MICHAEL L. MCGINNIS

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PERSONAL INFORMATION

Work. Executive Director, Virginia Modeling, Analysis and Simulation Center and Professor of Systems Engineering, Old Dominion University, 1030 University Blvd., Suffolk, Virginia 23435. Phone: 757-686-6232. Email: mmcginni@odu.edu.

Residence. 230 Marina Reach, Chesapeake, Virginia 23320. Phone: 757-450-2037. Email: mike.mcginnis54@gmail.com.

Family. Wife: Tracy Ann Bray. Children: Meghan, Matthew, Meredith.

CIVILIAN EDUCATION

Ph.D. Systems and Industrial Engineering, The University of Arizona. 1994. Dissertation: "Resource Scheduling for the United States Army's Basic Combat Training Program." Co-Advisors: E. Fernandez, P.B. Mirchandani.

M.Sc. Applied Mathematics, Rensselaer Polytechnic Institute. 1986. Advisor: W.L. Siegmann.

M.Sc. Operations Research and Statistics, Rensselaer Polytechnic Institute. 1986. Thesis: "Flexible Manufacturing System Simulation at Watervliet Arsenal, Watervliet, New York." Co-Advisors: J.G. Ecker, P. B. Mirchandani.

M.A. National Security and Strategic Studies, United States Naval War College. 1996. Thesis: "Navy Officer Force Planning for the Early 21st Century." Advisor: J. Langer.

B.Sc. General Engineering (no major), United States Military Academy. 1977.

MILITARY EDUCATION

Naval War College. 1996. Newport, Rhode Island. Graduate with Distinction.

Command and General Staff College. 1991. Fort Leavenworth, Kansas.

Field Artillery Officer Advanced Course. 1984. Fort Sill, Oklahoma. Honor Graduate.

Field Artillery Officer Basic Course. 1978. Fort Sill, Oklahoma. Honor Graduate.

PROFESSIONAL HISTORY

2006-Present. Old Dominion University. Executive Director, Virginia Modeling, Analysis and Simulation Center and Professor of Systems Engineering, Department of Engineering Management and Systems Engineering.

1999-2006. United States Military Academy. Professor of Systems Engineering and Department Head, Department of Systems Engineering, West Point, New York 10996.

2003-04. Naval Post Graduate School. Sabbatical. Visiting Research Fellow at TRAC-Monterey.

2002-03. Washington, D.C.. Director, Unit Manning Task Force. Chartered by the Army Vice Chief of Staff. Reported directly to Secretary of the Army Thomas White and Army Chief of Staff, General Eric Shinseki.

1997-99. Naval Postgraduate School.
Director, United States Army Training and Doctrine Command (TRADOC) Analysis Center (TRAC)-Monterey, Monterey, California.
Assistant Professor, Department of Operations Research.

1996-97, 1994-95. United States Military Academy.
Associate Professor, Department of Systems Engineering.
Director, Department Research Program.
Director, USMA Operations Research Center.

1995-96. Naval War College, Newport, Rhode Island.
Visiting Professor, Department of National Security Decision Making.
Student, Senior Staff College (Graduate with Distinction).
Completed Joint Professional Military Education (JPME).
Selected by Provost, Dean and Program Director Committee to participate in the NWC Advanced Research Program.

1991-94. University of Arizona. Ph.D. Graduate Student, Tucson, Arizona.

1990-91. Command and General Staff College. Student. Fort Leavenworth, Kansas.

1986-90. United States Military Academy.
Instructor, Multi-Variable Calculus and Differential Equations,1986-88.
Assistant Professor of Mathematics, 1988-90.
Course Director, Probability and Statistics, 1987-88.
Co-established the USMA Operations Research Center, 1988-90.
Assigned as Military Operations Research Analyst assigned to TRADOC Analysis Command (TRAC), Fort Leavenworth, Kansas with duty at West Point, 1988-90.

1984-86. Rensselaer Polytechnic Institute. M.Sc. Graduate Student. Troy, New York.

1984. Field Artillery Officer Advanced Course. Student. Fort Sill, Oklahoma (Honor Graduate).

1979-84. 1st Battalion, 5th Field Artillery, 1st Infantry Division, Fort Riley, Kansas. Firing Battery Commander, Battalion Assistant Operations Officer, Battalion Fire Direction Officer, Battery Executive Officer (Headquarters Battery and Firing Battery), Fire Support Team Leader.

1978-79. 25th Field Artillery Target Acquisition Battery, 2d Infantry Division, South Korea. Platoon Leader.

1977-78. Field Artillery Officer Basic Course. Student. Fort Sill, Oklahoma (Honor Graduate).

SCHOLARLY HONORS, AWARDS AND RECOGNITION

2008. Delegate. Hampton Roads Region Delegation to the UK. Economic and technical exchange to promote Hampton Roads Region modeling and simulation industry. Sponsored by the Hampton Roads Economic Development Alliance. November 6-10, 2008.

2008. Keynote Address. *13th Annual International Conference on Industrial Engineering Theory, Applications and Practice*. "Challenges and Opportunities in Modeling and Simulation:

Public Policy, Public-Private Partnerships and Growth Outside Defense in the Decade Ahead." Las Vegas, Nevada, September 7-10, 2008.

2008. Inducted Society Fellow. *Military Operations Research Society (MORS).*

2007. Keynote Address. *13th Annual International Test and Evaluation Association (ITEA) Modeling and Simulation Conference*, Las Cruces, New Mexico. "Leveraging Opportunities for Modeling and Simulation in the Test and Evaluation Community." December 10-13.

2007. Keynote Address. The *2007 Spring Simulation MultiConference* sponsored by *The Society for Computer Simulation International.* "Modeling and Simulation Opportunities in the Decade Ahead." Norfolk, Virginia, March 26-29.

2006. Keynote Address. Alabama Modeling and Simulation Conference, Huntsville, Alabama. "Modeling and Simulation State of Affairs: Political, Industry, Academic, Government Sectors."

2006. Address to the Commonwealth of Virginia Governor and Cabinet Secretaries. Franklin, Virginia. "State of Modeling and Simulation within the Commonwealth of Virginia." August 16, 2006.

2006. Inducted *Alphi Pi Mu Industrial Engineering Honor Society.*

2006. Inducted *Omega Rho Operations Research and Management Science Honor Society.*

2005-06. Member of the *National Academy of Sciences Committee on Defense Modeling, Simulation and Analysis* chartered by the Department of Defense to develop a modeling, simulation and analysis roadmap.

2005. Inducted *Who's Who in Engineering Education.*

2005. Best Paper. *Interservice/ Industry Training, Simulation and Education Conference (I/ITSEC) Research and Development Track.* "A Validation Methodology for Human Behavior Representation Models" selected as 'best paper' from 495 papers submitted. Co-authored with LTC Simon Goerger, USMA and Professor Rudy Darkin, Naval Postgraduate School, Monterey, CA. Accepted for publication in the *Journal of Defense Modeling and Simulation: Applications, Methodology, Technology.* Vol. 2, No. 4, 5-17.

2004. Inducted *Who's Who Among America's Teachers.*

2004. *Barchi Prize.* 72nd MORS Symposium. "A Unit Manning Scheduling Model for U.S. Army Combat Brigades," jointly with D. Sanders. Given annually for the best paper presented at the previous symposium. Selected from approximately 700 papers and approximately 40 'best papers'.

2003-04. President Phi Kappa Phi Honor Society, West Point Chapter.

U.S. Delegate. U.S. delegation headed by the Deputy Undersecretary of the Army for Operations Research. International Operations Research and Simulation Symposia.

2003. U.S.-Canadian Operations Research and Simulation Symposium, Fort Monroe, VA. Presentation: "Development of Unit Manning Concepts and Integration with Unit Rotations and Army Transformation."

2001. U.S.-German Operations Research and Simulation Symposium, White Sands Missile Range, New Mexico. Presentation: "Development of Unit Manning Concepts and Integration with Unit Rotations and Army Transformation."

1999. U.S.-French Operations Research and Simulation Symposium, Paris, France. Presentation: "Simulation Object Model Development for Re-engineering Legacy Simulations."

1998. Keynote Address. Australian Defense and Industry Simulation Technology and Training (SimTecT 98) Conference, Glenelg, Australia. "Emerging Trends in Modeling and Simulation Technologies."

1997. Inducted *Phi Kappa Phi Honor Society.*

1995. *Rist Prize.* 63rd MORS Symposium. Awarded annually for the best paper submitted to a call for papers. "Military Training Resource Scheduling: System Model, Optimal and Heuristic Decision Processes," jointly with E. Fernandez and P. Mirchandani.

1994. Best Paper. 62nd MORS Symposium best working group paper. "Training Base Management for the United States Army: System Model, Heuristic Decision Process, and Software Decision Support System," jointly with E. Fernandez.

1993. First Runner Up. Graduate Student 'Best Paper' Competition in Business Administration, Law, and Economic Policy. University of Arizona Graduate Student Dissertation and Thesis Showcase Competition.

1990. Best Paper. 58th MORS Symposium best working group paper. "U.S. Army Training Base Closures: Modeling the Problem."

1990. U.S. Army Systems Analysis Award Finalist. Presented annually by the Army Operations Research Society (AORS) for the best systems analysis paper in Army operations research. "An Armor Anti-Armor Mix Methodology," jointly with R. Laferriere, J. Kolding, R. Gray. Project sponsored by U.S. Army TRADOC Analysis Command (TRAC).

1989. Phi Kappa Phi Award for Excellence in Scholarship. Awarded for analysis of Army training base closures and the impact of training mission realignment on the Army's ability to meet future training missions. Project sponsored by Headquarters, U.S. Army Training and Doctrine Command, Fort Monroe, Virginia.

1988. Phi Kappa Phi Award for Excellence in Scholarship. Awarded for analysis of *Title IV, Goldwater-Nichols DOD Reorganization Act of 1986* on U.S. Army officer professional development. Project sponsored by Headquarters, U.S. Army Personnel Command (PERSCOM).

1988. Koopman Prize Finalist. Awarded annually by the Military Applications Section (MAS) of the Operations Research Society of America (ORSA) for significant contributions to military operations. "Impact of 1986 Goldwater-Nichols Act on Army Officer Professional Development," jointly with J.L. Kays.

1987. Inducted *Outstanding Young Men of America.*

RESEARCH ACTIVITIES

Contributions to Interdisciplinary Research Projects

From 1997 to 1999, directed TRAC-Monterey collaboration with the Naval Postgraduate School Departments of Computer Science and Operations Research on a project called *HLA Warrior* to re-host a legacy simulation, JANUS, to a new computing platform featuring modern technologies. The project, funded at $750,000, demonstrated the application of advanced simulation technologies to support development of future simulations, such as Combat XXI, WARSIM, and OneSAF. Baseline research applied to the legacy model included High Level Architecture (HLA) compliance, an innovative system architecture, a detailed object-oriented design, state-of-art user interfaces, and modular terrain. *HLA Warrior* research produced important insights that benefited the next generation of HLA models. The object-oriented design facilitated object re-use across simulations, accelerating development times and improving interoperability between models. *HLA Warrior* also

tested an innovative, advanced architecture for event handling, data storage, and distributed capabilities, and a re-configurable user interface used across multiple domains.

Books & Conference Proceedings

1. Co-Editor with W. Buck and Co-Author. April 2008. *Proceedings of the 2008 Azalea Festival Symposium.* "Katrina Over Hampton Roads: Are We Ready?" Sponsored jointly by Allied Command Transformation and Old Dominion University. Published by Allied Command Transformation, Norfolk, Virginia, April 15-16, 2008.
2. Co-Author. 2008. *M&S Leadership Summit 2008 Report. Education: Enabling Modeling and Simulation; a National Critical Technology.* Sponsored jointly by the National Training and Simulation Association and the Congressional Modeling and Simulation Caucus. Panel Chair and Moderator: "The M&S Role in the Educational Process." Virginia Beach, Virginia, February 11, 2008.
3. Co-Author. 2006. "Defense Modeling, Simulation, and Analysis: Meeting the Challenge," National Research Council of the *National Academies* Committee on Defense Modeling, Simulation and Analysis. The National Academies Press, Washington, D.C..
4. Co-author with the OPMS XXI Task Force. 1997. *What is OPMS XXI? (And other frequently asked questions): An Officer's Guide to the Officer Personnel Management System for the 21st Century.* U.S. Army Publication and Printing Agency.

Book Chapters

1. OPMS XXI Task Force. 1997. *OPMS XXI Final Report* prepared for the Chief of Staff, U.S. Army. "OPMS XXI Modeling and Analysis." Co-authored other chapters and appendices, and co-edited the final report. U.S. Army Publication and Printing Agency.

Refereed Journal Papers

1. S. Goerger. M.L. McGinnis, R. Darken. 2005. "A Validation Methodology for Human Behavior Representation Models," in *Journal of Defense Modeling and Simulation: Applications, Methodology, Technology.* Vol. 2, No. 4, 5-17.
2. M.L. McGinnis, D. Sanders. Accepted September 2004 (under revision). "A Unit Manning Scheduling Model for U.S. Army Combat Brigades," To appear in the *Journal of Military Operations Research.*
3. M.L. McGinnis, R.G. Phelan Jr. 1999. "Scheduling Simulation-based Training," in *Military Operations Research,* Vol. 4, No.1, 35-49.
4. M.L. McGinnis. 1997. "Heuristic Methodology for Sizing a Large-scale System of Constrained, Reusable Resources," in *Journal of Heuristics.* Vol. 2, No. 4, 287-301.
5. M.L. McGinnis, R.G. Phelan Jr. 1996. "A Hybrid Expert System for Scheduling the United States Army's Close Combat Tactical Trainer (CCTT)," in *Expert Systems with Applications,* Vol. 11, No. 2, 157-175.
6. M.L. McGinnis, E. Fernandez, P. Mirchandani. 1996. "Military Training Resource Scheduling: System Model, Optimal and Heuristic Decision Processes," in *Military Operations Research Journal,* Vol.1, No. 5, 53-69.

Reviewed Journal Papers

1. M.L. McGinnis, W. Buck. 2008. "NATO and Old Dominion University Disaster and Incident Management Symposium," *The International Journal of Critical Infrastructures*, Vol. 4, No. 4, 445-454.
2. A. Abbott, M.L. McGinnis. 2008. "Generation of an Emergency Management Mission Essesntial Task List and Application of an Analytical Hierarchy Process for Evaluation of the Return-on-Investment for Collective Staff Training." *Joint Forces Quarterly*, The Institute for National Strategic Studies, National Defense University, Washington, D.C., Issue 38, 60-67.
3. M.L. McGinnis, G.F. Stone. 1994. "Decision Support Technology," in *Military Review*, Vol. LXXIV, No. 11, 68-75.

Refereed Conference Papers

1. M. L. McGinnis, C.M. Banks. 2008. "Challenges and Opportunities in Modeling and Simualtion: Public Policy and Public-Private Partnerships for Growth in the Decade Ahead," in *Proceedings of the S13th Annual International Conference on Industrial Engineering Theory, Applications and Practice*, Las Vegas, Nevada, September 7-10, 2008.
2. C. M. Banks, M. L. McGinnis.. 2008. "Compelling Challenges and Recommended Solutions: Developing a Continuity of M&S Education from Public School to Graduate Studies," in *Spring Simulation Multconference 2008*, Simulation Interoperability Standards Organization, IEEE CS Press, Ottawa, Canada, April 14-17, 2008.
3. W.J. McFadden, P.D. West,, M.L. McGinnis. 2005. "Development of an Undergraduate Acquisition Laboratory," in *Proceedings of the 2005 Simulation Training and Technology Conference (SimTecT 05)*, Sydney, Australia, May 9-12, 2005.
4. M.L. McGinnis, D. Sanders. 2004. "Unit Manning the U.S. Army: A Paradigm Shift from Alert-Train-Deploy to Train-Alert-Deploy," in the *12th Republic of Korea-U.S. Defense Analysis Seminar Proceedings*, Seoul, Korea. 12-15 April 2004, 1-20.
5. McCarthy, D.J., W.J. McFadden, M.L. McGinnis. 2003. "Put Me in Coach I'm Ready to Play!: A Discussion of an Evolving Curriculum in Systems Engineering" in *Proceedings of the International Council of Systems Engineering (INCOSE)*, Washington, D.C., June 29-July 3, 2003.
6. M.L. McGinnis, D. Sanders, D. Nguyen, A. Redd, B. Junko. 2003. "Scheduling and Readiness Considerations of a Unit Manning System," in *Proceedings of the Systems and Information Engineering Design Symposium*, University of Virginia, Charlottesville, Virginia, April, 2003
7. M.J. Johnson, M. Mollaghasemi, M.L. McGinnis, T. Damarla. 2002. "Methodology for Human Decision Making Using Fuzzy ARTMAP Neural Networks," in *Proceedings of the IEEE International Joint Conference on Neural Networks (IJNCC)* at the *2002 World Congress on Computational Intelligence (WCCI)*, Honolulu, HI. 12-17 May 2002, 2668-2673.
8. M. Kwinn, E. Pohl, M.L McGinnis, W. Carlton. 2002. "Capstone Design in Education: Systems Engineering and the West Point Way," in *Proceedings of the International Council of Systems Engineering (INCOSE)*, Las Vegas, NV, July 28-August 1, 2002.
9. M.U. Robertson, B.C. Ezell, M.L. McGinnis. 2001. "Base Camp Facility Layout", in *Proceedings of the IEEE 2001 International Conference on Systems, Man and Cybernetics,* Tucson, Arizona, October 7-10, 2001, Vol. 3, 2064-2070.
10. M.L. McGinnis, D.P. Stairs, M. Hopper, C. Weatherwax, R. Forshee, J. Rice, C. Kyle. 2001. "Joint Task Force Headquarters: Designing a Modern Command and Control System for Future Joint Operations," in *Proceedings of the 2001 IEEE International Conference on Systems, Man and Cybernetics*, Tucson, Arizona, October 7-10.

11. R. Klingaman, R.O. Morales, B.C. Ezell, M.L. McGinnis. 2001. "Using Cluster Analysis to Develop a Uniform Joint Task List for Rapid Decisive Operations," in *Proceedings of the 2001 IEEE International Conference on Systems, Man and Cybernetics*, Tucson, Arizona, October 7-10, Vol. 3, 2071-2074.
12. M.J. Johnson, M. Mollaghasemi, M.L. McGinnis, M. Georgiopoulos. 2001. "Improving Human Behavior in Simulation - OneSAF Testbed Baseline Intelligent Computer Generated Objects," in *Proceedings of the Military, Government and Aerospace 2001*, Seattle, Washington, 176-181.
13. M.J. Johnson, M. Mollaghasemi, M. Georgiopoulos, M.L. McGinnis. 2001. "A Methodology for Human Behavior Modeling in Computer Generated Forces," in *Proceedings of the 10th Annual Industrial Engineering Research Conference*, Dallas, Texas, May 20-22, 2001.
14. B.C. Ezell, M.J. Davis, M.L. McGinnis. 2000. "Designing A Decision Support System For Military Base Camp Site Selection and Facility Layout," in *Proceedings of IX Engineering Foundation Conference on Risk-Based Decision Making in Water Resources,* October 15-20, 2000, 96-102.
15. B.C. Ezell, D.J. McCarthy, W.L. Ratliff, M.L. McGinnis. 2000. "Joint Military Headquarters Redesign," in *Proceedings of the 2000 IEEE International Conference on Systems, Man and Cybernetics*, Nashville, Tennessee, October 8-11, 2000, Vol. 1, 484-489.
16. D. Matty, M.L. McGinnis. 2000. "Reengineering the Army Development System XXI for Enlisted Soldier Management," in *Proceedings of the 2000 IEEE International Conference on Systems, Man and Cybernetics*, Nashville, Tennessee, October 8-11, 2000, Vol. 1, 490-494.
17. L.A. Jackson, G.P. Pearman, M.L. McGinnis. 1999. "Re-Hosting a Constructive Legacy Simulation Using Modern Technologies," in *Proceedings of the 1999 Simulation Training and Technology Conference (SimTecT 99)*, Melbourne, Australia, March 29-April 1, 1999, 91-96.
18. D.H. Ohle, H.F.T. Hoffman, G.C. Gardner, R. Hernandez, M.L. McGinnis. 1998. "Re-engineering the Officer Personnel Management System for the 21st Century," in *Proceedings of the 1998 IEEE International Conference on Systems, Man and Cybernetics*, San Diego, California, October 11-14, 1998, Vol. 4. 3647-3651.
19. G.F. Stone, M.L. McGinnis. 1998. "Building Scenarios in the Next Generation of Simulations," in *Proceedings of the 1998 IEEE International Conference on Systems, Man and Cybernetics*, San Diego, California, October 11-14, 1998, Vol. 4. 3652-3657.
20. G.M. Pearman, M.L. McGinnis, L.A. Jackson, W.S. Murphy. 1998. "Development of a PC-based, HLA-Compliant, High-resolution Constructive Combat Simulation," in *Proceedings of the 30th Summer Computer Simulation Conference,* Reno, Nevada, July 19-22, 1998, 514-518.
21. M.L. McGinnis, R.G. Phelan Jr.. 1997. "Planning and Scheduling Virtual Training for U.S. Military Units and a Resource-constrained Environment," in *1997 Proceedings of the International Society for Optical Engineering: Enabling Technology for Simulation Science*, Orlando, Florida, April 21-22, 1997.
22. M.L. McGinnis, R.G. Phelan Jr.. 1997. "Scheduling Scenarios and Computer Generated Forces in a Synthetic Training Environment," in *Proceedings of the 1997 Simulation Training and Technology Conference (SimTecT 97)*, Canberra, Australia, March 17-20, 91-96.
23. M.L. McGinnis. 1997. "Navy Officer Strength Forecasting Model," in *Proceedings of the Northeast Decision Sciences Institute*, Annapolis, Maryland, November 24-26, 1997, 108-110.
24. J.V. Farr, P.D. West, M.L. McGinnis. 1997. "PLOWSHARES: Transferring Military Combat Simulation Technology to Civilian Emergency Management Training," in *Proceedings of the Eighteenth Annual American Society of Engineering Management*, Virginia Beach, Virginia, October 1-3, 1997, 237-244.

25. D.A. Thomas, B.T. Kwinn, M.L. McGinnis, B.A. Bowman, M.D. Entner. 1997. "The U.S. Army Enlisted Personnel System: A System Dynamics Approach," in *Proceedings of the 1997 IEEE International Conference on Systems, Man, and Cybernetics*, Orlando, Florida, October 12-15, 1997, 1263-1267.
26. R.G. Phelan Jr., M.D. McNett, M.L. McGinnis. 1997. "Design and Implementation of a WWW-Based Database System to Support Software Development of Computer Generated Forces for U.S. Army Simulation Training," in *Proceedings of the 1997 IEEE International Conference on Systems, Man and Cybernetics*, Orlando, Florida, October 12-15, 1997, 1268-1272.
27. M.D. McNett, R.G. Phelan Jr., M.L. McGinnis. 1997. "WARSIM 2000: Combining Multiple Expert Opinions from Subject Matter Experts to Generate Requirements for Staff Training at Battalion Level and Above," in *Proceedings of the 1997 IEEE International Conference on Systems, Man and Cybernetics*, Orlando, Florida, October 12-15, 1997, 1280-1285.
28. R.G. Phelan Jr., M.L. McGinnis. 1996. "Re-engineering the United States Army Tactical Command and Control Operational Architecture for Information Operations," in *Proceedings of the 1996 Winter Simulation Conference*, Coronado, California, December 8-11, 1996, 918-925.
29. M.L. McGinnis, G.F. Stone. 1996. "Measuring the Effectiveness of Simulation-Based Training," in *Proceedings of the 1996 Winter Simulation Conference*, Coronado, California, December 8-11, 1996, 934-938.
30. M.L. McGinnis, G.F. Stone. 1995. "Recent Army Initiatives to Develop Decision Support Systems for Army Command and Control (C2) and Training Planning," in *Proceedings of the Annual International Conference on Industry, Engineering, and Management Systems*, Cocoa Beach, Florida, March 13-15, 1995, 584-589.
31. M.L. McGinnis, R.G. Phelan Jr.. 1995. "Using Computer Simulation to Re-engineer Traditional Stove-Piped Army Staffs for Information Operations, in 21st Century," in *Proceedings of the 1995 Winter Simulation Conference*, Arlington, Virginia, December 3-6, 1995, 1158- 1163.
32. M.L. McGinnis, E. Fernandez. 1994. "A Dynamic Programming Model for the Initial Entry Training Program of the United States Army," in *Proceedings of the 33rd IEEE Conference on Decision and Control*, Orlando, Florida, December 13-15, 1994, 3632-3633.
33. M.L. McGinnis, E. Fernandez. 1994. "Resource Scheduling for the United States Army's Basic Combat Training Program," in *Proceedings of the 1994 IEEE International Conference on Systems, Man and Cybernetics*, San Antonio, Texas, April 21-24, 1994, 553-558.
34. M.L. McGinnis, J.L. Kays, P. Slaten. 1994. "Computer Simulation of U.S. Army Officer Professional Development," in *Proceedings of the 1994 Winter Simulation Conference*, Orlando, Florida, December 11-14, 1994, 813-820.
35. M.L. McGinnis, E. Fernandez. 1993. "Heuristic Decision Process for Managing the United States Army's Resources for Basic Combat Training," in *Proceedings of the 61st Military Operations Research Society Symposium* (classified), Wright-Patterson Air Force Base, Dayton, Ohio, June 22-24, 1993.

Invited Conference Papers

1. M.L. McGinnis, M. Kwinn, E. Pohl and D. McCarthy. 2004. "Building a Team-focused Academic Department: Creating Synergy through Alignment of Programs and Education Outcome Goals," in *Proceedings of the Hawaii International Conference on Education*, January 4-7, 2004,
2. J.L. Kays, M.L. McGinnis. 1995. "A Historical Perspective of Undergraduate Systems Engineering at the United States Military Academy," in *Proceedings of the 1995 IEEE*

International Conference on Systems, Man and Cybernetics, Vancouver, British Columbia, Canada, 4356-4360, October 22-25, 1995.

Lectures & Presentations

1. M.L. McGinnis. 2009. Plenary Panel Chair: "The Use of Live-Virtual-Constructive Simulation in Test and Evaluation: Where are we at? Where are we going? How are we going to get there?" *14th Annual International Test and Evaluation Association (ITEA) Modeling and Simulation Conference*. To be held in El Paso, Texas, January 12-15, 2009.
2. M.L. McGinnis. 2009. Invited speaker for the Plenary Panel: Training and Simulation. *2008 Defence Leaders Forum. NATO Operations: IT Challenges for Nations & Industry.* "Using Modeling and Simulations to overcome staff training and coordination issues in the Years Ahead." Co-sponsored and hosted by NATO, Portugese Ministry of Defense and Microsoft. To be held in Lisbon, Portugal, December 9-11, 2008.
3. M.L. McGinnis. 2008. Invited Lecture: "Consequence Management and Evacuation Modeling." *Roundtable Discussion on Facility Preparedness in the National Capital Region* sponsored by Washington Headquarters Services in conjunction with the US Navy Center for Asymmetric Warfare and Georgetown University School of Foreign Service and Department of Government, Georgetown University, Heeley Hall, Riggs Library, November 22, 2008.
4. M.L. McGinnis. 2008. Invited Lecture: "Modeling and Simulation Opportinities in Hampton Roads: Setting Conditions for Success in the Decade Ahead." Institute of Manufacturing, College of Engineering, Cambridge University, Cambridge, England. November 9, 2008.
5. A. Abbott, M.L. McGinnis. 2008. "Generation of an Emergency Management Mission Essential Task List and Application of an Analytical Hierarchy Process for Evaluation of the Return on Investment for Collective Staff Training," at *The ITEC Defense Simulation Conference*, Stockholm, Sweden, June 10-12, 2008.
6. J. Sokolowski, Y. Papelis, C. Turnista, M.L. McGinnis. 2008. "An Agent Based Simulation Approach to Critical Infrastructure Modeling." *Homeland Security Science & Technology Stakeholders Conference on Partnering for a Safer Nation*, Ronald Reagan International Trade Center, Washington, DC, June 2-5, 2008.
7. M.L. McGinnis. 2008. "An Update on Strategic Initiatives in Modeling and Simulation." *NASA Langley Colloquium Distinguished Lecture Series*, NASA Langely Research Center, Hampton, Virginia, May 6, 2008.
8. M.L. McGinnis. 2008. "Advances in Modeling and Simulation in Education, Defense and the Public Sector." *Virginia Air and Space Center Sigma Lecture Series*, Hampton, Virginia, May 6, 2008.
9. M.L. McGinnis. 2008. "The Emerging Role of Modeling and Simulation as an Academic Discipline and Industry in Hampton Roads," lecture at *The Life Long Learning Society of Christopher Newport University*, Newport News, Virginia, April 7, 2008.
10. M.L. McGinnis. 2008. Panelist. The *Department of Defense Modeling and Simulation Conference* panel entitled "What Policies and Programs do We Need in the M&S Vision for 2020." Presentation: "Modeling and Simulation Vision 2020: Policies and Programs for Growth and Success." Orlando, Florida, March 10-14, 2008.
11. M.L. McGinnis. 2008. "Modeling and Simulation Activities at the Virginia Modeling, Analysis and Simulation Center." *Military Operations Research Society Education Colloquium*, Air Force Institute of Technology, Dayton, Ohio, March 4-5, 2008.

12. M.L. McGinnis. 2008. Panel Chair and Moderator. *2008 Modeling & Simulation Leadership Summi on Education: Enabling Modeling and Simulation; a National Critical Technology.* Sponsored jointly by the National Training and Simulation Association and the Congressional Modeling and Simulation Caucus. Panel: "The M&S Role in the Educational Process." Virginia Beach, Virginia, February 11, 2008.
13. M.L. McGinnis. 2007. "Multi-modal Transportation Modeling and Simulation Activities at the Virginia Modeling, Analysis and Simulation Center" at the *Third Annual Maritime Summit.* Jointly sponsored by the City of Portsmouth and the Virginia Department of Economic Development. Portsmouth, Virginia, December 7, 2007.
14. M.L. McGinnis. 2007. Panelist at *An Open Forum on Test and Training 2020: From Stovepipes to Collaborative Enterprises.* Sponsored jointly by the International Test and Evaluation Association (ITEA), the Department of Defense Test Resource Management Center and the Office of Personnel and Readiness. "Evolution of Technology by Government and Academia." Fairfax, Virginia, October 3-4, 2007.
15. M.L. McGinnis. 2007. "The Economic Impact of Modeling and Simulation on Hampton Roads: the Future is Bright." Lecture to the Hampton Roads Economics Club, Norfolk, Virginia, September 26, 2007.
16. M.L. McGinnis and D. Sanders. 2004. "Unit Manning the U.S. Army: A Paradigm Shift from Alert-Train-Deploy to Train-Alert-Deploy." Presented by D. Sanders at the *Republic of Korea-U.S. Operations Research and Simulation Symposium*, Seoul, Korea.
17. M.L. McGinnis. 2003. "Unit Manning Initiative," *Association of the United States Army Logistics Symposium*, Richmond, Virginia, April 22-24, 2003.
18. D. Sanders, P. Thornton, M.L. McGinnis. 2003. "Modeling and Analysis in Support of Unit Manning Initiative for the United States Army," *2003 Institute for Operations Research and Management Science Meeting*, Atlanta, Georgia.
19. M.L. McGinnis, D. Sanders,. 2003. "Unit Manning System Measures of Effectiveness" 71st *Military Operations Research Society Symposium*, Quantico, Virginia, June 10-12, 2003.
20. D. Sanders, M.L. McGinnis. 2003. "Personnel Considerations of a Unit Manning System," *71st Military Operations Research Society Symposium*, Quantico, Virginia, June 10-12, 2003.
21. D. Sanders, B. Jenko, D Nguyen, A. Redd, M.L. McGinnis. 2003. "Readiness Considerations of a Unit Manning System," *71st Military Operations Research Society Symposium*, Quantico, Virginia, June 10-12, 2003.
22. M.L. McGinnis. 2002. "FA49 ORSA Update," Faculty Colloquium presentation for the Department of Mathematical Sciences, United States Military Academy. West Point, New York, September 26, 2002.
23. M.L. McGinnis, G. Brougham, J. Fernandez, N. Mudd, R. Pagels, H. Titzel. 2002. "Designing a Modern Command and Control System Around the Flow of Information," *2002 Institute for Operations Research and Management Science Meeting*, San Jose, California.
24. M.L. McGinnis. 2001. Conference opening keynote and presentation entitled "Military Headquarters Redesign," at the *SMi Group Conference on Command Post of the Future (CPOF).* London, England, November 14-15, 2001.
25. R. Klingaman, R.O. Morales, B.C. Ezell, M.L. McGinnis. 2001. "Joint Military Headquarters Design and Decisive Operations: Using Cluster Analysis to Develop a Uniform Joint Task List for Rapid Decisive Operations," *69th Military Operations Research Society Symposium*, Annapolis, Maryland.

26. G. S. Parnell, R.F. Deckro, M.L. McGinnis. 2000. "Information Operations: Opportunities for Operations Research." Presented at the *U.S./Canadian Joint Military Operations Research and Simulation Symposium*, Ottawa, Canada.
27. M.L. McGinnis. Panelist and presentation: "Undergraduate Instructional Techniques" at the *Interdisciplinary Workshop on Core Mathematics: Considering Change in the First Two Years of Undergraduate Mathematics*. Sponsored by the National Science Foundation through Project INTERMATH and the Mathematical Association of America, West Point, New York, November 4-7, 1999.
28. G.M. Pearman, L.A. Jackson, P. Blechinger, M.L. McGinnis. 1999. "Developing a Modern Simulation from a Legacy Model," *67th Military Operations Research Society Symposium*, West Point, New York.
29. G.M. Pearman, L.A. Jackson, P. Blechinger, M.L. McGinnis. 1999. "Implementing A Modern Simulation Architecture," *67th Military Operations Research Society Symposium*, West Point, New York.
30. G.M. Pearman, M.L. McGinnis. 1999. "Technology Applications to Re-engineering a Legacy Simulation." Presented at the *U.S./Canadian Joint Military Operations Research and Simulation Symposium*, Toronto, Canada.
31. G.M. Pearman, M.L. McGinnis. 1998. "PC Janus Project: Development of an HLA-Compliant, PC-Based High-resolution Constructive Combat Simulation." Presented at the *U.S./French Joint Military Operations Research and Simulation Symposium*, Paris, France.
32. M.L. McGinnis. 1997. "A New Approach to Forecasting Military Officer Personnel Strengths," *1997 Institute for Operations Research and Management Science Spring Meeting*, San Diego, California.
33. R.G. Phelan Jr., M.L. McGinnis. 1997. "System Re-engineering of Army Tactical Staffs Using Computer Simulation," *1997 Institute for Operations Research and Management Science Spring Meeting*, San Diego, California.
34. M.L. McGinnis, R.G. Phelan Jr.. 1997. "Scheduling Support for the U.S. Army's Close Combat Tactical Trainer (CCTT) System," *1997 Institute for Operations Research and Management Science Spring Meeting*, San Diego, California.
35. M.L. McGinnis, D.W. Hutchison, M.S. Lancaster, J. Langer, G.F. Stone Jr. 1996. Panel discussion on "Determinants of Future Force Readiness Indicators," *64th Military Operations Research Society Symposium*, Fort Leavenworth, Kansas.
36. M.L. McGinnis, G.F. Stone Jr., G. Ressler, C. Carver, R. Lusher. 1996. "The Command Support System (ComSS): An Intelligent Information System to Support Commanders in Battlefield Decision Making," *Annual Artificial Intelligence Proponency Conference*, Washington, D.C..
37. M.L. McGinnis, R.G. Phelan Jr. 1996. "A Hybrid Expert System for Scheduling the U. S. Army's Close Combat Tactical Trainer (CCTT)," *64th Military Operations Research Society Symposium*, Fort Leavenworth, Kansas.
38. R.G. Phelan Jr., M.L. McGinnis. 1996. "Using Process-Oriented Computer Simulation to Re-engineer Traditional Stove-Piped Army Staffs for Information Operations in the 21st Century," *64th Military Operations Research Society Symposium*, Fort Leavenworth, Kansas.
39. M.L. McGinnis, E. Fernandez, P. Mirchandani. 1995. "Military Training Resource Scheduling: System Model, Optimal and Heuristic Decision Processes," presented in the David Rist Prize Paper Session, *63rd Military Operations Research Society Symposium*, Annapolis, Maryland.

40. M.L. McGinnis, M.P. Barbero, G.B. Hull, S. Torgerson. 1995. "A Baseline Set of Critical Information Requirements for Establishing the Relevant Common Picture for FORCE XXI," *63rd Military Operations Research Society Symposium*, Annapolis, Maryland.
41. M.L. McGinnis, M.P. Barbero, G.B. Hull. 1995. "An Architecture for an Information Age Command and Control System," *63rd Military Operations Research Society Symposium*, Annapolis, Maryland.
42. M.P. Barbero, M.L. McGinnis, J. Watson. 1995. "Defense Business Operating Fund Customer Order Model," *1995 Institute for Operations Research and Management Science Spring Meeting*, Los Angeles, California.
43. G.B. Hull, M.P. Barbero, S. Torgerson, M.L. McGinnis. 1995. "Battlefield Information Requirements for FORCE XXI," *1995 Institute for Operations Research and Management Science Spring Meeting*, New Orleans, Louisiana.
44. M.P. Barbero, G.B. Hull, M.L. McGinnis, S. Torgerson. 1995. "Command and Control for FORCE XXI," *1995 Institute for Operations Research and Management Science Spring Meeting*, New Orleans, Louisiana.
45. R.G. Phelan Jr., K. Kerby, M.L. McGinnis. 1995. "Discrete Event Simulation of a Proposed FORCE XXI Command and Control System," *1995 Institute for Operations Research and Management Science Spring Meeting*, New Orleans, Louisiana.
46. M.L. McGinnis. 1995. "Determining Officer Accessions Requirements During Downsizing," *1995 Institute for Operations Research and Management Science Fall Meeting*, New Orleans, Louisiana.
47. M.L. McGinnis. 1993. "Training Base Management for the U.S. Army," *61st Military Operations Research Society Symposium*, Air Force Institute of Technology, Wright-Patterson Air Force Base, Dayton, Ohio.
48. M.L. McGinnis, E. Fernandez. 1993. "Scheduling and Sizing Training Companies for the U.S. Army: Heuristic and Dynamic Programming Approaches," *The Institute of Management Sciences and Operations Research Society of America (TIMS/ORSA) 35th Joint National Meeting*, Chicago, Illinois.
49. M.L. McGinnis. 1990. "Lieutenant Accessions Requirements Management (LARM)," *58th Military Operations Research Society Symposium*, Annapolis, Maryland.
50. M.L. McGinnis. 1990. "U.S. Army Force and Manpower Reductions-Transition Analysis," *TIMS/ORSA 29th Joint National Meeting*, Las Vegas, Nevada.
51. G.W. Krahn, M.L. McGinnis. 1989. "Life Cycle Modeling of a U.S. Army Branch," *ORSA/TIMS 28th Joint National Meeting*, New York, New York.
52. M.L. McGinnis. 1989. "Branch and Functional Area Management Model for the U.S. Army," *ORSA/TIMS 28th Joint National Meeting*, New York, New York.
53. J.L. Kays, M.L. McGinnis. 1989. "The Analytic Hierarchy Process Applied to Force Design," *ORSA/TIMS 28th Joint National Meeting*, New York, New York.
54. M.L. McGinnis, D.E. Hardin. 1989. "U.S. Army Training Base Management," *TIMS/ORSA 27th Joint National Meeting*, Vancouver, British Columbia, Canada.
55. M.L. McGinnis. 1989. "U.S. Army Training Base Closures-Modeling the Problem," *57th Military Operations Research Society Symposium*, Fort Leavenworth, Kansas.
56. M.L. McGinnis. 1989. "Leader Development and Life-Cycle Modeling of Functional Area 49 – Operations Research System Analyists," *58th Military Operations Research Society Symposium*, Fort Lee, Virginia.

57. M.L. McGinnis, S.T. Forster, J.L. Kays. 1988. "Computer Simulation of the United States Army Officer Professional Development Process," *ORSA/TIMS 26th Joint National Meeting*, Denver, Colorado.
58. M.L. McGinnis, J.L. Kays. 1988. "An FMS Model for Assessing Personnel Management Policy in the Army," *ORSA/TIMS 26th Joint National Meeting*, Denver, Colorado.
59. M.L. McGinnis, S.T. Forster, J.L. Kays. 1988. "Computer Simulation Modeling of the United States Army Officer Professional Development Process," *56th Military Operations Research Society Symposium*, Monterey, California.
60. K.D. Beatty, S.T. Forster, M.L. McGinnis. 1987. "GPSS Simulation of the FMS at Watervliet Arsenal," *55th Military Operations Research Society Symposium*, Maxwell Air Force Base, Montgomery, Alabama.

Referred Technical Reports. None.

Reviewed Technical Reports

1. M.L. McGinnis. 2004. "Systems View of the USMA Staff Redesign," Technical Report TR-05-44 Department. of Systems Engineering and the Operations Research Center of Excellence, United States Military Academy, West Point, New York.
2. M.L. McGinnis. 2004. "Transforming the Department [of Systems Engineering]: 1999-2004," Technical Report, Department. of Systems Engineering and the Operations Research Center of Excellence, United States Military Academy, West Point, New York.
3. M.L. McGinnis. 2004. "Operation Stavanger: Standing Up Deployable Joint Headquarters for the NATO Response Force," Technical Report TR-03-28. Department. of Systems Engineering and the Operations Research Center of Excellence, United States Military Academy, West Point, New York.
4. M.L. McGinnis, D. Sanders. 2003. "Unit Manning." Technical Report Operations Research Center, United States Military Academy, West Point, New York, November 2003.
5. M.J. Kwinn, M.J. Davis, M.L. McGinnis. 2000. "An Evaluation of Joint and Service-Specific Advertising Efficiency for Military Recruitment," Technical Report 01-06-1, Operations Research Center, United States Military Academy, West Point, New York, December 2000.
6. R.G. Phelan Jr., M.D. McNett, M.L. McGinnis. 1997. "Warfighter's Simulation 2000 Training Requirements Analysis Program," Technical Report, Operations Research Center, United States Military Academy, West Point, New York.
7. M.L. McGinnis, R.G. Phelan Jr. 1996. "A Hybrid Expert System for Scheduling the United States Army's Close Combat Tactical Trainer (CCTT)," Technical Report AY95-10-1, Operations Research Center, United States Military Academy, West Point, New York.
8. M.P. Barbero, J. Watson, M.L. McGinnis. 1995. "U.S. Army Material Command Resource Allocation Model (RAM)," Operations Research Center Technical Report AY95-1, USMA, West Point, New York.
9. R.M. McCaleb, M.P. Barbero, M.L. McGinnis. 1995. "Army Budget Office Pro Forma Model," Operations Research Center Technical Report AY95-2, USMA, West Point, New York.
10. M.P. Barbero, J. Watson, M.L. McGinnis. 1995. "Army Budget Office Customer Order Model," Operations Research Center Technical Report AY95-3, USMA, West Point, New York.

11. M.L. McGinnis, E. Fernandez. 1993. "Training Base Management for the United States Army: Software Decision Support System," Department of Systems and Industrial Engineering, The University of Arizona, Tucson, Arizona, Working Paper AY93-11.
12. M.L. McGinnis, E. Fernandez. 1993. "Training Base Management for the United States Army: System Model, Heuristic and Dynamic Programming Models," Department of Systems and Industrial Engineering, The University of Arizona, Tucson, Arizona, Working Paper AY93-6.
13. J.P. Cummings, J.R. Rowan, M.L. McGinnis. 1990. "Officer Performance Based on Accession Category," Operations Research Center Technical Report, USMA, West Point, New York, 1990.
14. M.L. McGinnis, P.N. Courtois. 1990. "DOPMA Grade Ceilings and DOPMA Promotion Policy," Operations Research Center Technical Report, USMA, West Point, New York.
15. M.L. McGinnis. 1989. "National Security: How Much is Enough?" Operations Research Center Technical Report, USMA, West Point, New York.
16. M.L. McGinnis, J. Kays, G. Parlier. 1989. "The Impact of Title IV on Officer Professional Development," Operations Research Center Technical Report, USMA, West Point, New York.
17. M.L. McGinnis. 1988. "Decision Support System for Managing U.S. Army Training Bases," Operations Research Center Technical Report, USMA, West Point, New York.
18. M.L. McGinnis, S.T. Forster. 1988. "An Empirical Study of Nursing Care Requirements: Darnall Army Community Hospital, Fort Hood, Texas," Department of Mathematics Technical Report, USMA, West Point, New York.
19. M.L. McGinnis, S.T. Forster. 1987. "Horizontal Machining Center (HMC) Machine Balancing with Respect to Processing Time and Tooling Requirements," Department of Mathematics Technical Report, USMA, West Point, New York.
20. M.L. McGinnis, S.T. Forster. 1987. "Analytical Validation of Computer Simulation Findings on Flexible Manufacturing System Blockages," Department of Mathematics Technical Report, USMA, West Point, New York.
21. K.D. Beatty, S.T. Forster, M.L. McGinnis. 1987. "Computer Simulation of a Flexible Manufacturing System," Department of Mathematics Technical Report, USMA, West Point, New York.

Summary of Selected Research Projects

This section briefly describes a partial listing of selected (multi-year) research projects. Technical reports and publications cited in the vitae provide a full listing of past research, projects and consulting. Unless stated otherwise, I served as the principle investigator and funding reflects my direct participation on the research or project.

Operation Stavanger: Standing Up a Deployable Joint Headquarters for the NATO Response Force (2003-05)

Co-Sponsors: U.S. Admiral Gregory G. Johnson, Commander-in-Chief, Joint Force Command, Naples, Italy and U.K. Admiral Sir Ian Forbes, Deputy Supreme Allied Commander Transformation, Allied Command Transformation, Norfolk, Virginia.

Funding: $30K

Co-PIs: Brigadier General Rick Lynch and Colonel Mike McGinnis

Description. In October 2003, the North Atlantic Council created the NATO Response Force (NRF). When fully operational in the fall of 2006, the force will consist of 22,000 to 24,000 personnel from all services deployable within five days of alert and able to conduct "stand-alone" operations for 30 days. The purpose of this project was to design and establish NATO's first-ever deployable joint task force (DJTF) headquarters. The unit consisted of approximately 90 personnel, commanded by a one or two star, that exercises operational-level command and control of the NRF. The headquarters was designed to plan, coordinate and conduct effects-based operations involving missions ranging from humanitarian

relief to forced entry into a hostile environment. To stand up the DJTF headquarters required simultaneously working through two major problems: (1) transforming a traditional Jstaff military headquarters into a deployable joint headquarters capable of planning and assessing effects-based operations, and (2) putting effects-based operations concepts and theory into practice. I was the lead systems engineer responsible for identifying specifying operational and functional requirements, developing organizational, technical, informational and physical architectures. The deployable headquarters was organized around the flow of information and decision makingto conduct effects based operations. BG Lynch routinely briefed NATO leaders and the headquarters team on effects based operations, head quarters design, and functional decomposition.

Unit Manning U.S. Army Combat Brigades (2002-03)

Sponsor: Secretary of the Army (SA) Honorable Thomas White, Army Chief of Staff (CSA) General Eric Shinseki, Army Vice Chief of Staff (VCSA) General John Keane.

Funding: $1.5M ($750K discretionary funding available to Unit Manning Task Force).

Description: Served as Director of the Army Unit Manning Task Force (UMTF) and successfully planned and implemented a brigade-level unit manning initiative that fundamentally changed how the Army builds combat brigade teams and projects combat power. Under unit manning, the arrival, training, employment and departure of most personnel assigned to combat brigade teams is synchronized with the unit's mission. By enabling soldiers to train and serve together as a team for extended periods of time, unit manning enhances cohesion and teamwork in combat brigades enabling the units to more effectively and efficiently accomplish assigned missions. Coordinated unit manning with the Army G-3 to synchronize unit manning with unit rotations in support of Operation Enduring Freedom and Operation Iraqi Freedom. On a daily/weekly basis, met, worked, briefed and collaborated with the Army G-1, Deputy G-1, Commander Human Resources Command (HRC), Army G-3 and Deputy G-3. On a regular (weekly/monthly) basis, met with and briefed the SA, ASA(MandRA), CSA, VCSA, SMA (Sergeant Major of the Army), G-8, OSD principle staff, Congressional principal staffers on Capitol Hill, and senior Army leaders outside the National Capital Region.

Command Post of the Future (1999-2002)

Sponsor: U.S. Army Training and Doctrine Command (TRADOC), Fort Monroe, Virginia.

Funding: $25K per year.

Description: During the 1990s, the focus of military operations shifted from a major theater of war to many types of operations other than war including peace making, peacekeeping, and humanitarian support, counter-terrorism and cyber terrorism. Current military headquarters that command and control such forces have, at best, made only marginal changes to organization, structure and equipment needed to adapt to new missions and technologies. This study investigated the re-engineering of traditional stove-piped military headquarters at the operational-level into a robust command and control system organized around the flow of information to facilitate decision-making and enhance military force effectiveness. Initial efforts focused on defining functional and system requirements, related architectures, and modeling and analysis of information flow and information operations within the headquarters. Results briefed to Assistant Secretary of the Army, Mr. McDonald, and TRADOC Headquarters.

U.S. Army Training and Leader Development Panel (2000)

Sponsor: Army Chief of Staff (CSA) GEN Eric Shinseki

Funding: $2K

PI: LTG William M. Steele, Executive Director, Army Training and Leader Development Panel

Description: The Army Chief of Staff, General Eric Shinseki, initiated an Army Training and Leader Development Panel (ATLDP) in June 2000 to review, assess, and provide recommendations for the development of 21st Century leaders for a Transforming Army. Panel members surveyed nearly 14,000 officers, NCOs, and civilians on Army training, improve officer leader development and management, and to provide senior Army leaders with feedback to inform them on the force and where disconnects exist between Army policy and what is done in practice. The panel produced 84 recommendations in 7 major categories. Served as a member of the ATLDP Red Team. Briefed Red Team observations, findings and recommendations to LTG Steele and the ATLDP during panel meetings. The Final Report

was prepared by the ATLDP and forwarded to the Army Chief of Staff with recommendations for action.

Army Development System (ADS) XXI Design (1999-2000)

Sponsor: Army Chief of Staff (CSA) GEN Dennis Reimer

Funding: $20K.

PI: Task Force Director, BG Larry Adair

Description: Served as lead systems engineer to the ADS XXI Task Force Director, BG Larry Adair, for re-engineering the U.S. Army Warrant Officer and Enlisted Personnel Management Systems for leader development in the 21st century. Developed the study framework, and modeling and analysis plan. A final report was prepared by the Task Force and forwarded through the Army G-1 to the Army Chief of Staff, General Eric Shinseki, for action.

Development of an HLA-compliant, PC-based, Object Oriented Constructive Combat Simulation (1998-2000)

Sponsor: U.S. Army Training and Doctrine Command (TRADOC).

Funding: $870K.

Description: High resolution, constructive combat simulations offer Army leaders at brigade through platoon with an effective tool for staff training, mission rehearsal and analysis. This project involved TRAC-Monterey analysts, faculty from NPS Departments of Computer Science, Operations Research, and MOVES, as well as contractors to explore concepts and technologies for re-engineering legacy simulations written in procedural languages and residing on large, unwieldy platforms. Research will port the JANUS simulation to a desktop, Windows NT platform and will feature a modular, object oriented architecture and reconfigurable, expansible graphical user interfaces. The prototype developed met both Distributed Interactive Simulation (DIS) and High-Level Architecture (HLA) standards and was applied in those environments.

Army INTEL System XXI Design (1998-99).

Sponsor: Army Deputy Chief of Staff for Intelligence, Lieutenant General Claudia Kennedy,

Funding: $55K.

PI: Task Force Director, Brigadier General Wayne M. Hall.

Description: Served as lead systems engineer to the Director of the INTEL XXI Task Force, BG Hall, for re-engineering the U.S. Army Intelligence community for leader development in the 21st century. Developed the study framework, and modeling and analysis plan. The Task Force Final Report was prepared and forwarded through the Army G-2, LTG Claudia Kennedy to the Army Chief of Staff, General Dennis Reimer.

Officer Personnel Management System (OPMS) XXI Design (1996-98)

Sponsor: Army Chief of Staff (CSA) General Dennis J. Reimer

Funding: $40K/YR 1996, 1997 (Total - $3M)

PI: Task Force Director MG Dave Ohle

Description: The Task Force re-engineered the U.S. Army Officer Personnel Management for officer leader development in the 21st century. This was the first major overhaul of the Army's Officer Development System in 45 years. Tasks accomplished included development of the study framework, proposed four new career fields and several new functional areas for the Army that have since been implemented, and developed and directed the modeling and analysis plan used by the Task Force Director to support decision recommendations to the Army Chief of Staff. In addition, directed and oversaw the development of deterministic officer inventory flow models and stochastic officer development models that age officer cohorts over a 30 year lifecycle that models law, policy and regulations. Authored the modeling and analysis chapter and co-authored several other chapters of the *OPMS XXI Final Report*. Made numerous presentations to senior army leaders, general officer advisory groups, leaders in the Army analytical community such as to the Deputy Undersecretary of the Army for Operations Research Advisory Committee.

An Expert System for Eliciting *WARSIM 2000* Mission Training Plans (1996-97)

Sponsor: U.S. Army Simulation, Training and Instrumentation Command (STRICOM).

Funding: $50K.

Description: In 1996, the U.S. Army undertook development of a new computer simulation for training and war-gaming called *WARSIM 2000.* This simulation will cover the full spectrum of military operations at all levels: strategic, operational, and tactical. Co-developed, with MAJ Bob Phelan, an internet-based expert system for eliciting knowledge from subject matter experts for creating mission training plans (MTPs) and simulation scenarios.

A Hybrid Expert System for Scheduling the United States Army's Close Combat Tactical Trainer (CCTT) (1994-96)

Sponsor: U.S. Army Simulation, Training and Instrumentation Command(STRICOM).

Funding: $45K.

Description: In 1994, the U.S. Army undertook development of a new family of computer-based training facilities called the *Close Combat Tactical Trainer* (CCTT). CCTT enables soldiers from armored and mechanized battalions to conduct realistic training in manned modules involving semi-automated forces (SAF) that operate on a digitized, virtual battlefield. Major scheduling tasks include selecting and scheduling scenarios, and scheduling resources throughout a one-day planning horizon. This multi-year project involved mathematically formulating the CCTT scheduling problem, and developing and implementing a hybrid expert system that automated CCTT scheduling tasks.

U.S. Navy Officer Force Planning Model (1995-96)

Sponsor: U.S. Navy Bureau of Personnel (BUPERS) and Director, Naval War College Advanced Research Program

Funding: $3K.

Description: Developed an executive-level decision support software system, and deterministic markovian officer inventory forecasting model, for the U.S.Navy Bureau of Personnel Joint Officer Manning Department and Officer Promotions and Planning Department. The system permits personnel managers to analyze officer professional development policy changes before implementation and supports analysis of policy changes to annual accessions, officer redistribution, promotions, and retention.

FORCE XXI Command and Control (C2) System and Modular Strike Force (1994-95).

Sponsor: Battle Lab Integration, Technology and Concepts Directorate (BLITCD), U.S. Army Training and Doctrine Command (TRADOC).

Funding: $75K.

Description: Applied systems engineering design methodologiesto determine requirements and design architectures for a modular, tailorable FORCE XXI strike force and command and control system capable of conducting continuous, 24-hour command, control, and information operations.

FORCE XXI Commander's Critical Information Requirements (CCIR) (1994-95)

Sponsor: Battle Lab Integration, Technology and Concepts Directorate (BLITCD), Headquarters, U.S. Army Training and Doctrine Command (TRADOC).

Funding: $15K.

Description: Since the late 1970s, studies identified critical battlefield information requirements for Army commanders. Lead a team of 3 military analysts to survey and benchmark battlefield information studies from 1979 through 1995 and surveyed serving battalion, brigade and division commanders for priority information requirements. Results identified a core set ofcritical information requirements necessary to designing a FORCE XXI command and control system for visualizing a common picture of the battlespace and managing information operations.

U.S. Army Personnel Strategy 2020 (1989-90).

Sponsor: U.S. Army Deputy Chief of Staff for Personnel (DCSPER).

Funding: $5K.

Description: Worked for Major General Theodore Stroup and co-developed a strategic Army personnel management framework, withautomated rule-based procedures, for responding to future unforeseen changes in international, political, social and Defense operating environments that impact staffingthe Army to meet future personnel and operational requirements.

Study of DOPMA Promotion Midpoints and Grade Ceilings (1990)

Sponsor: Deputy Assistant Secretary of the Army for Military Personnel Management and Equal Opportunity Policy.

Funding: $10K.

Description: Modeled and analyzed the effects of moving Defense Officer Personnel Management Act (DOPMA) promotion midpoints on field grade officer ceilings while promoting officers at DOPMA rates (80% to O4, 70% to O5, 50% to O6). Examined the impact of moving O4 promotion midpoint from 10 to 12 YOS, O5 promotion midpoint from 16 to 18 YOS, and O6 promotion midpoint from 22 to 24 YOS.

Lieutenant Accessions Requirements Management (1990)

Sponsor: Director of Military Personnel Management (DMPM), Office ofthe Deputy Chief of Staff for Personnel (ODCSPER), Headquarters, Department of the Army.

Funding: $30K.

Description: Lead analyst and developed decision methodology and forecasting model for the Lieutenant Accessions Requirements Modeling Task Force to analyze 2d lieutenants accession requirements for the Active, Reserve and National Guard components over an 8-year planning horizon. Methodology and forecasting model were approved for use by the LARM General Officer Steering Committee on 7 March 1990 and by the Assistant Secretary of the Army for Manpower and Reserve Affairs on 27 March 1990.

Study of Army Officer Performance Based on Accession Category (1990)

Sponsor: Director of Military Personnel Management (DMPM), Office of the Deputy Chief of Stafffor Personnel (ODCSPER), Headquarters, Department of the Army.

Funding: $3K.

Description: Modeled and investigated differences in Army officer performance by commission source: USMA, ROTC, and OCS. The study also evaluated ROTC officer performance separately for distinguished military graduates (DMG) and all others. Performance comparisons were based on command, school and promotion board results, and stay (continuation) rates.

Officer Life Cycle Study (1989)

Sponsor: Center for Army Leadership (CAL), Fort Leavenworth, Kansas.

Funding: $15K.

Description: Developed deterministic officer inventory projection models for several Army branches and functional areas. Models enable branches to evaluate policy and force structure changes before implementation. Through a Markovian process using forecasted promotion and continuation rates, this model projects current officer inventory, by grade and year of service, over a 10-year planning horizon. Models were accepted for use by Signal Corp, Air Defense Artillery,Military Intelligence, and functional area proponents for FA49 and FA53.

Armor/Anti-Armor Mix Study (1988)

Sponsor: U.S. Army Training and Doctrine Command (TRADOC), Commanding General, General Maxwell Thurman.

Funding: $20K.

PI: Mr. Hugh McCoy, TRAC-White Sands Missile Range, Advanced Projects Program Manager

Description: Co-developed a mathematical model with analysts from U.S. Army TRADOC Analysis Command (TRAC), White Sands Missile Range, for evaluating capabilities of new weapon system, based on emerging technologies, against current and future threat capabilities. Study led to development of a new methodology for finding the "best" mix of U.S. armor and antiarmor systems in central Europe to provide NATO forces with a sufficient, but not excessive capability for defeating or neutralizing the armored threat.

TRADOC Base Realignment and Closure (BRAC) Study (1988).

Sponsor. Deputy Chief of Staff for Resource Management (DCST) BG Theodore Stroup and Plans, Analysis, and Evaluation (PAandE) Directorate, U.S. Army Training and Doctrine Command (TRADOC).

Funding. $15K.

Description: Implemented a system model of the U.S. Army initial entry training program, developed previously, in a software decision support system (SDSS) for studying options and impacts of closing and downsizing TRADOC initial entry training installations. TRADOC used the SDSS to examine impact of policy changes such as funding, training installation structure, and varying course lengths and recruiting (accession) levels on TRADOC's ability to maintain training readiness and meet the training mission. System model and SDSS were accepted for use by the PAandE, TRADOC Headquarters in February 1989.

Production Line Balancing and Scheduling for Watervliet Arsenal's Flexible Manufacturing System (1987).

Sponsor: Advanced Technologies Design Directorate, Watervliet Arsenal, Watervliet, New York.

Funding: $4K.

Description: Developed an analytical method for validating numerical output of a computer simulation model used to generate production schedules for Watervliet Arsenal's Flexible Manufacturing System (FMS). Developed and implemented a parts scheduling methodology and production line balancing algorithm for the FMS.

Title IV Impact Study (1987-88).

Sponsor: Deputy Chief of Staff for Plans, Officer Branch, Total Army Personnel Command (TAPC).

Funding: $18K.

Description: Title IV of the 1986 Goldwater-Nichols Defense Reorganization Act, and amendments, mandate military officers serve a three-year joint assignment prior to promotion to general officer. This defense reform law led TAPC to review officer professional development to determine the law's impact on the Officer Professional Management System (OPMS). Developed an officer life cycle computer simulation to assess Title IV's impact on officer development and officer inventory needed to meet future requirements. The U.S. Army Personnel Command, Alexandria, Virginia, and the Center for Army Leadership, Fort Leavenworth, Kansas, accepted the model for use.

U.S. Army Initial Entry Training Study (1987).

Sponsor: Deputy Chief of Staff for Resource Management (DCSRM) BG Ted Stroup, U.S. Army Training and Doctrine Command (TRADOC) Headquarters.

Funding: $33K.

Summary: Developed an initial entry training scheduling system and automated heuristic method for scheduling BCT, AIT and OSUT companies. System allows the user to revise training company sizes and course lengths. The heuristic scheduling method balances resources against demand generated by the weekly arrival of new recruits over a two-year planning horizon. Model accepted for use by TRADOC Training and Operations Management Directorate (TOMD) in October 1987.

EMPLOYMENT & SERVICE HIGHLIGHTS

Executive Director. Virginia Modeling, Analysis and Simulation Center (VMASC), Old Dominion University, Norfolk, Virginia (2006-Present). Lead, manage and direct approximately 50 research faculty and staff, and coordinate research with 25 university modeling and simulation tenure-track faculty and affiliated faculty. In two years, diversified the research portfolio from a single focus area in defense to seven research clusters: social science, game-based learning, homeland security/defense, transportation, computational, engineering enterprise, medical. During the same period, research awards increased from $6.2M in 2006 to $9.6M and $9.1M in 2007 and 2008 respectively. Also undertook modeling and simulation iniatives to support Old Dominion University, the Hampton Roads Region and the Commonwealth of Virginia in the areas of business and economic development, workforce development, research and development, and engineering, technical and consulting services.

Professor and Head. Department of Systems Engineering, United States Military Academy, West Point, New York (1999-2006). Led, managed and directed approximately 40 faculty and staff to educate approximately 300 majors and 600 non-engineering students (minors) per year. Students majoring in the Department matriculate through four 17 course programs in systems engineering, systems management, engineering management and operations research. Non-engineering students took either a three or five course engineering sequence. Oversaw an expansion of the Department research program from approximately $300K in 1999 to between $2.5 to $3M per year from 2004 to 2006. The annual research program involved 20 to 25 Army clients and over 30 projects. Oversaw the expansion of the Department labs and technology including creation of a state-of-the-art systems engineering design laboratory.

Director. U.S. Army Unit Manning Task Force (2002-03). Planned, executed and directed the transition of the Army from an individual replacement system to a unit manning system. Special advisor to Secretary of the Army Hon. Thomas White and Army Chief of Staff General Eric Shinseki on unit manning the Army's 33 combat brigades (see Reimbursable Research and Consulting Highlights below).

Director, TRADOC Analysis Center (TRAC)-Monterey (1997-99). Led, managed and directed approximately 40 assigned and affiliated military analysts, Department of Defense civilian analysts, contractors, NPS professors, and military officer graduate students conducting reimbursable research for DOD clients and stakeholders. Grew the research program from approximately $110K in 1997 to $1.1M in 1999. Developed and implemented a new advanced computer simulation environment to train and experiment with 4th Infantry Division digitized forces at Fort Hood. Developed and applied new, innovative simulation techniques in support of Land Warrior tactics, techniques and procedures (TTPs), provided interoperability simulation support for Manned/Unmanned Reconnaissance Systems, and Synthetic Theatre of War (STOW) experiments. Leading a TRAC-National Simulation Center team developing a new PC-based, objective oriented, posi-compliant constructive simulation for training and analysis.

Director, USMA Operations Research Center (1994-95, 1996-97). Directed an annual $350K reimbursable research program and five full-time military analysts from the Departments of Systems Engineering and Mathematical Sciences. Major responsibilities included soliciting projects and funding from Army agencies, preparing and executing the annual research plan. Responsible for strengthening the linkages between the U.S. Military Academy and the Army through meaningful research, analysis and problem solving.

FACULTY POSITIONS AND APPOINTMENTS

Old Dominion University, Professor of Systems Engineering, Department of Engineering Management and Systems Engineering. 2006-Present.

U.S. Military Academy.
- Department of Systems Engineering.
  - Professor and Head. 1999.
  - Associate Professor. 1994.
  - Academy Professor (selection). 1990.
- Department of Mathematical Sciences.
  - Assistant Professor. 1988.
  - Instructor. 1986.

Naval Postgraduate School. Assistant Professor, Department of Operations Research. 1997-99.

U.S. Naval War College. Department of National Security Decision Making, Adjunct Faculty. 1996-97.

State University of New York, New Paltz, Department of Mathematics, Adjunct Faculty. 1986-89.

TEACHING ACTIVITIES

Courses

Departments of Mathematics and Systems Engineering, USMA, West Point, New York
- Calculus Sequence
- Differential Equations
- Probability and Statistics
- Independent Study in Intermediate Probability and Statistics
- Decision Analysis
- Introduction to Systems Engineering and Management
- Senior Project in Mathematical Modeling
- Senior Capstone Project in Systems Engineering and Design
- Independent Study in Systems Engineering

Naval War College, Newport, Rhode Island
- National Security Decision Making

State University of New York (SUNY), New Paltz, New York
- Calculus
- Linear Algebra
- Probability and Statistics

Course Materials

As the probability and statistics course director in the Department of Mathematical Sciences, compiled and edited a new set of course notes that featured an innovative Bradley Fighting Vehicle case study for teaching and applying statistics to a real-world military problem.

Other Significant Activities

In 1988, reassigned from USMA as a Military Operations Research Analyst to TRADOC Analysis Command, Fort Leavenworth, Kansas, with duty at West Point. In this assignment, my primary responsibility was standing-up the Operations Research Center of Excellence (ORCEN). The ORCEN's mission was to link the Academy to the Army through meaningful research and analysis. From 1988 through 1990, duties included soliciting projects and funding from Army agencies, and preparing, publishing and executing an annual research plan, and editing and publishing the Annual Research Report.

As Head of the Department of Systems Engineering at West Point, initiated and provided oversight and technical direction to upgrading existing labs into a state-of-the-art systems engineering lifecycle laboratory. Laboratory development took four years, cost approximately $4,000,000, and was funded through the Department's reimbursable research program.

Short Course Initiation, Coordination and Participation

Chaired the Military Operations Research Society Education Colloquia, 2002. Organized a one day program of sessions and tutorials on modeling, simulation and analysis, and overviewed graduate and undergraduate programs in operations research, 2002. Participant schools included: U.S. Military

Academy, U.S. Naval Academy, U.S. Air Force Academy, Naval Postgraduate School, Air Force Institute of Technology, and George Mason University.

Distance Learning Course Initiation, Coordination and Participation

Completed a joint project at the Naval Postgraduate School between the Department of Systems Management and TRAC-Monterey, from 1997 through 1999, to develop on-line repositories and maintain archived records of data, information and case studies used in support of on-line course material and distance leaning used by the Systems Acquisition Program.

Course and Laboratory Development

From 1997 through 1999, directed and oversaw major renovations, expansion and upgrades to the TRAC-Monterey combat simulation laboratory, and the creation of a NPS student computer laboratory to support course work, thesis research, operations research and analysis related to combat simulations and military problem solving. Once completed, the state-of-the-art combat simulation laboratory was renamed and dedicated in honor of retired NPS Professor Samuel Parry, Department of Operations Research. Significant enhancements and innovations to the laboratory accomplished during this period included: (1) design and prototype of a general purpose analysis tool, called the Analysis Federate, for collecting and analyzing requisite, relevant data in a high level architecture (HLA) simulation environment which substantially reduced data logging requirements allowing data to be correlated and processed in real time; (2) develop a Distributed Constructive Simulation (DCS) system for analysis and training that integrated a high resolution, multi-sided, constructive combat simulation with other constructive and virtual simulations in a distributed integrated simulation (DIS) environment through a protocol data unit (PDU) adapter software system. This capability was successfully used by NPS students to link high resolution combat simulations with other models and virtual simulators such as the Target Acquisition Fire Support Model, U.S. F-16 Synthetic Flight Simulators, Battlefield Distributed Simulation-Developmental, ModSAF, Naval Postgraduate School (NPS) Net, SIMNET Close Combat Anti-Armor Weapon System-Concept Emulator, Extended Air Defense Simulation, Advanced Tactical Combat Model, and the M1A2 DIS Simulator; and (3) developed a HLA, PC-based high-resolution, constructive combat simulation for training, mission rehearsal and analysis.

In 2002, the Department of Systems Engineering undertook a new initiative, funded by our reimbursable research, to design and implement a state-of-the-art *Lifecycle Acquisition Management Institute* to enhance student education and faculty research. The institute consists of four integrated laboratories that support all phases of our system engineering, design and acquisition process. Laboratories with the Institute are the *System Methodology and Design Lab* that supports concept development, requirements generation, system engineering and design; the *Computer Aided Virtual Environment* (CAVE) which features generation of virtual prototypes and 3-D models; the *Combat Simulation Lab* (CSL) for testing and experimentation; and the *Information Visualization Lab* used for analyzing system end-to-end life cycle costs, schedule, timelines, and system supportability and sustainability. Since its completion in spring 2005, at a cost of approximately $4.5M, the Institute's unique educational capabilities and research products have been showcased to West Point distinguished visitors, and featured on the *Discovery Channel*, *Learning Channel,* a *60 Minutes* segment on West Point and *ESPN.*

DISSERTATION AND THESIS SUPERVISION

Since 1995, have formally mentored graduate students at various universities as a dissertation committee member, thesis adviser, co-adviser, second reader, or reviewer.

2008. M.Sc. Robert Bowen. Old Dominion University. M.Sc. in Computer Simulation. Committee Member. "An Agent-Based Combat Simulation Framework in Support of Effect-based and Net-Centric Evaluation."

2008. Senior Service College Fellowship Thesis. Lieutenant Colonel Anthony Abbott, Army War College, Carlisle, Pennsylvania. Co-Advisor. "State Emergency Management Staff Training and Evaluation."

2008. Ph.D. Mark Nesselrode, Old Dominion University. Ph.D. in Computer Simulation. Committee Member. "Developing a Repeatable and Reliable Methodology to Determine Return –on-Investment."

2008. M.Sc. Alfred Anthony Devivi. Old Dominion University. M.Sc. in Computer Simulation. Committee Member. "The Simulation-based Acquisition Research Laboratory."

2007. Senior Service College Fellowship Thesis. Lieutenant Colonel Mark Strong, Army War College, Carlisle, Pennsylvania. Co-Advisor. "From Service Headquarters to Joint Task Force Capable Headquarters: An Organizational Transition Model."

2004. Ph.D. Lieutenant Colonel Simon Goerger, Naval Postgraduate School. Ph.D. in Computer Simulation. Committee Member. "Validating Computational Behavior Models: Consistency and Accuracy Issues."

1999. Ph.D. Major Michael Johnson, University of Central Florida. Ph.D. in Computer Simulation. Committee Member. "A Methodology for Modeling Human Decision Making in Computer Generated Objects."

1999. M.Sc. Captain Marie L. Hall, Naval Postgraduate School. M.Sc. in Operations Research and Systems Analysis. Second Reader. "Optimal Scheduling of Army Initial Entry Training Courses."

1999. M.Sc. Captain James Barren, Naval Postgraduate School. M.Sc. in Operations Research and Systems Analysis. Co-Advisor. "Analyzing Soldier In-processing at the United States Army Field Artillery Training Center through Simulation."

1998. M.Sc. Major Andrew J. Dimarco, Naval Postgraduate School. M.Sc. in Systems Management. Co-Advisor. "The Simulation-based Acquisition Research Laboratory."

1997. M.Sc. Captain Tom Meyer, Georgia Institute of Technology Institute. M.Sc. in Operations Research. Reviewer and provided thesis topic in military personnel modeling and force planning.

1997. M.Sc. Captain Ray Petit, University of Central Florida. M.Sc. in Computer Simulation. Reader and provided thesis topic in scheduling military training in synthetic training environments.

1995. M.Sc. Captain Dave Briggs, University of Central Florida. M.Sc. in Computer Simulation. Reader and provided thesis topic in planning, scheduling, and measuring the effectiveness of computer-based team training.

PROFESSIONAL BOARDS, MEMBERSHIPS AND SERVICE ACTIVITIES.

Executive Committee. Annual Modeling and Simulation Leadership Summit co-sponsored by the National Training Simulation Association (NTSA) and the U.S. Congressional Modeling and Simulation Caucus. 2007-Present.

Conference Committee. ITEC: Europe's Defence Training, Education & Simulation Conference and Exhibition sponsored by the European Training and Simulation Association (ETSA). 2007-Present.

Vice Director for North America. The McLeod Modeling and Simulation Network (M&SNet), Society for Modeling and Simulation International. 2007-Present.

President, Executive Committee. The MODSIM World Conference and Exposition. 2007-Present.

Executive Advisory Committee. Modeling and Simulation Reserch Center, Halifax/South Boston, Virginia. 2007-Present.

Executive Committee. Workforce Innovations in Regional Economic Development (WIRED) Grant and Southeastern Virginia Partnership for Regional Transformation (SEVA-PORT). Three-year, $5M grant by the U.S. Department of Labor to promote the economy of southeastern Virginia by preparing workers for new, high-wage jobs in the port, transportation, distribution and modeling and simulation industries. SEVA-PORT comprises 24 cities and counties extending from Hampton Roads to the Petersburg area. 2007-Present.

Chairman. Commonwealth of Virginia Modeling and Simulation Advisory Council. Established in 2006 by the Virginia General Assembly to advise the Governor, Cabinet Secretaries and Legislature on modeling and simulation issues, investments and initiatives. Membership includes Commonwealth Secretaries of Technology, and Commerce and Trade, four General Assembly delegates and five representatives from industry and academia. 2006-Present.

Board of Directors. National Center for Simulation, Orlando, Florida: 2006-Present.

Board of Advisors. Modeling & Simulation Board of Advisors, U.S. Joint Forces Command (USJFCOM): 2006-Present.

Board of Advisors. Modeling of Virtual Environments and Simulation (MOVES) Institute, Naval Postgraduate School: 1999-Present.

U.S. Department of Defense Systems Engineering Forum. Chartered by DoD Undersecretary for Acquisition, Logistics and Technology (ALT). Co-chaired by OSD and DoD ALT. 2004-2005.

U.S. Army Operations Research and Systems Analysis Advisory Committee, Chaired by the Deputy Undersecretary of the Army for Operations Research. 1999-2005.

U.S. Army Training and Doctrine Command Modeling and Simulation Committee. 1999-2003.

U.S. Army OneSAF Baseline Decision Working Group for Advanced Concepts Requirements (ACR), Program Executive Office-Simulation, Training and Instrumentation (PEO-STRI). 1998-1999.

U.S. Army Standards Committee for Semi-Automated Forces, sponsored by the Army Modeling and Simulation Office (AMSO). 1998-1999.

U.S. Military Academy Speakers Bureau. 1994-1997.

U.S. Military Academy Candidate Selection Committee. U.S. Congresswoman Thelma Drake, Second District, Virginia. 2006.

U.S. Military Academy Candidate Selection Committee. U.S. Senator John Chaffee, Rhode Island. 1995-1996.

U.S. Military Academy Committees

Academic Board. Governing and academic policy making board for the Academy. 1999-2006.

General Committee discusses all matters brought before the Academic Board, 1999-2006.

Class Committee - deliberates on the academic status of all students who fail to meet course standards in any academic program, 1999-2006.

Engineering and Technology Goals Committee. Proposed and codified USMA engineering and technology goals across the Academy's five ABET accredited engineering programs and for the five course engineering sequence for non-engineers, 1999-2002.

Mathematics, Science, and Engineering Committee. Accreditation committee that oversees the MSE academic programs and governs ABET accreditation preparation and preparation of ABET Self-Study Reports, 1999-2006.

Chairman, Faculty Search Committee to select a Tenured Associate Professor for Department of Physics, 2000-2001.

Chairman, Faculty Search Committee to select a Title X Associate Professor of Operations Research for Department of Systems Engineering, 2000.

Chairman, Faculty Search Committee to select a Title X Professor of Operations Research for the Department of Systems Engineering, 2001.

Chairman, Faculty Search Committee to select two Tenured Associate Professors for the Department of Mathematical Sciences, 2001.

Faculty Search Committee to select three Tenured Associate Professors for the Department of Systems Engineering, 1999-2000.

USMA Admissions Committee, 1999-2000

Military Operations Research Society (MORS)

Society Fellow: 2007-Present
Advisory Board of Directors: 2002-2003.
Board of Directors: 1998-2002.
Executive Committee, 2001-2002.
Vice President for Meeting Operations, 2001-2002.
Journal Associate Editor: 1995-Present.
Journal Reviewer: 1993-Present.
Symposium Program Staff:

- 73rd MORSS Director of Logistics, Working Group Technical Advisor, USMA, 2005.
- 72nd MORSS Junior-Senior Analyst Session, Naval Postgraduate School, 2004.
- 71st MORSS Junior-Senior Analyst Special Session, Quantico, Virginia, 2003.
- 70th MORSS Working Group 24 Technical Advisor, Fort Leavenworth, Kansas, 2002.
- 69th MORSS Program Coordinator (approximately 1200 attendees), USNA, 2001.
- 68th MORS Symposium Working and Composite Group Coordinator, USAFA, 2000.
- 67th MORS Symposium Working & Composite Group and Tutorials Coordinator, USMA, 1999.
- 66th MORSS Site Host Coordinator, Naval Postgraduate School, 1998.
- 65th MORS Symposium Working and Composite Group Assistant Coordinator, Quantico, Virginia, 1997.

Working Group Technical Advisor. Advised session chairs on symposium operations, reviewed papers and abstracts for technical merit and content, 1990-1997, 2001-2003.

Composite Group Chair. Chaired and organized working group sessions on military operations research methodologies and technologies, 1996.

Working Group Chair. Chaired and organized sessions involving 20 to 25 presentations, 1987-1990.

Program and Session Chair for National/International Conferences & Workshops

Track Chair. 2009 International Test and Evaluation Association (ITEA). Established and organized approximately 20 paper presentations for ITEA's first track in Live-Virtual-Constructive (LVC) Modeling and Simulation (M&S). El Paso, Texas. To be held January 9-12, 2009.

Conference Committee. 2008. 2008 Azalea Festival Symposium. Katrina Over Hampton Roads: Are We Ready?" Sponsored jointly by Allied Command Transformation and Old Dominion University. Norfolk, Virginia, April 15-16, 2008.

Panel Chair and Presenter. April 2008. "Critical Infrastructure Resiliency and Evaluation of Human Impacts." 2008 Azalea Festival Symposium. Katrina Over Hampton Roads: Are We Ready?" Norfolk, Virginia, April 15-16, 2008.

Special Meeting Chair. 2008. Military Operations Research Society (MORS) Special Meeting Workshop. "Understanding the Consequences of Catastrophic Events: Using Methods and Tools to Analyze and Manage Incidents." Suffolk, Virginia, November 18-20, 2008.

Workshop Co-Chair. 2008. U.S. Department of Homeland Security Workshop. "Future Directions in Critical Infrastructure Modeling & Simulation." Suffolk, Virginia, October 28-30, 2008.

Conference Chair. 2007. MODSIM World Conference and Exposition. "Enable Decision Making in a Rapidly Changing World with Modeling and Simulation." Virginia Beach, Virginia, September 14-16, 2007.

Panel Chair and Presenter. 2007. Commonwealth of Virginia Information Technology Symposium (COVITS). Organized and chaired COVITS first modeling and simulation panel. "Modeling and Simulation – Emerging Applications to Lower Business Implementation Risks." Fairfax, Virginia, September 7, 2007.

Co-Chair. 2000. Session jointly chaired with R. Kewley. "Military Systems Engineering Applications at the United States Military Academy, " *2000 IEEE International Conference on Systems, Man and Cybernetics*, San Diego, California, October, 2000.

Co-Chair. 1998. Session jointly chaired with R. Kewley. "Current Initiatives in Military Systems Engineering and Operations Research, " *1998 IEEE International Conference on Systems, Man and Cybernetics*, San Diego, California, October, 1998.

Program Committee and Session Chair. 1997. Invited session entitled "Simulation Requirements and Personnel Models, " *1997 IEEE International Conference on Systems, Man and Cybernetics*, Orlando, Florida, October, 1997.

Co-Chair. 1997. Invited session jointly chaired with R.G. Phelan Jr.. "Recent Operations Research Projects at the U.S. Military Academy," *Institute for Operations Research and Management Science (INFORMS) Spring 1997 Meeting*, San Diego, California, May, 1997.

Chair. 1996. Session entitled "Personnel Planning," *The Society for Computer Simulation 1996 Simulation Multi-Conference*, New Orleans, Louisiana, April, 1996.

Chair. October 1995. Invited session entitled "FORCE XXI: Army of the 21st Century," *INFORMS Spring 1995 Meeting*, New Orleans, Louisiana.

Co-Chair. 1995. Invited session chaired jointly with J.L. Kays and G. Dauphine-Tanguay, Ecole Centrale de Lille, France. "Education Issues for the 21st Century, " *1995 IEEE International Conference on Systems, Man and Cybernetics*, Vancouver, B.C., Canada, October, 1995.

Chair. May 1990. Invited session entitled "Manning the Strategic Army-Responding to Changes in the Environment," *TIMS/ORSA 29th Joint National Meeting*, Las Vegas, Nevada.

Co-Chair. 1989. Invited session jointly chaired with J.L. Kays. "Force Design and Manpower Management," *ORSA/TIMS 28th Joint National Meeting*, New York, New York, October, 1989.

Chair. 1989. Invited session entitled "Manpower and Other Military Resource Allocation Problems," *TIMS/ORSA 27th Joint National Meeting*, Vancouver, British Columbia, Canada, may 1989.

Chair. 1988. Invited session entitled "Force Management Modeling for the 1990's and Beyond," *ORSA/TIMS 26th Joint National Meeting*, Denver, Colorado, October, 1988.

Chair. 1988. Invited session entitled "Computer Simulation of Flexible Manufacturing Systems," *TIMS/ORSA 25th Joint National Meeting*, Washington, D.C., April, 1988.

Journal Referee

Journal of Military Operations Research
Journal of Heuristics
Productions and Operations Management Journal
Journal of Operations Research
Naval Research Logistics

Other Service Activities

Editorial Advisory Board. *Academic Leader: The Newsletter for Academic Deans and Department Chairs*, 2000-2005.

Association of Chairs of Operations Research Departments (ACORD), Institute for Operations Research and Management Sciences (INFORMS), 1999-2006.

Rotarian, West Point-Highland Falls Chapter, 1994-1997.

West Point Faculty Representative for the Army Men's NCAA Basketball Team, 2000-2005.

President, Phi Kappa Phi West Point Society, 2003-2004. Phi Kappa Phi West Point Society, 2000-2006.

Phi Kappa Phi Award for Excellence in Scholarship. Awarded for analysis of Army training base closures and the impact of training mission realignment on the Army's ability to meet future training missions. Project sponsored by Headquarters, U.S. Army Training and Doctrine Command, Fort Monroe, Virginia, 1989.

Phi Kappa Phi Award for Excellence in Scholarship. Awarded for analysis of *Title IV, Goldwater-Nichols DOD Reorganization Act of 1986* on U.S. Army officer professional development. Project sponsored by Headquarters, U.S. Army Personnel Command (PERSCOM), 1988.

President, West Point Golf Council, 2003-2004. Member, 2002.

West Point Coach and Faculty Representative, Cadet Racquetball Team, 1987-1990, 1994-1997.

West Point Cadet Company Academic Advisor (approximately 100 students - freshmen through seniors), 1987-1990.