA, PI.
 - Refinement and Testing of the Nursing Services Dashboard; University of Alabama in Huntsville, Office of the Vice President for Research; \$88,813; CA, CI.
 - M&S Professional Certification Examination Question Preparation; National Training and Simulation Association; \$15,393; SA, PI.
 - DoD M&S Standards Support, Naval Air Warfare Center Training Systems Division (via Old Dominion University); \$71,382, SA, PI.
 - Developing and Calibrating a Quantitative Metric of Evil of Use in Course of Action Analysis, U. S. Army Aviation and Missile Command; \$78,102; PA, PI.
 - Modeling & Simulation Degree Program Investment, University of Alabama in Huntsville Office of the Vice President for Research; \$190,000; SA, PI.
- 2009**
 - Alternative Aggregate Combat Modeling Algorithms Phase II, Defense Advanced Research Projects Agency (via Gnosys Systems); \$225,000; SA, PI.
 - Live–Virtual–Constructive Architecture Roadmap Implementation, Johns Hopkins University Applied Physics Laboratory; \$124,000; SA, PI.
 - Virtual Target Model Validation Analysis, U. S. Army Aviation and Missile Research, Development, and Engineering Center; \$29,954; CA, CI.
 - Development of a Nursing Services Dashboard to Predict and Track the Effect of Nurse Staffing; University of Alabama in Huntsville OVPR; \$44,266; CA, CI.
 - UAHuntsville Research Enterprise Model; University of Alabama in Huntsville Office of the Vice President for Research; \$14,000; SA, PI.
 - EXPI SWMS Integration Support; U. S. Air Force; \$38,670; SA, CI.
 - Modeling and Simulation Education for the Acquisition and T&E Workforce, DODI 5000.2 Revisions; Naval Postgraduate School; \$15,130; SA, PI.
- 2008**
 - M&S Education and Certification Support; Boeing Company; \$100,000; SA, PI.
 - BRAC Demographic Analysis; U. S. Army Aviation and Missile Command; \$113,012; CA, CI.
 - Modeling and Simulation Degree Program Proposal Development; Science Applications International Corporation; \$24,975; SA, PI.
 - Modeling and Simulation Education for the Acquisition/T&E Workforce CY08; Naval Postgraduate School; \$315,663; SA, PI.

- 2007**
 - Educating the Acquisition Workforce in Modeling and Simulation; Naval Postgraduate School; \$38,159; SA, PI.
 - AH-64 Reliability Assessment using Simulation; University of Alabama in Huntsville OVPR; \$100,000; CA, PI.
 - Alternative Aggregate Combat Modeling Algorithms, Phase I; Defense Advanced Research Projects Agency (via Gnosys Systems); \$28,626; PA, PI.
 - Asymmetric Adversaries for Synthetic Training Environment; Office of Naval Research; \$27,000; SA, PI.
 - Validation Methodologies for Network Centric Warfare Simulation; U. S. Navy Naval Air Warfare Center Weapons Division; \$400,008; CA, CI.
 - BRAC Workforce Analysis Model; Huntsville Chamber of Commerce; \$38,433; SA, PI.
 - Bayesian Data Analysis Method for Terror Attack Prediction; Air Force Research Laboratory; \$29,000; CA, PI.
- 2006**
 - C2PAT Verification; Davidson Technologies Incorporated; \$10,364; SA, PM.
 - Warlords 2006 Support; Defense Modeling and Simulation Office; \$4,332; SA, PM.
 - Simulation-based Integration Testing System Design Study; U. S. Army Aviation and Missile Research, Development, and Engineering Command; \$29,997; SA, PI.
- 2005**
 - Graduate Level Modeling and Simulation Overview Course Final Report Feeder; Old Dominion University; \$5,970; SA, PI.
 - Introduction to the High Level Architecture Course; Defense Threat Reduction Agency; \$3,000; SA, PI.
 - Consulting to UAH Center for Modeling, Simulation, and Analysis; University of Alabama in Huntsville; \$37,715; SA, PI.
 - Introduction to the High Level Architecture Course; National Institute of Aerospace; \$10,900; PA, PI.
- 2004**
 - Support of the Global Vision Integration Center (Multi-Resolution Simulation Assessment); Lockheed Martin Simulation and Training Support; \$40,000; SA, PI.
 - Advanced Modeling and Simulation Course; National Institute of Aerospace; \$5,250; CA, CI.
 - Enhanced Tactical and Operational Crowd Modeling; Defense Modeling and Simulation Office; \$470,287; SA, PI.
 - Consulting to UAH Center for Modeling, Simulation, and Analysis; University of Alabama in Huntsville; \$45,635; SA, PI.
 - Modeling and Simulation Overview Course; National Institute of Aerospace; \$9,100; CA, CI.
 - Semantic Meta-Model Formalisms and Algorithms in a Theory of Semantic Composability; Defense Modeling and Simulation Office; \$171,033; SA, PI.
- 2003**
 - Joint Operations Feasibility Tool Validation; U. S. Joint Forces Command; \$84,559; SA, PI.
 - Modeling and Simulation Overview Course; Defense Modeling and Simulation Office; \$159,749; CA, CI.
 - Simulation of Non-Combatant Crowds in Military and Para-Military Scenarios; Defense Modeling and Simulation Office; \$552,786; PA, PI.
 - Joint Simulation System Operational Evaluation Support; U. S. Navy Commander Operational Test and Evaluation Force; \$293,702; CA, PI.
- 2002**
 - Joint Simulation System Testing Support; U. S. Navy Commander Operational Test and Evaluation Force; \$7,250; CA, CI.
 - A Theory of Composability; Office of Naval Research and Defense Modeling and Simulation Office; \$149,860; PA, PI.
 - Modeling the Decision Process of a Joint Task Force Commander; Defense Modeling and Simulation Office; \$99,970; CA, CI.

- Composable Reconfigurable Environment for Acquisition, Training, and Experimentation; Defense Modeling and Simulation Office; \$299,310; PA, PI.
- 2001**
 - Joint Futures Exploration Support (DO 25); U.S. Joint Forces Command; \$71,689; SA, PI.
 - Architecture Standards for Modeling and Simulation; U.S. Army STRICOM; \$47,660; SA, PI.
- 2000**
 - Joint Futures Exploration Support (DO 18); U.S. Joint Forces Command; \$35,454; SA, PI.
 - Modeling and Simulation Support to COMOPTEVFOR; U.S. Navy Commander Operational Test and Evaluation Force; \$135,227; CA, CI.
 - JSAF Configuration Management; U.S. Joint Forces Command; \$66,257; SA, PI.
 - Personality Modeling in Modeling and Simulation; Old Dominion University College of Engineering and Technology; \$30,000; SA, CI.
- 1999**
 - OneSAF System Architecture; GRC International; \$26,958; SA, PI.
 - Combat Trauma Patient Simulation Phase III; Medical Education Technologies Incorporated; \$75,000; PA, PM.
 - Combat Trauma Patient Simulation Phase II Increment (Compliance); U.S. Army STRICOM; \$9,000; SA, PM.
 - Combat Trauma Patient Simulation Phase II Increment (RTI Version); U.S. Army STRICOM; \$15,600; SA, PM.
 - Application of Beowulf Cluster Supercomputing to Simulation; University of Central Florida; \$50,000; CA, CI.
 - HLA Gateway Continuation 1999; U.S. Army STRICOM; \$218,000; CA, PM.
- 1998**
 - Applications of Beowulf Cluster Supercomputing to Simulation; University of Central Florida Office of Sponsored Research; \$50,000; CA, CI.
 - Maintenance and Support for the High Level Architecture Gateway; U.S. Army STRICOM; \$95,388; PA, PM.
 - Research and Support for the Advanced Tactical Engagement Simulation STO; U.S. Army STRICOM; \$299,408; PA, PM.
 - Continued Research on Pseudo-Disaggregation for Dynamic Multi-User Information Fusion; U.S. Army TRADOC Analysis Center; \$149,909; CA, PM.
 - Using the HLA Object Model Template for Simulation Specification; U.S. Army STRICOM; \$199,983; CA, PM.
 - Realism in Computer Generated Forces, Artificial Intelligence Enhancements; U.S. Army ARI; \$49,687; PA, PM.
 - Flood Elevations for the Florida Coast: A State-of-the-Art Simulation Approach; University of Central Florida Office of Sponsored Research; \$21,266; CA, CI.
 - Continued Development of the HLA Gateway; U.S. Army STRICOM; \$269,963; PA, PM.
 - Realism in Computer Generated Forces, Software Development for C3SIM; U.S. Army ARI; \$49,964; PA, PM.
 - Review of the CFOR Army Command Entity Relative to OneSAF Requirements; U.S. Army STRICOM; \$299,826; CA, PM.
 - Continued Research on Pseudo-Disaggregation for Dynamic Multi-User Information Fusion (Radar task); U.S. Army TRADOC Analysis Center; \$15,000; CA, PM.
- 1997**
 - HLA Gateway PDU Expansion; U.S. Army STRICOM; \$108,376; PA, PM.
 - Future Data Distribution for the HLA Based on the d -space Intersection of Convex d -Polyhedra; University of Central Florida Office of Sponsored Research; \$40,450; SA, PI.

- 1996 • Continued Experimentation and Evaluation of the High Level Architecture Implementation;
U.S. Army STRICOM; \$499,958; CA, PM.
- BDS-D Participation in the High Level Architecture Platform Proto-Federation Demonstration;
U. S. Army STRICOM and Defense Modeling and Simulation Office; \$458,407; PA, PM.
- 1995 • Plowshares, Emergency Management Simulation and Training;
U. S. Army STRICOM; \$549,995; SA, PM.
- AAAP: Demonstrating the Feasibility of Using Virtual Simulation for Test and Evaluation;
U.S. Navy Naval Air Warfare Center Training Systems Division; \$573,395; PA, CI.
- 1994 • Development and Implementation of Computer Controlled Hostiles in Support of TTES;
U.S. Navy Naval Air Warfare Center Training Systems Division; \$248,971; CA, PM.
- Integrated Eagle/BDS-D Expansion;
U.S. Army STRICOM and U.S. Army TRADOC Analysis Center; \$698,780; CA, PM.
- Graph Isomorphism Algorithms;
University of Central Florida Office of Sponsored Research; \$6,000; CA, PM.
- Integrated Eagle/BDS-D Consultation;
U.S. Army STRICOM and U.S. Army TRADOC Analysis Center; \$102,566; CA, PM.
- Team Target Engagement System Computer Controlled Hostiles Expansion;
U.S. Navy Naval Air Warfare Center Training Systems Division; \$119,238; CA, PM.
- TTES Computer Controlled Hostiles FY 95 Continuation;
U.S. Navy Naval Air Warfare Center Training Systems Division; \$279,291; CA, PM.
- 1993 • Integrated Eagle/BDS-D Enhancement;
U.S. Army STRICOM and U.S. Army TRADOC Analysis Center; \$435,747; CA, PM.
- Increasing the Realism of the DIS Battlefield with Semi-Automated Forces Dismounted Infantry;
U.S. Army STRICOM; \$417,241; PA, PM.
- Integrated Eagle/BDS-D Laboratory Development;
U.S. Army STRICOM and U.S. Army TRADOC Analysis Center; \$39,956; CA, PM.
- 1992 • Intelligent Autonomous Behavior by Semi-Automated Forces in Distributed Interactive Simulation;
U.S. Army STRICOM; \$1,810,720; PA, PI.
- Efficient Line of Sight Determination in Polygonal Terrain;
University of Central Florida Office of Sponsored Research; \$2,000; SA, PI.
- A Language for Specifying and Executing the Behavior of Autonomous Simulation Entities;
Martin Marietta; \$50,000; SA, PI.

Publications

Category	Code	Count
Journal articles	J	30
Book chapters	B	20
Conference papers	C	183
Other (journal editorials, magazine articles, and newspaper articles)	O	17
Total		250

Publications are listed in reverse chronological order within category. Only published or accepted publications are included; pending publications and unpublished technical reports are not included.

Each publication is prefixed with a unique identifier for reference, consisting of a letter indicating category and number within that category. Publications also prefixed with a dagger (†) were nominated and/or selected for Best Paper awards. Coauthors marked with an asterisk (*) are my current or former students.

Journal articles

- [J30] S. Govindaiah* and **M. D. Petty**, “Applying Reinforcement Learning to Plan Manufacturing Material Handling”, *Discover Artificial Intelligence*, Springer, Vol. 1, Iss. 1, December 2021, Article 8, doi:10.1007/s44163-021-00003-3.
- [J29] K. L. Foster* and **M. D. Petty**, “Estimating the Tactical Impact of Robot Swarms Using a Semi-Automated Forces System and Design of Experiments Methods”, *Journal of Defense Modeling and Simulation: Applications, Methodology, and Technology*, Sage, Vol. 18, No. 3, July 2021, pp. 247-269, doi:10.1177/15485129211008532.
- [J28] J. A. Bland*, **M. D. Petty**, T. S. Whitaker*, K. P. Maxwell*, and W. A. Cantrell*, “Machine Learning Cyberattack and Defense Strategies”, *Computers & Security*, Elsevier, Volume 92, May 2020, doi:10.1016/j.cose.2020.101738.
- [J27] D. A. O’Neil* and **M. D. Petty**, “Heuristic Methods for Synthesizing Realistic Social Networks Based on Personality Compatibility”, *Applied Network Science*, Springer, Vol. 4, No. 19, April 2019, doi:10.1007/s41109-019-0117-4.
- [J26] W. A. Cantrell*, **M. D. Petty**, S. L. Knight*, and W. K. Schueler*, “Physics-Based Modeling of Crowd Evacuation in the Unity Game Engine”, *International Journal of Modeling, Simulation, and Scientific Computing*, World Scientific, Vol. 9, Iss. 4, August 2018, doi:10.1142/S1793962318500290.
- [J25] † R. W. Youngren* and **M. D. Petty**, “A Multi-Resolution HEALPix Data Structure for Spherically Mapped Point Data”, *Heliyon*, Elsevier, Vol. 3, Iss. 6, June 2017, doi:10.1016/j.heliyon.2017.e00332.
- [J24] † K. M. Betts* and **M. D. Petty**, “Automated Search-Based Robustness Testing for Autonomous Vehicle Software”, *Modelling and Simulation in Engineering*, Hindawi (Wiley), Vol. 2016, August 2016, 15 pages, doi:10.1155/2016/5309348.
- [J23] **M. D. Petty**, S. E. Barbosa*, and J. R. Hutt, “Using a mock simulation event and Monte Carlo simulation to compare alternative network architectures for distributed training simulation”, *Journal of Defense Modeling and Simulation: Applications, Methodology, and Technology*, Sage, Vol. 13, No. 3, July 2016, pp. 307-320, doi:10.1177/1548512916641526.
- [J22] G. S. Reed*, **M. D. Petty**, N. J. Jones, A. W. Morris, J. P. Ballenger, and H. S. Delugach, “A Principles-based Model of Ethical Considerations in Military Decision Making”, *Journal of Defense Modeling and Simulation: Applications, Methodology, and Technology*, Sage, Vol. 13, No. 2, April 2016, pp. 195-211, doi:10.1177/1548512915581213.
- [J21] **M. D. Petty**, J. Kim, S. Park, and S. Lee, “A Methodology for Quantitative Assessment of the Features and Capabilities of Software Frameworks for Model Composition”, *International Journal of Modeling, Simulation, and Scientific Computing*, World Scientific, Vol. 7, No. 1, March 2016, 21 pages, doi:10.1142/S1793962315410020.

- [J20] **M. D. Petty** and S. E. Barbosa*, “Improving Air Combat Maneuvering Skills Through Self-Study and Simulation-Based Practice”, *Simulation & Gaming: An Interdisciplinary Journal*, Sage, Vol. 47, No. 1, February 2016, pp. 103-129, doi:10.1177/1046878116628236.
- [J19] A. J. Collins, **M. D. Petty**, D. Vernon-Bido, and S. Sherfey, “A Call to Arms: Standards for Agent-based Modeling and Simulation”, *Journal of Artificial Societies and Social Simulation*, European Social Simulation Association, Vol. 18, Iss. 3, June 2015, doi:10.18564/jasss.2838.
- [J18] S. E. Barbosa* and **M. D. Petty**, “Exploiting Spatio-Temporal Patterns Using Partial-State Reinforcement Learning in a Synthetically-Augmented Environment”, *Progress in Artificial Intelligence*, Springer, Vol. 3, Iss. 2, March 2015, pp. 55-71, doi:10.1007/s13748-014-0057-2.
- [J17] M. J. Bott* and **M. D. Petty**, “Implementing a physics-based model of crowd movement using the Unreal Development Kit”, *Journal of Gaming & Virtual Worlds*, Intellect, Vol. 6, No. 3, September 2014, pp. 275-296, doi:10.1386/jgvw.6.3.275_1.
- [J16] S. E. Barbosa* and **M. D. Petty**, “Reinforcement Learning in an Environment Synthetically Augmented with Digital Pheromones”, *Advances in Artificial Intelligence*, Hindawi (Wiley), Vol. 2014, March 2014, 23 pages, doi:10.1155/2014/932485.
- [J15] **M. D. Petty**, J. Kim, S. E. Barbosa*, and J. Pyun, “Software Frameworks for Model Composition”, *Modelling and Simulation in Engineering*, Hindawi (Wiley), Vol. 2014, February 2014, 18 pages, doi:10.1155/2014/492737.
- [J14] G. S. Reed*, G. B. Tackett, **M. D. Petty**, and J. P. Ballenger, “A Model of ‘Evil’ for Course of Action Analysis”, *Military Operations Research*, Military Operations Research Society, Vol. 18, No. 4, December 2013, pp. 61-76, <https://www.jstor.org/stable/24838489>.
- [J13] G. T. Hanold* and **M. D. Petty**, “Enhancing a Commercial Game Engine to Support Research on Route Realism for Synthetic Human Characters”, *International Journal of Computer Games Technology*, Hindawi (Wiley), Vol. 2011, December 2011, Article ID 819746, 15 pages, doi:10.1155/2011/819746.
- [J12] F. D. McKenzie, **M. D. Petty**, P. A. Kruszewski, R. C. Gaskins, Q. H. Nguyen, J. Seevinck, and E. W. Weisel*, “Integrating crowd-behavior modeling into military simulation using game technology”, *Simulation & Gaming: An Interdisciplinary Journal*, Sage, Vol. 39, No. 1, March 2008, pp. 10-38, doi:10.1177/1046878107308092.
- [J11] F. D. McKenzie, **M. D. Petty**, P. A. Kruszewski, R. C. Gaskins, Q. H. Nguyen, J. Seevinck, and E. W. Weisel*, “Crowd Modeling for Military Simulations Using Game Technology”, *International Journal of Intelligent Games and Simulation*, University of Wolverhampton, Vol. 4, No. 1, 2006, pp. 39-58, http://www.scit.wlv.ac.uk/OJS_IJIGS/index.php/IJIGS/article/view/4.
- [J10] K. L. Morse and **M. D. Petty**, “High Level Architecture Data Distribution Management Migration from DoD 1.3 to IEEE 1516”, *Concurrency and Computation: Practice and Experience*, Wiley, Vol. 16, Iss. 15, December 2004, pp. 1527-1543, doi:10.1002/cpe.875.
- [J9] F. D. McKenzie, **M. D. Petty**, and Q. Xu, “Usefulness of Software Architecture Description Languages for Modeling and Analysis of Federates and Federation Architectures”, *SIMULATION: Transactions of the Society for Modeling and Simulation International*, Sage, Vol. 80, Iss. 11, November 2004, pp. 559-576, doi:10.1177/0037549704050185.
- [J8] **M. D. Petty** and K. L. Morse, “The Computational Complexity of the High Level Architecture Data Distribution Management Matching and Connecting Processes”, *Simulation Modelling Practice and Theory*, Elsevier, Vol. 12, Iss. 3-4, July 2004, pp. 217-237, doi:10.1016/j.simpat.2003.10.004.
- [J7] **M. D. Petty**, “Benefits and Consequences of Automated Learning in Computer Generated Forces Systems”, *Information & Security*, ProCon, Vol. 12, Number 1, 2003, pp. 63-74.
- [J6] F. D. McKenzie, **M. D. Petty**, and J. Catanzaro, “An Experimental Application of a Trait-Based Personality Model to the Simulation of Military Decision-Making”, *Information & Security*, ProCon, Vol. 12, No. 1, 2003, pp. 75-92.
- [J5] **M. D. Petty**, “Comparing High Level Architecture Data Distribution Management Specifications 1.3 and 1516”, *Simulation Practice and Theory*, Elsevier, Vol. 9, Iss. 3-5, April 2002, pp. 95-119, doi:10.1016/S0928-4869(01)00051-9.
- [J4] **M. D. Petty**, R. W. Franceschini, and A. Mukherjee, “A Terrain Reasoning Algorithm for Defending a Fire Zone”, *Information & Security*, ProCon, Vol. 3, 1999, pp. 56-75.

- [J3] **M. D. Petty** and P. S. Windyga, “A High Level Architecture-based Medical Simulation”, *SIMULATION: Transactions of the Society for Modeling and Simulation International*, Sage, Vol. 73, No. 5, November 1999, pp. 279-285, doi:10.1177/003754979907300504.
- [J2] M. P. Slepow, **M. D. Petty**, and J. P. Kincaid, “From Battlefield to Emergency Management”, *Ergonomics in Design*, Human Factors and Ergonomics Society, Vol. 5, No. 4, October 1997, pp. 6-12, doi:10.1177/106480469700500404.
- [J1] **M. D. Petty**, M. P. Slepow, and M. Horsley, “Plowshares: An Emergency Management Training Simulation”, *SIMULATION: Transactions of the Society for Modeling and Simulation International*, Sage, Vol. 66, No. 6, June 1996, pp. 357-373, doi:10.1177/003754979606600604.

Book chapters

- [B20] **M. D. Petty**, “An Empirical Study of the Effect of Reducing Matching Frequency in High Level Architecture Data Distribution Management”, in H. R. Arabnia, L. Deligiannidis, M. R. Grimaila, D. D. Hodson, K. Joe, M. Sekijima, and F. G. Tinetti (Editors), *Advances in Parallel & Distributed Processing, and Applications*, Springer Nature, Cham Switzerland, 2021, pp. 975-990.
- [B19] K. P. Maxwell*, **M. D. Petty**, C. D. Colvett*, T. S. Whitaker*, and W. A. Cantrell*, “Composition of Parent-Child Cyberattack Models”, in H. R. Arabnia, L. Deligiannidis, M. R. Grimaila, D. D. Hodson, K. Joe, M. Sekijima, and F. G. Tinetti (Editors), *Advances in Parallel & Distributed Processing, and Applications*, Springer Nature, Cham Switzerland, 2021, pp. 579-592.
- [B18] J. A. Bland*, C. D. Colvett*, W. A. Cantrell*, K. P. Mayfield*, **M. D. Petty**, and T. S. Whitaker*, “Machine Learning Cyberattack Strategies with Petri Nets with Players, Strategies, and Costs”, in K. R. Choo, T. H. Morris, and G. L. Peterson (Editors), *National Cyber Summit (NCS) Research Track*, Advances in Intelligent Systems and Computing, Vol. 1055, Springer, Cham Switzerland, 2020 pp. 232-247, doi:10.1007/978-3-030-31239-8_18.
- [B17] **M. D. Petty** and E. W. Weisel*, “Model Composition and Reuse”, in L. Zhang, B. P. Zeigler, and Y. Laili (Editors), *Model Engineering for Simulation*, Academic Press, London UK, 2019 pp. 57-85.
- [B16] **M. D. Petty**, “Modeling and Validation Challenges for Complex Systems”, in L. B. Rainey and M. Jamshidi (Editors), *Engineering Emergence: A Modeling and Simulation Approach*, CRC Press, Boca Raton FL, 2019, pp. 199-216.
- [B15] O. Balci, G. L. Ball, K. L. Morse, E. Page, **M. D. Petty**, A. Tolk, and S. N. Veautour, “Model Reuse, Composition, and Adaptation”, in R. Fujimoto, C. Bock, W. Chen, E. Page, and J. H. Panchal (Editors), *Research Challenges in Modeling and Simulation for Engineering Complex Systems*, Springer, Cham Switzerland, 2017, pp. 87-115.
- [B14] **M. D. Petty**, G. S. Reed*, and W. V. Tucker*, “The Certified Modeling and Simulation Professional Certification and Examination”, in A. Tolk and T. Ören (Editors), *The Profession of Modeling and Simulation: Discipline, Ethics, Education, Vocation, Societies, and Economics*, John Wiley & Sons, Hoboken NJ, 2017, pp. 109-128.
- [B13] **M. D. Petty**, “A Unit-Level Model of Combat Based on Entity-Level Data”, in R. Garner (Editor), *Brain Waves*, The University of Alabama in Huntsville, 2017, pp. 104-107.
- [B12] **M. D. Petty** and P. Gustavson, “Combat Modeling with the High Level Architecture and Base Object Models”, in A. Tolk (Editor), *Engineering Principles of Combat Modeling and Distributed Simulation*, John Wiley & Sons, Hoboken NJ, 2012, pp. 413-448.
- [B11] **M. D. Petty**, R. W. Franceschini, and J. Panagos, “Multi-Resolution Combat Modeling”, in A. Tolk (Editor), *Engineering Principles of Combat Modeling and Distributed Simulation*, John Wiley & Sons, Hoboken NJ, 2012, pp. 607-640.
- [B10] **M. D. Petty**, “Verification, Validation, and Accreditation”, in J. A. Sokolowski* and C. M. Banks (Editors), *Modeling and Simulation Fundamentals: Theoretical Underpinnings and Practical Domains*, John Wiley & Sons, Hoboken NJ, 2010, pp. 325-372.
- [B9] **M. D. Petty**, “Verification and Validation”, in J. A. Sokolowski* and C. M. Banks (Editors), *Principles of Modeling and Simulation: A Multidisciplinary Approach*, John Wiley & Sons, Hoboken NJ, 2009, pp. 121-149.
- [B8] **M. D. Petty**, “Behavior Generation in Semi-Automated Forces”, in D. Nicholson, D. Schmorow, and J. Cohn (Editors), *The PSI Handbook of Virtual Environment Training and Education: Developments for the Military and Beyond, Volume 2: VE Components and Training Technologies*, Praeger Security International, Westport CT, 2009, pp. 189-204.

- [B7] R. B. Loftin, **M. D. Petty**, F. D. McKenzie, and R. C. Gaskins, “Modeling Crowd Behavior for Military Simulation Applications”, in W. B. Rouse and K. R. Boff (Editors), *Organizational Simulation*, John Wiley & Sons, Hoboken NJ, 2005, pp. 471-536.
- [B6] **M. D. Petty** et al., “Conclusions and Recommendations”, in P. E. Castro et al., *Modeling and Simulation in Manufacturing and Defense Acquisition: Pathways to Success*, National Research Council, The National Academy Press, Washington DC, 2002, pp. 103-126.
- [B5] **M. D. Petty** et al., “Modeling and Simulation Research and Development Topics”, in P. E. Castro et al., *Modeling and Simulation in Manufacturing and Defense Acquisition: Pathways to Success*, National Research Council, National Academy Press, Washington DC, 2002, pp. 77-102.
- [B4] D. D. Wood and **M. D. Petty**, “Electronic warfare and Distributed Interactive Simulation”, in T. L. Clarke (Editor), *Distributed Interactive Simulation Systems for Simulation and Training in the Aerospace Environment*, SPIE Critical Reviews of Optical Science and Technology, Vol. CR58, SPIE Press, Bellingham WA, 1995, pp. 179-194.
- [B3] **M. D. Petty**, “Computer generated forces in Distributed Interactive Simulation”, in T. L. Clarke (Editor), *Distributed Interactive Simulation Systems for Simulation and Training in the Aerospace Environment*, SPIE Critical Reviews of Optical Science and Technology, Vol. CR58, SPIE Press, Bellingham WA, 1995, pp. 251-280.
- [B2] R. W. Franceschini and **M. D. Petty**, “Linking constructive and virtual simulation in DIS”, in T. L. Clarke (Editor), *Distributed Interactive Simulation Systems for Simulation and Training in the Aerospace Environment*, SPIE Critical Reviews of Optical Science and Technology, Vol. CR58, SPIE Press, Bellingham WA, 1995, pp. 281-298.
- [B1] S. Rajput, C. R. Karr, **M. D. Petty**, and M. A. Craft, “Intervisibility heuristics for computer-generated forces”, in T. L. Clarke (Editor), *Distributed Interactive Simulation Systems for Simulation and Training in the Aerospace Environment*, SPIE Critical Reviews of Optical Science and Technology, Vol. CR58, SPIE Press, Bellingham WA, 1995, pp. 299-327.

Conference papers

- [C183] † **M. D. Petty**, T. S. Whitaker*, E. M. Bearss*, J. A. Bland*, W. A. Cantrell*, C. D. Colvett*, and K. P. Maxwell*, “Modeling Cyberattacks with Extended Petri Nets”, *Proceedings of the 2022 ACM Southeast Conference*, Virtual Event, April 18-20 2022, doi:10.1145/3476883.3520209.
- [C182] C. D. Colvett*, **M. D. Petty**, J. A. Bland*, K. P. Maxwell*, and M. Rosenhoover*, “Impact of the Computer System User when Creating Cyber Defense Strategies”, *Proceedings of the 2022 ACM Southeast Conference*, Virtual Event, April 18-20 2022, doi:10.1145/3476883.3520208.
- [C181] E. M. Bearss*, W. A. Cantrell*, C. W. Hall*, J. E. Pinckard*, and **M. D. Petty**, “Wolf Sheep Predation: Reimplementing a Predator-prey Ecosystem Model as an Instructional Exercise in Agent-based Modeling”, *Proceedings of the 2022 ACM Southeast Conference*, Virtual Event, April 18-20 2022, doi:10.1145/3476883.3520218.
- [C180] W.A. Cantrell*, K. P. Maxwell*, **M. D. Petty**, C. D. Colvett*, E. M. Bearss*, S. York, L. Strelzoff*, and M. Rosenhoover*, “Experimental Validation of Structured Attack Patterns”, *Proceedings of the 2021 International Conference on Security and Management*, Las Vegas NV, July 26–29 2021.
- [C179] K. P. Maxwell*, **M. D. Petty**, W. A. Cantrell*, and C. D. Colvett*, “A Bottom-up Approach to Creating a Cyberattack Model with Fine Grain Components”, *Proceedings of the 2021 ACM Southeast Conference*, Jacksonville AL, April 15-17 2021, pp. 25-32, doi:10.1145/3409334.3452070.
- [C178] I. Oswalt, L. Brent, N. Finkelstein, S. Gordon, A. Lynch, S. Osmond, **M. D. Petty**, G. S. Reed*, G. Stone, D. Wells, and E. W. Weisel*, “Certified Modeling and Simulation Professional 3.0 – Reinvention!”, *Proceedings of the 2020 Interservice/Industry Training, Simulation, and Education Conference*, Orlando FL, November 30-December 4 2020, Paper 20446 pp. 1-12.
- [C177] W. A. Cantrell*, K. P. Maxwell*, **M. D. Petty**, and T. S. Whitaker*, “Matrix Reduction Verification of Extended Petri Nets”, *Proceedings of the 2020 ACM Southeast Conference*, April 2-4 2020, Tampa FL, pp. 296-299.
- [C176] C. D. Colvett*, **M. D. Petty**, J. A. Bland*, and K. R. Baker, “Simulating Cyberattacks with a Petri Net Discrete Event Simulator”, *Proceedings of the 2019 International Conference on Computational Science and Computational Intelligence*, December 5-7 2019, Las Vegas NV, pp. 67-71, doi:10.1109/CSCI49370.2019.00018.
- [C175] **M. D. Petty** and K. L. Foster*, “Monte Carlo Simulation with R for Missile Defense Applications”, *Proceedings of the 2019 AlaSim Conference and Exhibition*, October 24 2019, Huntsville AL.

- [C174] K. L. Foster* and **M. D. Petty**, “An Examination of the Tactical Impact of Drone Swarms Using a Semi-Automated Forces System Calibrated to the Historical Results of the Battle of 73 Easting”, *Proceedings of the 2019 AlaSim Conference and Exhibition*, October 24 2019, Huntsville AL.
- [C173] **M. D. Petty**, P. M. Showers*, T. S. Whitaker*, J. A. Bland*, W. A. Cantrell*, C. D. Colvett*, K. P. Maxwell*, “Modeling Cyberattacks with Extended Petri Nets: Research Program Update”, *Proceedings of the 2019 AlaSim Conference and Exhibition*, October 24 2019, Huntsville AL.
- [C172] W. A. Cantrell*, P. M. Showers*, and **M. D. Petty**, “Verification of XML Encoded Petri Nets Modeling Cyberattacks”, *Proceedings of the 2019 AlaSim Conference and Exhibition*, October 24 2019, Huntsville AL.
- [C171] D. A. O’Neil* and **M. D. Petty**, “Synthesizing Social Networks with Iterated Prisoners’ Dilemma”, *Proceedings of the 2019 International Conference on Modeling, Simulation, and Visualization Methods*, Las Vegas NV, July 29–August 1 2019, pp. 3-10.
- [C170] **M. D. Petty**, T. S. Whitaker*, J. A. Bland*, W. A. Cantrell*, and K. P. Mayfield*, “Modeling Cyberattacks with Extended Petri Nets: Research Program Overview and Status Report”, *Proceedings of the 2019 International Conference on Modeling, Simulation, and Visualization Methods*, Las Vegas NV, July 29–August 1 2019, pp. 27-33.
- [C169] K. P. Mayfield*, **M. D. Petty**, T. S. Whitaker*, W. A. Cantrell*, S. M. Hice, J. McClendon, and P. J. Reyes, “Component Selection Process in Assembling Cyberattack Simulation Models”, *Proceedings of the 2019 International Conference on Security and Management*, Las Vegas NV, July 29–August 1 2019, pp. 168-174.
- [C168] J. A. Bland*, C. D. Colvett*, W. A. Cantrell*, K. P. Mayfield*, **M. D. Petty**, and T. S. Whitaker*, “Machine Learning Cyberattack Strategies with Petri Nets with Players, Strategies, and Costs”, *Proceedings of the 2019 National Cyber Summit*, Huntsville AL, June 4-6 2019, pp. 1-16, doi:10.1007/978-3-030-31239-8_18.
- [C167] D. A. O’Neil* and **M. D. Petty**, “A Monte Carlo Algorithm for Generating Synthetic Social Networks Based on Personality Compatibility”, *Proceedings of the 2019 IEEE SoutheastCon*, Huntsville AL, April 11-14 2019, doi:10.1109/SoutheastCon42311.2019.9020446.
- [C166] W. T. Garrison* and **M. D. Petty**, “An Analysis of Machine Learning Online Training Approaches for Simulation Optimization”, *Proceedings of the 2019 IEEE SoutheastCon*, Huntsville AL, April 11-14 2019, doi:10.1109/SoutheastCon42311.2019.9020346.
- [C165] W. T. Garrison* and **M. D. Petty**, “A Comparison of Simulation Optimization Algorithm Performance”, *Proceedings of the 2019 IEEE SoutheastCon*, Huntsville AL, April 11-14 2019, doi:10.1109/SoutheastCon42311.2019.9020549.
- [C164] W. T. Garrison* and **M. D. Petty**, “A Technique to Enable Online Machine Learning Applications for Simulation Optimization”, *Proceedings of the 2019 IEEE SoutheastCon*, Huntsville AL, April 11-14 2019, doi:10.1109/SoutheastCon42311.2019.9020348.
- [C163] S. Govindaiah* and **M. D. Petty**, “Applying Reinforcement Learning to Plan Manufacturing Material Handling, Part 2: Experimentation and Results” *Proceedings of the 2019 ACM Southeast Conference*, Kennesaw GA, April 18-20 2019, pp. 16-23, doi:10.1145/3299815.3314427.
- [C162] S. Govindaiah* and **M. D. Petty**, “Applying Reinforcement Learning to Plan Manufacturing Material Handling, Part 1: Background and Formal Problem Specification” *Proceedings of the 2019 ACM Southeast Conference*, Kennesaw GA, April 18-20 2019, pp. 168-171, doi:10.1145/3299815.3314451.
- [C161] K. P. Mayfield*, **M. D. Petty**, T. S. Whitaker*, J. A. Bland*, and W. A. Cantrell*, “Component-based Implementation of Cyberattack Simulation Models”, *Proceedings of the 2019 ACM Southeast Conference*, Kennesaw GA, April 18-20 2019, pp. 64-71, doi:10.1145/3299815.3314435.
- [C160] K. L. Foster* and **M. D. Petty**, “A Case Study of the Use of Design of Experiments Methods to Calibrate a Semi-Automated Forces System” *Proceedings of the 2019 ACM Southeast Conference*, Kennesaw GA, April 18-20 2019, pp. 133-140, doi:10.1145/3299815.3314444.
- [C159] S. Govindaiah* and **M. D. Petty**, “A discrete event simulation-based multi-objective reinforcement learning reward function for optimizing manufacturing material handling”, *Proceedings of the 2019 Simulation Innovation Workshop*, Orlando FL, February 11-15 2019.
- [C158] K. P. Mayfield*, **M. D. Petty**, J. A. Bland*, and T. S. Whitaker*, “Composition of Cyberattack Models”, *Proceedings of the 31st International Conference on Computer Applications in Industry and Engineering*, New Orleans LA, October 8-10 2018, pp. 3-8.

- [C157] K. P. Mayfield* and **M. D. Petty**, “Petri Nets with Players, Strategies, and Cost: A Formalism for Modeling Cyberattacks”, *Proceedings of the 2018 International Conference on Security and Management*, Las Vegas NV, July 30-August 2 2018.
- [C156] **M. D. Petty** and K. S. Nemec, “Monte Carlo Simulation with R for Environmental Applications”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 9-24.
- [C155] **M. D. Petty** and K. L. Foster*, “Monte Carlo Simulation with R for Combat Applications”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 25-45.
- [C154] W. A. Cantrell* and **M. D. Petty**, “A Model-based Systems Engineering Assessment of Cyber Security Modeling Methods”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 110-122.
- [C153] K. P. Mayfield*, **M. D. Petty**, T. S. Whitaker*, J. A. Bland*, and W. A. Cantrell*, “An Extended Petri Net Formalism for Modeling Cyberattacks”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 46-72.
- [C152] W. A. Cantrell*, K. P. Mayfield*, **M. D. Petty**, T. S. Whitaker*, and J. A. Bland*, “Structured Face Validation of Extended Petri Nets for Modeling Cyberattacks”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 123-139.
- [C151] J. A. Bland*, W. A. Cantrell*, K. P. Mayfield*, **M. D. Petty**, and T. S. Whitaker*, “Machine Learning Cyberattack and Defense Strategies”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 81-87.
- [C150] T. S. Whitaker*, J. A. Bland*, W. A. Cantrell*, K. P. Mayfield*, and **M. D. Petty**, “Tools for Simulating and Visualizing Petri Nets”, *Proceedings of the 2018 AlaSim International Conference and Exposition*, Huntsville AL, May 22-23 2018, pp. 88-109.
- [C149] **M. D. Petty**, T. S. Whitaker*, J. A. Bland*, and K. P. Mayfield*, “Modeling Cyberattacks with Petri Nets: Research Program Overview and Status Report”, *Proceedings of the 2017 AlaSim International Conference and Exposition*, Huntsville AL, October 25 2017.
- [C148] K. P. Mayfield*, **M. D. Petty**, T. S. Whitaker*, and J. A. Bland*, “An Overview of Modeling Cyberattacks with Petri Nets”, *Proceedings of the 2017 AlaSim International Conference and Exposition*, Huntsville AL, October 25 2017.
- [C147] J. A. Bland*, K. P. Mayfield*, **M. D. Petty**, and T. S. Whitaker*, “Validating Petri Net Models of Common Attack Pattern Enumeration and Classification”, *Proceedings of the 2017 AlaSim International Conference and Exposition*, Huntsville AL, October 25 2017.
- [C146] T. S. Whitaker*, J. A. Bland*, K. P. Mayfield*, and **M. D. Petty**, “Modeling Cyberattack Patterns in Attack Trees”, *Proceedings of the 2017 AlaSim International Conference and Exposition*, Huntsville AL, October 25 2017.
- [C145] W. A. Cantrell* and **M. D. Petty**, “Physics-based Modeling of Crowd Evacuation in the Unity 3D Game Engine”, *Proceedings of the 2016 AlaSim International Conference and Exposition*, Huntsville AL, May 3-5 2016.
- [C144] W. V. Tucker*, S. E. Barbosa*, W. C. Edmonds, S. Kim, **M. D. Petty**, and L. M. Stone, “Non-Player Characters: How Good is Good Enough?”, *Proceedings of the 2015 AlaSim International Conference*, Huntsville AL, May 6-7 2015.
- [C143] W. V. Tucker*, S. E. Barbosa*, W. C. Edmonds, S. Kim, **M. D. Petty**, and L. M. Stone, “Establishing Requirements for Virtual Environments”, *Proceedings of the 2015 AlaSim International Conference*, Huntsville AL, May 6-7 2015.
- [C142] **M. D. Petty** and W. S. Barge, “Emerging Modeling and Simulation Technologies Needed to Implement Cultural Familiarization Training in Virtual Environments”, *Proceedings of the 2014 Summer Simulation Multi-Conference*, Monterey CA, July 6-10 2014, pp. 500-507.
- [C141] E. W. Weisel* and **M. D. Petty**, “A Bayesian Approach to Assessing Expected Utility in the Simulation Decision”, *Proceedings of the 2013 Summer Simulation Multi-Conference*, Toronto Canada, July 7-10 2013.
- [C140] † **M. D. Petty**, “Advanced Topics in Calculating and Using Confidence Intervals for Model Validation”, *Proceedings of the Spring 2013 Simulation Interoperability Workshop*, San Diego CA, April 8-12 2013, pp. 194-204.

- [C139] D. A. O'Neil* and **M. D. Petty**, "Organizational Simulation for Model Based Systems Engineering", *Proceedings of the 2013 Conference on Systems Engineering Research*, Atlanta GA, March 19-22 2013, pp. 323-332.
- [C138] A. J. Collins, D. Meyr, S. Sherfey, and **M. D. Petty**, "The Value of Modeling and Simulation Standards", *Proceedings of the Autumn Simulation Multiconference 2012*, San Diego CA, October 28-31 2012.
- [C137] † **M. D. Petty**, "Calculating and Using Confidence Intervals for Model Validation", *Proceedings of the Fall 2012 Simulation Interoperability Workshop*, Orlando FL, September 10-14 2012, pp. 37-45.
- [C136] D. C. Bulgatz*, D. L. Heater*, D. A. O'Neil*, B. C. Norris*, B. C. Schricker*, and **M. D. Petty**, "Design and Implementation of Lunar Communications Satellite and Server Federates for the 2012 SISO Smackdown Federation", *Proceedings of the Fall 2012 Simulation Interoperability Workshop*, Orlando FL, September 10-14 2012, pp. 213-223.
- [C135] C. L. Fordyce*, S. Govindaiah*, S. P. Murater*, D. A. O'Neil*, B. C. Schricker*, and **M. D. Petty**, "Three Dimensional Computer Graphics Federates for the 2012 SISO Smackdown Federation", *Proceedings of the Fall 2012 Simulation Interoperability Workshop*, Orlando FL, September 10-14 2012, pp. 224-233.
- [C134] **M. D. Petty**, R. L. Dunning*, and A. J. Collins, "Expanded Analysis of the Correlation of Characterizing Attributes and Success in Military M&S Standards", *Proceedings of the 2012 AlaSim International Modeling and Simulation Conference*, Huntsville AL, May 1-3 2012.
- [C133] W. E. Daniels and **M. D. Petty**, "Recreating the Battle of 73 Easting in a Constructive Combat Model", *Proceedings of the 2012 AlaSim International Modeling and Simulation Conference*, Huntsville AL, May 1-3 2012.
- [C132] † **M. D. Petty**, "Modeling and Validation Challenges for Complex Systems", *Proceedings of the Spring 2012 Simulation Interoperability Workshop*, Orlando FL, March 26-30 2012, pp. 178-187.
- [C131] **M. D. Petty**, G. S. Reed*, and W. V. Tucker*, "Topics, Structure, and Delivery of the New Certified Modeling and Simulation Professional Examination", *Proceedings of the Spring 2012 Simulation Interoperability Workshop*, Orlando FL, March 26-30 2012, pp. 188-195.
- [C130] M. L. Loper, J. W. Diem, A. Henninger, **M. D. Petty**, and A. Tolk., "Educating the Workforce: M&S Professional Education", *Proceedings of the 2011 Winter Simulation Conference*, Phoenix AZ, December 11-14 2011, pp. 3968-3978, doi:10.1109/WSC.2011.6148087.
- [C129] A. Tolk, O. Balci, S. Y. Diallo, P. A. Fishwick, X. Hu, M. L. Loper, **M. D. Petty**, P. F. Reynolds, H. Sarjoughian, and B. P. Zeigler, "Towards A Methodological Approach to Identify Future M&S Standard Needs", *Proceedings of the 2011 Winter Simulation Conference*, Phoenix AZ, December 11-14 2011, pp. 2980-2997, doi:10.1109/WSC.2011.6147999.
- [C128] **M. D. Petty**, R. L. Dunning*, and A. J. Collins, "Correlation of Characterizing Attributes and Success in Military M&S Standards", *Proceedings of the Fall 2011 Simulation Interoperability Workshop*, Orlando FL, September 19-23 2011, pp. 188-200.
- [C127] **M. D. Petty**, J. Panagos, J. P. Joseph, and R. W. Franceschini, "Validation Using Comparison Testing of Three Constructive Combat Models", *Proceedings of the Fall 2011 Simulation Interoperability Workshop*, Orlando FL, September 19-23 2011, pp. 201-212.
- [C126] **M. D. Petty** and B. C. Schricker*, "Curriculum Structure and Graduation Requirements in the UAHuntsville M&S Degree Programs", *Proceedings of the 2010 Huntsville Simulation Conference*, Huntsville AL, October 26-28 2010.
- [C125] S. E. Barbosa* and **M. D. Petty**, "Implementing Autonomous Behavior Control and Inter-Agent Collaboration in Unreal Tournament", *Proceedings of the 2010 Huntsville Simulation Conference*, Huntsville AL, October 26-28 2010.
- [C124] G. T. Hanold* and **M. D. Petty**, "Developing a Modeling and Simulation Environment and Methodology for the Measurement and Validation of Route Realism", *Proceedings of the 2010 Huntsville Simulation Conference*, Huntsville AL, October 26-28 2010.
- [C123] G. S. Reed* and **M. D. Petty**, "Designing and Implementing a Predictive Healthcare Decision Support Software System for Nursing Managers", *Proceedings of the 2010 Huntsville Simulation Conference*, Huntsville AL, October 26-28 2010.
- [C122] A. J. Collins, S. Y. Diallo, S. R. Sherfey, A. Tolk, C. D. Turnitsa, **M. D. Petty**, and E. W. Weisel*, "Standards in Modeling and Simulation: The Next Ten Years," *Proceedings of the MODSIM World 2010 Conference and Expo*, Hampton VA; October 13-15 2010, pp. 68-73.

- [C121] † **M. D. Petty**, K. L. Morse, W. C. Riggs, P. Gustavson, and H. Rutherford, “A Reuse Lexicon: Terms, Units, and Modes in M&S Asset Reuse”, *Proceedings of the Fall 2010 Simulation Interoperability Workshop*, Orlando FL, September 20-24 2010.
- [C120] W. C. Riggs, K. L. Morse, P. Gustavson, H. Rutherford, and **M. D. Petty**, “Use Cases and Criteria for Assessing M&S Reuse Repositories”, *Proceedings of the Fall 2010 Simulation Interoperability Workshop*, Orlando FL, September 20-24 2010.
- [C119] R. Lutz, R. Scrudder, R. Syring, **M. D. Petty**, J. Borah, and J. Rutledge, “A Systems Engineering Perspective on the Development and Execution of Multi-Architecture LVC Environments”, *Proceedings of the Fall 2010 Simulation Interoperability Workshop*, Orlando FL, September 20-24 2010.
- [C118] † S. E. Barbosa* and **M. D. Petty**, “A Survey and Comparison of Past Instances of Combat Model Validation by Retrodiction”, *Proceedings of the Spring 2010 Simulation Interoperability Workshop*, Orlando FL, April 12-16 2010.
- [C117] **M. D. Petty**, “The UAHuntsville Modeling and Simulation Degree Programs”, *Proceedings of the 2009 Huntsville Simulation Conference*, Huntsville AL, October 28-29 2009.
- [C116] **M. D. Petty** and G. S. Reed*, “Developing a Modeling and Simulation Education Curriculum for Defense Test and Evaluation and Acquisition Professionals”, *Proceedings of the 2009 Huntsville Simulation Conference*, Huntsville AL, October 28-29 2009.
- [C115] A. W. Morris, **M. D. Petty**, W. N. Colley, J. D. Richardson, and M. Chandler, “Developing Instructional Content for Test & Evaluation: Advanced Modeling and Simulation for Test and Evaluation”, *Proceedings of the 2009 ITEA Live-Virtual-Constructive Conference*, El Paso TX, January 12-15 2009.
- [C114] A. W. Morris, **M. D. Petty**, W. N. Colley, and M. Chandler, “Developing Instructional Content for Test & Evaluation: Introduction to Modeling and Simulation for Test and Evaluation”, *Proceedings of the 2009 ITEA Live-Virtual-Constructive Conference*, El Paso TX, January 12-15 2009.
- [C113] **M. D. Petty** and J. Panagos, “A Unit-level Combat Resolution Algorithm Based on Entity-level Data”, *Proceedings of the 2008 Interservice/Industry Training, Simulation and Education Conference*, Orlando FL, December 1-4 2008, pp. 267-277.
- [C112] **M. D. Petty**, J. Panagos, R. W. Franceschini, and J. S. Strickland, “Towards an Aggregate-Level Combat Resolution Algorithm Based on Entity-Level Models”, *Proceedings of the 2007 Huntsville Simulation Conference*, Huntsville AL, October 30-November 1 2007.
- [C111] † L. J. Moya, E. W. Weisel*, F. D. McKenzie, Q. H. Nguyen, and **M. D. Petty**, “A Distributed Crowd Behavior Model Using Game Technology”, *Proceedings of the 2007 European Simulation Interoperability Workshop*, Genoa Italy, June 18-20 2007.
- [C110] **M. D. Petty** and L. A. Litten, “A Comparative Analysis of Modeling and Simulation Degree Programs”, *Proceedings of the 2006 Huntsville Simulation Conference*, Huntsville AL, October 17-19 2006.
- [C109] **M. D. Petty**, “Approximating Sensor Footprints with HLA DDM Rectangles: Comparing the Maximum and Minimum Approaches”, *Proceedings of the Fall 2006 Simulation Interoperability Workshop*, Orlando FL, September 10-15 2006, pp. 475-488.
- [C108] **M. D. Petty**, “Corrigendum to ‘Computational Complexity of Selecting Components for Composition’”, *Proceedings of the Fall 2006 Simulation Interoperability Workshop*, Orlando FL, September 10-15 2006, pp. 489-490.
- [C107] **M. D. Petty**, “Approximating Sensor Footprints with HLA DDM Rectangles: Lines, Quadrilaterals, and Multi-Sectors”, *Proceedings of the Spring 2006 Simulation Interoperability Workshop*, Huntsville AL, April 2-7 2006, pp. 155-177.
- [C106] E. W. Weisel*, F. D. McKenzie, Q. H. Nguyen, **M. D. Petty**, J. Camp, J. Anthony, and R. Albright, “Crowd Federate Implementation for Maneuver Support Simulation”, *Proceedings of the Spring 2006 Simulation Interoperability Workshop*, Huntsville AL, April 2-7 2006, pp. 583-587.
- [C105] R. R. Mielke, **M. D. Petty**, and E. W. Weisel*, “A Comparison of Model-Based Systems Engineering and Composability Theory”, *Proceedings of the Huntsville Simulation Conference 2005*, Huntsville AL, October 25-27 2005, pp. 300-308.
- [C104] † **M. D. Petty**, “Approximating Sensor Footprints with HLA DDM Rectangles: Ellipses, Sectors with Semicircular Ends, and Rectangles with Semicircular Ends”, *Proceedings of the Fall 2005 Simulation Interoperability Workshop*, Orlando FL, September 18-23 2005, pp. 151-163.

- [C103] K. D. Neal*, W. N. Colley, and **M. D. Petty**, “An Application and Evaluation of a Methodology for Testing Operational Level Training Simulations”, *Proceedings of the Fall 2005 Simulation Interoperability Workshop*, Orlando FL, September 18-23 2005, pp. 271-279.
- [C102] † Q. H. Nguyen, F. D. McKenzie, and **M. D. Petty**, “Crowd Behavior Cognitive Model Architecture Design”, *Proceedings of the 2005 Conference on Behavior Representation in Modeling and Simulation*, Universal City CA, May 16-19 2005, pp. 55-64.
- [C101] † **M. D. Petty**, “Approximating Sensor Footprints with DDM Rectangles: Circles, Sectors, and Non-Axis Parallel Rectangles”, *Proceedings of the Spring 2005 Simulation Interoperability Workshop*, San Diego CA, April 3-8 2005, pp. 419-430.
- [C100] † **M. D. Petty**, E. W. Weisel*, and R. R. Mielke, “Composability Theory Overview and Update”, *Proceedings of the Spring 2005 Simulation Interoperability Workshop*, San Diego CA, April 3-8 2005, pp. 431-437.
- [C99] † E. W. Weisel*, **M. D. Petty**, and R. R. Mielke, “A Comparison of DEVS and Semantic Composability Theory”, *Proceedings of the Spring 2005 Simulation Interoperability Workshop*, San Diego CA, April 3-8 2005, pp. 956-964.
- [C98] K. R. Hunter, **M. D. Petty**, and F. D. McKenzie, “Experimental Evaluation of the Effect of Varying Levels of Crowd Behavior Fidelity on the Outcome of Certain Military Scenarios”, *Proceedings of the Spring 2005 Simulation Interoperability Workshop*, San Diego CA, April 3-8 2005, pp. 446-453.
- [C97] F. D. McKenzie, Q. H. Nguyen, Q. Xu, **M. D. Petty**, and P. A. Kruszewski, “Designing Physical Layer Components in a Reconfigurable Crowd Federate”, *Proceedings of the Spring 2005 Simulation Interoperability Workshop*, San Diego CA, April 3-8 2005, pp. 333-342.
- [C96] E. W. Weisel*, W. T. Richards, V. Lassiter-Bryson, and **M. D. Petty**, “Generating Geospecific Terrain Databases for Brcko Bosnia for the Crowd Federate”, *Proceedings of the Spring 2005 Simulation Interoperability Workshop*, San Diego CA, April 3-8 2005, pp. 1024-1032.
- [C95] C. M. Boone, R. C. Gaskins, and **M. D. Petty**, “Crowd Control Training for Military Officers”, *American Psychological Association Annual Symposium on Applied Experimental Research*, Fairfax VA, March 3-4 2005.
- [C94] **M. D. Petty**, E. W. Weisel*, and R. R. Mielke, “Overview of a Theory of Composability”, *Proceedings of the Huntsville Simulation Conference 2004*, Huntsville AL, October 19-21 2004, pp. 363-368.
- [C93] R. C. Gaskins, C. M. Boone, T. M. Verna, and **M. D. Petty**, “Cognitive and Behavioral Psychological Research for Crowd Modeling”, *NATO Symposium on Modeling and Simulation to Address NATO’s New and Existing Military Requirements*, Koblenz Germany, October 7-8 2004.
- [C92] C. M. Boone, R. C. Gaskins, and **M. D. Petty**, “Crowd Behavior Observations for Military Simulation”, *Human Factors and Ergonomics Society 48th Annual Meeting*, New Orleans LA, September 20-24 2004.
- [C91] E. W. Weisel* and **M. D. Petty**, “Reference Scenarios for Crowd Federate Validation”, *Proceedings of the Fall 2004 Simulation Interoperability Workshop*, Orlando FL, September 19-24 2004, pp. 415-423.
- [C90] † F. D. McKenzie, Q. Xu, Q. H. Nguyen, and **M. D. Petty**, “Crowd Federate Architecture and API Design”, *Proceedings of the Fall 2004 Simulation Interoperability Workshop*, Orlando FL, September 19-24 2004, pp. 574-587.
- [C89] D. A. Dryer, L. A. Belfore, **M. D. Petty**, M. Phillips, H. Garcia, J. Seevinck, R. B. Loftin, and T. Mastaglio, “A Methodology for Rapid Assessment of Simulation Technology and Application to Soldier CATT”, *Proceedings of the Fall 2004 Simulation Interoperability Workshop*, Orlando FL, September 19-24 2004, pp. 403-414.
- [C88] C. M. Boone, R. C. Gaskins, and **M. D. Petty**, “Observations of Crowd Behavior”, *Proceedings of the 2004 Conference on Behavior Representation in Modeling and Simulation*, Arlington VA, May 17-20 2004, pp. 397-398.
- [C87] R. C. Gaskins, C. M. Boone, T. M. Verna, J. P. Bliss, and **M. D. Petty**, “Psychological Research for Crowd Modeling”, *Proceedings of the 2004 Conference on Behavior Representation in Modeling and Simulation*, Arlington VA, May 17-20 2004, pp. 401-402.
- [C86] † **M. D. Petty**, “Simple Composition Suffices to Assemble Any Composite Model”, *Proceedings of the Spring 2004 Simulation Interoperability Workshop*, Arlington VA, April 18-23 2004, pp. 299-307.
- [C85] E. W. Weisel*, **M. D. Petty**, and R. R. Mielke, “A Survey of Engineering Approaches to Composability”, *Proceedings of the Spring 2004 Simulation Interoperability Workshop*, Arlington VA, April 18-23 2004, pp. 722-731.

- [C84] † **M. D. Petty**, F. D. McKenzie, R. C. Gaskins, and E. W. Weisel*, “Developing a Crowd Federate for Military Simulation”, *Proceedings of the Spring 2004 Simulation Interoperability Workshop*, Arlington VA, April 18-23 2004, pp. 483-493.
- [C83] K. L. Morse, **M. D. Petty**, P. F. Reynolds, W. F. Waite, and P. M. Zimmerman, “Findings and Recommendations from the 2003 Composable Mission Space Environments Workshop”, *Proceedings of the Spring 2004 Simulation Interoperability Workshop*, Arlington VA, April 18-23 2004, pp. 313-323.
- [C82] F. D. McKenzie, H. Garcia, Q. H. Nguyen, J. Seevinck, and **M. D. Petty**, “Mogadishu Terrain Generation and Correlation for Crowd Modeling”, *Proceedings of the Spring 2004 Simulation Interoperability Workshop*, Arlington VA, April 18-23 2004, pp. 944-950.
- [C81] L. A. Belfore, J. J. Garcia, E. K. Lada, **M. D. Petty**, and W. P. Quinones, “Capabilities and Intended Uses of the Joint Operations Feasibility Tool”, *Proceedings of the Spring 2004 Simulation Interoperability Workshop*, Arlington VA, April 18-23 2004, pp. 596-604.
- [C80] **M. D. Petty**, E. W. Weisel*, and R. R. Mielke, “A Formal Approach to Composability”, *Proceedings of the 2003 Interservice/Industry Training, Simulation and Education Conference*, Orlando FL, December 1-4 2003, pp. 1763-1772.
- [C79] **M. D. Petty**, F. D. McKenzie, and R. C. Gaskins, “Requirements, Psychological Models, and Design Issues in Crowd Modeling for Military Simulation”, *Proceedings of the Huntsville Simulation Conference 2003*, Huntsville AL, October 29-31 2003, pp. 237-245.
- [C78] † **M. D. Petty**, E. W. Weisel*, and R. R. Mielke, “Computational Complexity of Selecting Components for Composition”, *Proceedings of the Fall 2003 Simulation Interoperability Workshop*, Orlando FL, September 14-19 2003, pp. 517-525.
- [C77] E. W. Weisel*, R. R. Mielke, and **M. D. Petty**, “Validity of Models and Classes of Models in Semantic Composability”, *Proceedings of the Fall 2003 Simulation Interoperability Workshop*, Orlando FL, September 14-19 2003, pp. 526-536.
- [C76] **M. D. Petty** and E. W. Weisel*, “A Formal Basis for a Theory of Semantic Composability”, *Proceedings of the Spring 2003 Simulation Interoperability Workshop*, Orlando FL, March 30-April 4 2003, pp. 416-423.
- [C75] † **M. D. Petty** and E. W. Weisel*, “A Composability Lexicon”, *Proceedings of the Spring 2003 Simulation Interoperability Workshop*, Orlando FL, March 30-April 4 2003, pp. 181-187.
- [C74] **M. D. Petty**, F. D. McKenzie, and Q. Xu, “Using a Software Architecture Description Language to Model the Architecture and Run-Time Performance of a Federate”, *Proceedings of the Sixth IEEE International Workshop on Distributed Simulation and Real-Time Applications*, Ft. Worth TX, October 11-13 2002, pp. 85-92.
- [C73] F. D. McKenzie, **M. D. Petty**, and Q. Xu, “Using Rapide to Simulate a Federation Architecture”, *Proceedings of the Fall 2002 Simulation Interoperability Workshop*, Orlando FL, September 8-13 2002, pp. 203-212.
- [C72] **M. D. Petty**, “Semantic Composability and XMSF”, *XMSF Technical Challenges Workshop 2002*, Monterey CA, August 19-20 2002.
- [C71] K. L. Morse and **M. D. Petty**, “Data Distribution Management Migration from DoD 1.3 to IEEE 1516”, *Proceedings of the Fifth IEEE International Workshop on Distributed Simulation and Real-Time Applications*, Cincinnati OH, August 13-15 2001, pp. 58-65.
- [C70] **M. D. Petty**, “Do We Really Want Computer Generated Forces That Learn?”, *Proceedings of the Tenth Conference on Computer Generated Forces and Behavioral Representation*, Norfolk VA, May 15-17 2001, pp. 125-130.
- [C69] F. D. McKenzie, J. Catanzaro, and **M. D. Petty**, “A Personality-Based Command Decision-Maker: Results and Recommendations”, *Proceedings of the Tenth Conference on Computer Generated Forces and Behavioral Representation*, Norfolk VA, May 15-17 2001, pp. 351-359.
- [C68] **M. D. Petty**, “Data Distribution Management Specifications 1.3 And 1516 Are Equivalently Powerful”, *Proceedings of the Spring 2001 Simulation Interoperability Workshop*, Orlando FL, March 26-30 2001, pp. 857-867.
- [C67] **M. D. Petty**, “Geometric and Algorithmic Results Regarding HLA Data Distribution Management Matching”, *Proceedings of the Fall 2000 Simulation Interoperability Workshop*, Orlando FL, September 17-22 2000, pp. 596-603.

- [C66] **M. D. Petty** and K. L. Morse, "Computational Complexity of HLA Data Distribution Management", *Proceedings of the Fall 2000 Simulation Interoperability Workshop*, Orlando FL, September 17-22 2000, pp. 1027-1032.
- [C65] **M. D. Petty**, "Comparing the Power of the HLA Data Distribution Management Specifications 1.3 and 1516", *Proceedings of the Second Conference on Simulation Methods and Applications*, Orlando FL, October 29-31 2000, pp. 214-223.
- [C64] F. D. McKenzie, **M. D. Petty**, A. Jafri, and T. Khan, "Personality Comparisons in Trait-Based Command Decision Making", *Proceedings of the Second Conference on Simulation Methods and Applications*, Orlando FL, October 29-31 2000, pp. 252-261.
- [C63] R. R. Mielke, T. W. Mastaglio, and **M. D. Petty**, "Using Enterprise Simulation to Support SATS", *Proceedings of the 2000 Summer Computer Simulation Conference*, Society for Computer Simulation, Vancouver BC Canada, July 16-20 2000, pp. 830-835.
- [C62] M. Lorenzo, B. Riggs, P. D. Rizik, A. D. Christiansen, D. Florek, and **M. D. Petty**, "Next Generation CGF Requirements to Support Sensor Development", *Proceedings of the Ninth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 16-18 2000, pp. 413-420.
- [C61] P. S. Windyga, J. P. Kincaid, B. C. Schricker*, F. W. Feuerbacher, K. B. Anna, T. C. Johnson, and **M. D. Petty**, "Multiple Casualty Sources in the Combat Trauma Patient Simulation (CTPS)", *Proceedings of the Spring 2000 Simulation Interoperability Workshop*, Orlando FL, March 26-31 2000, pp. 424-433.
- [C60] R. W. Franceschini, **M. D. Petty**, S. A. Schricker, D. J. Franceschini, and G. McCulley, "Measuring and Improving CGF Performance", *Proceedings of the Eighth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 11-13 1999, pp. 9-15.
- [C59] D. D. Wood and **M. D. Petty**, "HLA Gateway 1999", *Proceedings of the Spring 1999 Simulation Interoperability Workshop*, Orlando FL, March 14-19 1999, pp. 302-307.
- [C58] S. Rajput and **M. D. Petty**, "Combat Trauma Patient Simulation Phase 2 Architecture", *Proceedings of the Spring 1999 Simulation Interoperability Workshop*, Orlando FL, March 14-19 1999, pp. 285-292.
- [C57] M. D. Myjak, R. L. Carter, D. D. Wood, and **M. D. Petty**, "A Taxonomy of Multiple Federation Executions", *Proceedings of the 20th Interservice/Industry Training Systems and Education Conference*, Orlando FL, November 30-December 3 1998, pp. 179-189.
- [C56] **M. D. Petty**, R. W. Franceschini, and A. Mukherjee, "A Geometric Terrain Reasoning Algorithm For Fire Zone Defense", *Proceedings of the Seventh Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 12-14 1998, pp. 87-98.
- [C55] A. Cox and **M. D. Petty**, "Use of DIS Simulation Management (SIMAN) in HLA Federations", *Proceedings of the 1998 Spring Simulation Interoperability Workshop*, Orlando FL, March 9-13 1998, pp. 622-627.
- [C54] S. A. Schricker, R. W. Franceschini, and **M. D. Petty**, "Implementation Experiences with the DIS Aggregate Protocol", *Proceedings of the 1998 Spring Simulation Interoperability Workshop*, Orlando FL, March 9-13 1998, pp. 768-776.
- [C53] M. B. H. Pettitt, B. F. Goldiez, **M. D. Petty**, S. Rajput, and H. Tu, "The Combat Trauma Patient Simulator", *Proceedings of the 1998 Spring Simulation Interoperability Workshop*, Orlando FL, March 9-13 1998, pp. 936-946.
- [C52] D. D. Wood, A. Cox, and **M. D. Petty**, "An HLA Gateway for DIS Applications", *Proceedings of the 19th Interservice/Industry Training, Simulation, and Education Conference*, Orlando FL, December 1-4 1997, pp. 511-520.
- [C51] **M. D. Petty** and A. Mukherjee, "Experimental Comparison of *d*-Rectangle Intersection Algorithms Applied to HLA Data Distribution", *Proceedings of the 1997 Distributed Simulation Symposium*, Orlando FL, September 8-12 1997, pp. 13-26.
- [C50] K. L. Morse, A. Kemkes, and **M. D. Petty**, "Issues in the Relationship Between HLA's Declaration Management and Data Distribution Management Services", *Proceedings of the 1997 Fall Simulation Interoperability Workshop*, Orlando FL, September 8-12 1997, pp. 549-559.
- [C49] A. Cox, **M. D. Petty**, and D. D. Wood, "Gateway Performance Using RTI 1.0", *Proceedings of the 1997 Fall Simulation Interoperability Workshop*, Orlando FL, September 8-12 1997, pp. 467-471.
- [C48] **M. D. Petty** and A. Cox, "HLA Interoperability for Existing Simulations", *Proceedings of the 1997 Summer Computer Simulation Conference*, Arlington VA, July 13-17 1997, pp. 437-442.

- [C47] A. Cox, **M. D. Petty**, and D. D. Wood, “HLA Logging Methods and Issues”, *Proceedings of the 1997 Summer Computer Simulation Conference*, Arlington VA, July 13-17 1997, pp. 443-448.
- [C46] S. M. Harkrider and **M. D. Petty**, “Results of the High Level Architecture Platform Proto-Federation Experiment”, *Proceedings of the 8th International Training and Education Conference*, Lausanne Switzerland, April 22-25 1997.
- [C45] **M. D. Petty** and A. Mukherjee, “The Sieve Overlap Algorithm for Intervisibility Determination”, *Proceedings of the 1997 Spring Simulation Interoperability Workshop*, Orlando FL, March 3-7 1997, pp. 245-255.
- [C44] D. D. Wood, **M. D. Petty**, A. Cox, R. C. Hofer, and S. M. Harkrider, “HLA Gateway Status and Future Plans”, *Proceedings of the 1997 Spring Simulation Interoperability Workshop*, Orlando FL, March 3-7 1997, pp. 807-814.
- [C43] S. M. Harkrider and **M. D. Petty**, “High Level Architecture and the Platform Proto-Federation”, *Proceedings of the 18th Interservice/Industry Training Systems and Education Conference*, Orlando FL, December 3-6 1996.
- [C42] **M. D. Petty**, K. C. Hardis, and M. A. Hunt, “Terrain Correlation Measurement for the HLA Platform Proto-Federation”, *Proceedings of the 15th Workshop on Standards for the Interoperability of Defense Simulations*, Orlando FL, September 16-20 1996, pp. 691-702.
- [C41] A. Cox, D. D. Wood, **M. D. Petty**, and K. A. Juge, “Integrating DIS and SIMNET Simulations into HLA with a Gateway”, *Proceedings of the 15th Workshop on Standards for the Interoperability of Defense Simulations*, Orlando FL, September 16-20 1996, pp. 517-525.
- [C40] S. M. Harkrider and **M. D. Petty**, “Results of the HLA Platform Proto-Federation Experiment”, *Proceedings of the 15th Workshop on Standards for the Interoperability of Defense Simulations*, Orlando FL, September 16-20 1996, pp. 441-450.
- [C39] R. C. Creech and **M. D. Petty**, “A Model of Large-Scale Citizen Evacuation for Emergency Management Simulation”, *Proceedings of the Sixth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, July 23-25 1996, pp. 67-78.
- [C38] M. P. Slepow, J. H. Burmester, and **M. D. Petty**, “Adapting Military Simulation and Training Technology for Emergency Management”, *Proceedings of the 7th International Training Equipment Conference*, The Hague, The Netherlands, April 16-18 1996, pp. 56-66.
- [C37] **M. D. Petty** and M. P. Slepow, “Constructive simulation for emergency management”, *High-Fidelity Simulation for Training, Test Support, Mission Rehearsal, and Civilian Applications (SPIE Proceedings Vol. 2740)*, Orlando FL, April 8-9 1996.
- [C36] **M. D. Petty** and M. P. Slepow, “Emergency Management Training with Constructive Simulation”, *Proceedings of the ITEA "Modeling & Simulation: Today and Tomorrow" Workshop*, Las Cruces NM, December 11-14 1995.
- [C35] **M. D. Petty**, “Case Studies in Verification, Validation, and Accreditation for Computer Generated Forces”, *Proceedings of the ITEA "Modeling & Simulation: Today and Tomorrow" Workshop*, Las Cruces NM, December 11-14 1995.
- [C34] † **M. D. Petty** and M. P. Slepow, “Plowshares: Emergency Management Training with a Military Constructive Simulation”, *Proceedings of the 17th Interservice/Industry Training Systems and Education Conference*, Albuquerque NM, November 13-16 1995.
- [C33] T. R. Tolley R. W. Franceschini, and **M. D. Petty**, “An Empirical Comparison of Graph Isomorphism Algorithms”, *Proceedings of the 1995 Southeastern Simulation Conference*, Orlando FL, October 22-24 1995, pp. 224-233.
- [C32] **M. D. Petty** and M. P. Slepow, “Plowshares: Emergency Management Simulation”, *Proceedings of the 1995 Southeastern Simulation Conference*, Orlando FL, October 22-24 1995, pp. 150-158.
- [C31] D. D. Wood, J. V. Farr, M. Horsley, and **M. D. Petty**, “Plowshares: Hurricane, Tornado, and Fire Modeling in TERRA”, *Proceedings of the 1995 Southeastern Simulation Conference*, Orlando FL, October 22-24 1995, pp. 159-166.
- [C30] **M. D. Petty** and R. W. Franceschini, “Disaggregation Overload and Spreading Disaggregation in Constructive+Virtual Linkages”, *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 103-111.

- [C29] **M. D. Petty**, M. P. Slepow, and P. D. West, "CGF Opportunities in Plowshares", *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 337-344.
- [C28] H. K. Pickett and **M. D. Petty**, "Report on the State of Computer Generated Forces 1994", *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 549-558.
- [C27] S. Rajput, C. R. Karr, **M. D. Petty**, and M. A. Craft, "Intervisibility Heuristics for Computer Generated Forces", *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 451-464.
- [C26] M. A. Craft and **M. D. Petty**, "Experimental Conversion of the IST Computer Generated Forces Simulator from C to Ada", *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 433-442.
- [C25] S. A. Schricker, R. W. Franceschini, **M. D. Petty**, and T. R. Tolley, "Terrain Avoidance for CGF Helicopters", *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 315-325.
- [C24] D. R. Stober, M. K. Kraus, W. F. Foss, R. W. Franceschini, and **M. D. Petty**, "Survey of Constructive+Virtual Models", *Proceedings of the Fifth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 9-11 1995, pp. 93-102.
- [C23] **M. D. Petty**, "Computer Generated Forces and the Turing Test", *Proceedings of the 6th International Training Equipment Conference*, The Hague, The Netherlands, April 25-27 1995, pp. 195-204.
- [C22] **M. D. Petty** and P. D. West, "Plowshares: Applying a Military Constructive Simulation Model to Emergency Management Training", *Proceedings of the 1995 Simulation MultiConference*, Simulation for Emergency Management, Society for Computer Simulation, Phoenix AZ, April 9-13 1995, pp. 326-331.
- [C21] M. L. Loper and **M. D. Petty**, "Distributed Interactive Simulation and Emergency Management", *Proceedings of the 1995 Simulation MultiConference*, Simulation for Emergency Management, Society for Computer Simulation, Phoenix AZ, April 9-13 1995, pp. 344-348.
- [C20] R. W. Franceschini and **M. D. Petty**, "Status Report on the Development of PDUs to Support Constructive+Virtual Linkages", *Proceedings of the 12th DIS Workshop on Standards for the Interoperability of Defense Simulations*, Orlando FL, March 13-17 1995, pp. 385-388.
- [C19] R. W. Franceschini, **M. D. Petty**, and D. A. Reece, "Dismounted Infantry in Distributed Interactive Simulation", *Proceedings of the 16th Interservice/Industry Training Systems and Education Conference*, Orlando FL, November 28-December 1 1994, p. 4-20.
- [C18] **M. D. Petty**, "The Turing Test as an Evaluation Criterion for Computer Generated Forces", *Proceedings of the Fourth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 4-6 1994, pp. 107-116.
- [C17] R. W. Franceschini and **M. D. Petty**, "Dismounted Infantry in DIS Style Scenarios: A SAFDI Project Overview", *Proceedings of the Fourth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 4-6 1994, pp. 155-167.
- [C16] D. D. Wood and **M. D. Petty**, "Development of Signal Intelligence/Electronic Warfare Capabilities in a Computer Generated Forces Testbed", *Proceedings of the Fourth Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, May 4-6 1994, pp. 365-371.
- [C15] **M. D. Petty** and D. R. Van Brackle, "Reconnaissance Planning in Polygonal Terrain", *Proceedings of the 5th International Training Equipment Conference*, The Hague, The Netherlands, April 26-28 1994, pp. 314-327.
- [C14] M. L. Loper and **M. D. Petty**, "Simulator Networking for Medical Simulation", *Proceedings of the 5th International Training Equipment Conference*, The Hague, The Netherlands, April 26-28 1994, pp. 412-419.
- [C13] **M. D. Petty** and R. W. Franceschini, "Dismounted Infantry in Distributed Interactive Simulation", *Proceedings of the Individual Combatant Modeling and Simulation Symposium (INCOMSS-94)*, Ft. Benning GA, February 15-17 1994, pp. 288-305.
- [C12] D. R. Van Brackle, **M. D. Petty**, C. D. Gouge, and R. D. Hull, "Terrain Reasoning for Reconnaissance Planning in Polygonal Terrain", *Proceedings of the Third Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, March 17-19 1993, pp. 285-306.

- [C11] M. L. Loper and **M. D. Petty**, “Computer Generated Forces at the DIS Interoperability Demonstration”, *Proceedings of the Third Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, March 17-19 1993, pp. 155-168.
- [C10] C. R. Karr, R. W. Franceschini, K. R. S. Perumalla, and **M. D. Petty**, “Integrating Aggregate and Vehicle Level Simulations”, *Proceedings of the Third Conference on Computer Generated Forces and Behavioral Representation*, Orlando FL, March 17-19 1993, pp. 231-240.
- [C9] **M. D. Petty**, C. R. Karr, and S. H. Smith, “Semi-Automated Forces Dismounted Infantry in the SIMNET Battlefield”, *Proceedings of the 14th Interservice/Industry Training Systems and Education Conference*, San Antonio TX, November 2-5 1992, pp. 314-321.
- [C8] **M. D. Petty**, “Computer Generated Forces in Battlefield Simulation”, *Proceedings of the Southeastern Simulation Conference 1992*, Pensacola FL, October 22-23 1992, pp. 56-71.
- [C7] S. H. Smith and **M. D. Petty**, “Controlling Autonomous Behavior in Real-Time Simulation”, *Proceedings of the Southeastern Simulation Conference 1992*, Pensacola FL, October 22-23 1992, pp. 27-40.
- [C6] F. C. Cimini, C. E. Campbell, and **M. D. Petty**, “A Simple Flight Dynamics Model for Computer Generated Forces”, *Proceedings of the Southeastern Simulation Conference 1992*, Pensacola FL, October 22-23 1992, pp. 41-47.
- [C5] C. R. Karr, R. W. Franceschini, K. R. S. Perumalla, and **M. D. Petty**, “Integrating Battlefield Simulations of Different Granularity”, *Proceedings of the Southeastern Simulation Conference 1992*, Pensacola FL, October 22-23 1992, pp. 48-55.
- [C4] **M. D. Petty**, C. E. Campbell, R. W. Franceschini, and M. H. Provost, “Efficient Line of Sight Determination in Polygonal Terrain”, *Proceedings of the 1992 IMAGE VI Conference*, Phoenix AZ, July 14-17 1992, pp. 239-253.
- [C3] P. A. Fishwick, **M. D. Petty**, and D. E. Mullally, “Key Research Directions in Behavioral Representation for Computer Generated Forces”, *Proceedings of the Second Behavioral Representation and Computer Generated Forces Symposium*, Orlando FL, May 6-7 1991, pp. E 1-14.
- [C2] **M. D. Petty**, T. J. Frederick, and J. M. Moshell, “Experiments in Routing an Autonomous Land Vehicle with a Weakly Inductive Learning Algorithm”, *Proceedings of the Third Florida Artificial Intelligence Research Symposium*, Cocoa Beach FL, April 3-6 1990, pp. 159-163.
- [C1] J. M. Moshell, C. E. Hughes, and **M. D. Petty**, “Constraints as a Specification Mechanism for Automated Opposing Forces in Networked Simulators”, *Proceedings of the Interactive Networked Simulation for Training Conference*, Institute for Simulation and Training, Orlando FL, April 1989, pp. 84-90.

Other

(Journal editorials, magazine articles, newsletter articles, and newspaper articles)

- [O17] **M. D. Petty**, T. S. Whitaker, E. M. Bearss, J. A. Bland, W. A. Cantrell, C. D. Colvett, and K. P. Maxwell, “Modeling Cyberattacks with Extended Petri Nets”, *The Daily Hacker: Pivot & Bytes, National Cyber Summit*, Huntsville AL, September 28-30 2021, pp. 10-13.
- [O16] Y. E. Papelis and **M. D. Petty**, “Recognizing the contributions of reviewers in publishing and peer review”, *SIMULATION: Transactions of the Society for Modeling and Simulation International*, Vol. 94, Iss. 4, April 2018, pp. 277-278, doi:10.1177/0037549718757603.
- [O15] J. T. McDonald, T. R. Andel, and **M. D. Petty**, “Cyber modeling and simulation”, *Journal of Defense Modeling and Simulation: Applications, Methodology, and Technology*, Vol. 14, Iss. 3, July 2017, pp. 197-199, doi:10.1177/1548512917699729.
- [O14] **M. D. Petty**, “Modeling and Validation Challenges for Complex Systems”, *M&S Journal*, Vol. 9, Iss. 1, Spring 2014, pp. 25-35.
- [O13] **M. D. Petty**, R. L. Dunning*, and A. J. Collins, “Correlation of Characterizing Attributes and Success in Military M&S Standards”, *M&S Journal*, Vol. 8, Iss. 1, Spring 2013, pp. 19-30.
- [O12] **M. D. Petty**, K. L. Morse, W. C. Riggs, P. Gustavson, and H. Rutherford, “A Reuse Lexicon: Terms, Units, and Modes in M&S Asset Reuse”, *M&S Journal*, Vol. 6, Iss. 2, Fall 2011, pp. 16-27.
- [O11] **M. D. Petty**, “University Courses Provide Coverage of M&S Applications”, *Technology Alabama*, Summer 2009, pp. 21-22.
- [O10] **M. D. Petty**, “UAH and SPARTA Develop Methods to Validate Simulations of Network-Centric Warfare”, *Technology Alabama*, Summer 2008, pp. 29-30.

- [O9] **M. D. Petty**, M. P. J. Benfield, and J. K. Little, “UAHuntsville Center for Modeling, Simulation, and Analysis: Modeling and Simulation Research”, *Huntsville/Madison County*, 2008, pp. 38-41.
- [O8] **M. D. Petty**, “CMSA Up and Running”, *Technology Alabama*, Special section on Modeling & Simulation, Summer 2007, pp. 5-6.
- [O7] K. L. Morse, **M. D. Petty**, P. F. Reynolds, W. F. Waite, and P. M. Zimmerman, “Summary of the 2003 Composable Mission Space Environments Workshop”, *Simulation Technology*, Vol. 7, Iss. 2, September 9 2004.
- [O6] R. W. Franceschini, S. A. Schricker, and **M. D. Petty**, “New Dimensions in Simulation”, *Military Training Technology*, Vol. 4, Iss. 6, 1999, pp. 46-50.
- [O5] **M. D. Petty**, “Interoperability in Medical Simulation”, *Simulation Technology*, Vol. 1, Iss. 4a, June 2 1999.
- [O4] D. D. Wood, A. Cox, and **M. D. Petty**, “An HLA Gateway for DIS Applications”, *Modern Simulation & Training*, No. 1, 1998, pp. 4-10.
- [O3] J. H. Burmester, M. P. Slepow, and **M. D. Petty**, “Plowshares: Adapting Military Simulation and Training Technology for Emergency Management”, *Modern Simulation & Training*, No. 1, 1996, pp. 6-11.
- [O2] **M. D. Petty**, J. M. Moshell, and C. E. Hughes, “Tactical Simulation in an Object-Oriented Animated Graphics Environment”, *Simuletter, Quarterly Newsletter of the ACM Special Interest Group on Simulation*, Vol. 19, No. 2, June 1988, pp. 31-46.
- [O1] **M. D. Petty**, “Home Computers Market Survey”, *Review*, Vol. 1, No. 4, July 1983, pp. 20-24.

Certifications, Honors, Awards, and Memberships

- Certified Modeling and Simulation Professional (CMSP), 2001–present.
- Honors and awards (for myself)
 - Editor-in-Chief’s Recommended Computer Science Papers list, *Heliyon* journal (Elsevier), for “A Multi-Resolution HEALPix Data Structure for Spherically Mapped Point Data”, publication J25, 2018.
 - Leidos Technical Publication Competition Award, Refereed Journal Papers – Computer and Information Science category, for “Automated Search-Based Robustness Testing for Autonomous Vehicle Software”, publication J24, 2017.
 - Simulation Education Award for “Outstanding Educational Action in Modeling & Simulation”, American Indian Higher Education Consortium, 2014.
 - IEEE Standards Association Standard Development Award for the development and approval of IEEE Standard 1730.1™-2013.
 - IEEE Standards Association Working Group Chair Award, 2001.
 - University of Central Florida Institute for Simulation and Training Distinguished Researcher Award, 1993.
- Honors and awards (for my students and advisees)
 - Advisor to four UAH Ph.D. students awarded RADM Fred Lewis Postgraduate I/ITSEC Scholarship: C. Daniel Colvett, 2022; E. Michael Bears, 2021; Mitchell J. Bott, 2014; Daniel A. O’Neil, 2014.
 - Advisor to UAH student team awarded “Excellence in Technology Application and Engineering Design”, SCS Simulation Exploration Experience, 2014.
 - Advisor to UAH student team awarded “Excellence in Technology Application and Engineering Design”, Simulation Interoperability Standards Organization Simulation Smackdown, 2013.
 - Advisor to UAH student team awarded “Excellence in Technology Application and Engineering Design”, Simulation Interoperability Standards Organization Simulation Smackdown, 2012.
 - Alabama House of Representatives Certificate of Commendation for UAH team success in Simulation Interoperability Standards Organization Smackdown Competition, 2012.
- Conference “Best Paper” awards; 10 awards, 18 total nominations; awarded papers are identified by their publication number from the publication list
 - *Selected*, Best Paper Award, 2022 ACM Southeast Conference, C183.
 - *Nominated*, Recommended Reading List, Spring 2013 Simulation Interoperability Workshop, C140
 - *Selected*, Recommended Reading List, Fall 2012 Simulation Interoperability Workshop, C137.
 - *Selected*, Recommended Reading List, Spring 2012 Simulation Interoperability Workshop, C132.
 - *Selected*, Recommended Reading List, Fall 2010 Simulation Interoperability Workshop C121.
 - *Nominated*, Recommended Reading List, Spring 2010 Simulation Interoperability Workshop, C118.
 - *Selected*, Recommended Reading List, 2007 European Simulation Interoperability Workshop, C111.
 - *Nominated*, Recommended Reading List, Fall 2005 Simulation Interoperability Workshop, C104.
 - *Selected*, Recommended Reading List, 2005 Behavior Representation in Modeling and Simulation, C102.
 - *Selected*, Recommended Reading List, Spring 2005 Simulation Interoperability Workshop, C101.
 - *Nominated*, Recommended Reading List, Spring 2005 Simulation Interoperability Workshop, C100.
 - *Nominated*, Recommended Reading List, Spring 2005 Simulation Interoperability Workshop, C99.
 - *Selected*, Recommended Reading List, Fall 2004 Simulation Interoperability Workshop, C90.
 - *Selected*, Recommended Reading List, Spring 2004 Simulation Interoperability Workshop, C86.
 - *Nominated*, Recommended Reading List, Spring 2004 Simulation Interoperability Workshop, C84.
 - *Nominated*, Recommended Reading List, Fall 2003 Simulation Interoperability Workshop, C78.
 - *Selected*, Recommended Reading List, Spring 2003 Simulation Interoperability Workshop, C75.
 - *Nominated*, Best Paper, 17th Interservice/Industry Training, Simulation, and Education Conference, C34.
- Conference “Best Tutorial” awards (1 award, 3 total nominations)
 - *Nominated*, Best Tutorial, 2021 Interservice/Industry Training, Simulation, and Education Conference.
 - *Selected*, Best Tutorial, 2013 Interservice/Industry Training, Simulation, and Education Conference.
 - *Nominated*, Best Tutorial, 2012 Interservice/Industry Training, Simulation, and Education Conference.
- Honor society and professional association memberships
 - Upsilon Pi Epsilon National Computer Science Honor Society, 1991–present.
 - Phi Kappa Phi Academic Honor Society, 2007–present.
 - Alabama Academy of Science, 2005–present.

<i>Additional Details</i>

- U. S. Citizen (native born)
- Married since 1985, with one adult daughter and three grandchildren
- Languages: English (native), French (limited conversational)
- Personal interests: Mathematics and science, baseball, aviation history, and road bicycling
- Erdős number: **3** (P. Erdős–S. M. Selkow–C. E. Hughes–M. D. Petty)