

CURRICULUM VITAE
of
J. Mark Pullen

30 November 2020

EMPLOYMENT

Retired as of 1 June 2020

Designated by George Mason University:

Professor Emeritus

Director Emeritus, C4I & Cyber Center

Remaining active as Consultant, NATO Interoperability Technology

George Mason University

Professor of Computer Science

Director, Center of Excellence in Command, Control, Communications,

Computing, Intelligence and Cyber (C4I & Cyber Center)

September 2005-May 2020

Assumed duties as Director, C4I Center, expanded in 2015 to C4I and Cyber Center. Teaching and research responsibilities remain as described below. Manage major efforts in Battle Management Language area (now called Command and Control-Simulation Interoperability or C2SIM), funded by and through the US Army, and oversee activities of Center faculty in C4I technologies and systems research; total funding about \$5 million per year. Serve as Technical Coordinator for NATO Science and Technology Technical Activity *Operationalization of Standardized Command and Control-Simulation Interoperability* and Co-chair/standard development team leader for Simulation Interoperability Standards Organization C2SIM Product Development Team.

George Mason University

Professor of Computer Science

Director, Networking and Simulation Lab, C3I Center

September 1992-August 2005

As a faculty member in the GMU Department of Computer Science, teaching graduate and undergraduate courses in computer networking, directing graduate and undergraduate research courses including Master's and doctoral thesis research. As Director of the Networking and Simulation Laboratory in GMU's C³I Center, conducting research in network protocols for multicast interconnection of distributed simulation and in network-based interoperation of multimedia systems and distributed simulations, including applications technologies in K-12 and university education, training, and military command and control. Developed Network Workbench, open-source software for academic simulation of Internet-style packet networks, with accompanying book *Understanding Internet Protocols* (Wiley, 2000); Principal Investigator of funded projects totaling over \$13 million for the National Library of Medicine, National Science Foundation, Defense Advanced Research Projects Agency (DARPA), Defense Modeling and Simulation Office (DMSO), DoD Education Activity (DoDEA), and others. Actively publishing in the technical literature (over eighty publications since joining GMU). Active consultant in networking, distributed simulation, and military command, control, communications, computing, and intelligence (C4I). Leader in the Extensible Modeling and Simulation Framework (XMSF), aimed at using Web technologies to enable more effective distributed software interoperation. Associate Director of the C³I Center. Service to the University on four committees including management of computing support for the School of Information technology and Engineering and for the Department of Computer Science, and to the IEEE in five different roles including IEEE-USA Vice President for Technology Policy Activities. Awarded the Harry Diamond Memorial Award in 1995 by the IEEE. Received tenure at GMU in 1996. Elected Fellow of the ACM, 2001. Promoted to full Professor, 2002. Winner of *2005 International Competition for Non-Commercial Web-Based Software Systems, Tools, and Products* for Network EducationWare (NEW) open-source software for synchronous online teaching.

Defense Advanced Research Projects Agency (DARPA)

Advanced Systems Technology Office

Program Director, Distributed Simulation

April 1991-January 1993

Technical and managerial leader of four-person team responsible for program planning and execution in distributed warfighting simulation, a leading-edge activity designated “critical” by DoD that makes intensive use of computing and communications technologies, with annual budget of \$40 million. Defined, justified, organized, and led advanced technology program that will permit DoD to retain and improve its warfighting edge while reducing budget and staffing levels. Personally managed development of the advanced multimedia worldwide data network and distributed system protocols required for this capability. Received the Defense Superior Service Medal for work done while in this position.

**Defense Advanced Research Projects Agency
Information Science and Technology Office and Tactical Technology Office.
Deputy Director
June 1989 to March 1991**

In each office, responsible for administration in support of about twenty technical professionals (with an equal number of support contractors) working at the cutting edge of information technology, overall budget in excess of \$200 million. Also directly managed programs in high definition imaging systems, advanced networking and information technology applications, budget in \$5 to \$20 million per year range, specializing in difficult programmatic and political problems. Represented DARPA on the team that started the Federal High Performance Computing and Communications initiative. The change of offices was to meet a particular need for my background in military applications (tactical technology). Elected Fellow of the IEEE, 1990.

**Defense Advanced Research Projects Agency
Information Science and Technology Office
Program Manager for Advanced Computing and Networking
September 1986 to May 1989**

Built parallel computing within the Strategic Computing program to the point where it became a major basis for the Federal High Performance Computing and Communications initiative; phased out ARPANET in favor of a new generation of networking and spearheaded organization of a new megabit-per-second research network infrastructure that is known today as the Internet. Leader and charter member of the body that became the Federal Networking Council, and in developing plans for the National Research and Education Network that has today grown in concept to be the National Information Infrastructure (NII). Leader in founding Committee for Coordination of Intercontinental Research Networks (CCIRN) that developed what has become worldwide Internet connectivity.

**United States Congress
House of Representatives
Committee on Science and Technology
IEEE Congressional Fellow
September 1985 to August 1986**

Served on the staff of the subcommittee responsible for the National Science Foundation and the National Bureau of Standards (NBS, now NIST). Supported Members of Congress with advice and administrative work to organize hearings, draft legislation, etc. Work led to two important pieces of legislation, the Computer Security Act of 1987 and the alternative personnel system for scientists and engineers at NBS, credited by them as a major factor in maintaining technical viability in the face of diminishing competence in other government laboratories, including pilot program enabling flexible personnel management of government scientists and engineers.

**U.S. Military Academy, West Point, New York
and IBM T.J. Watson Laboratory, Yorktown Heights, New York
Visiting Research Engineer
September 1984 to August 1985**

At West Point, developed and prototyped a new parallel computer architecture, the Vector Associative Processor (VAP); as visiting engineer at IBM Yorktown Heights, designed and developed a four-processor prototype for the IBM RP3 parallel computer.

U.S. Military Academy, West Point, New York
Department of Electrical Engineering
Instructor/Assistant Professor/Associate Professor
July 1981 to August 1984

Developed a new course for non-engineering majors and led a four-person faculty group that team-taught about 500 students in this course. Organized and served as first counselor for IEEE Student Branch, and IEEE Computer Society Branch Chapter (the latter being run cooperatively with the ACM Student Chapter to provide critical mass in student activities). Organized half of department faculty to become registered as Professional Engineers. Course led to change in West Point Curriculum, published paper, and designation as department nominee for William P. Clements, Jr. award for excellence in education. Participated in successful effort to gain ABET accreditation for department.

Northern Virginia Community College
Alexandria, Virginia
Instructor
September 1979 to June 1981

Taught half-time load in data processing, systems analysis, and computer programming while completing doctoral research.

Department of Defense Computer Institute
Washington, DC
Instructor and Course Manager
August 1976 to August 1979

Taught military and civil servants at undergraduate and graduate level in a DoD school noted for quality of presentation. Developed major portions of new courses in Systems Analysis and Information System Project Management.

U.S. Army 5th Signal Command
Worms, Germany
Electronics Engineer and Automation Staff Officer
October 1974 to July 1976

Served as staff manager of computer support activities for all US Army fixed telecommunications in Europe, and Project Engineer for repair parts support at over 400 sites. Created information management and command-wide repair parts management systems that reduced value of stocked parts by millions of dollars and resulted in halving of average time to meet need for repair parts.

U.S. Army 256th Signal Company
Munich, Germany
Operations, Logistics and Executive Officer
October 1972 to September 1974

Performed a variety of management roles (and at times, all of them at once) in fixed telecommunications system operation and maintenance for over 30 US Army radio, telephone switching, and digital message facilities in Southern Germany; improvement in operational readiness through logistics management was sufficiently significant that I was selected to do the same thing for the entire European theater.

West Virginia University
Computer Center
Research Consultant
June 1970 to June 1972

Assisted faculty researchers in areas of simulation and computer graphics and implemented electrical circuit simulations and system support software for graphics, while pursuing Master's degree. Taught programming classes and electrical engineering laboratories.

EDUCATION

D.Sc., Computer Science, The George Washington University, 1981
dissertation “An Architecture for a Database Machine Using Associative Pipelining”
advisor Simon Berkovich
M.S., Electrical Engineering, West Virginia University, 1972
thesis “Design of an Improved Circuit Analysis Program”
advisor Robert Swartwout
B.S., Electrical Engineering, West Virginia University, 1970

HONORS

Fellow of the ACM, 2001, “For contributions to information technology in transitioning the Internet from a Federal research project to commercial availability, and development of Internet distance education technologies.”
IEEE Harry Diamond Memorial Award, 1995, “For designing and developing a worldwide network supporting distributed simulation and command control technology for the Department of Defense.”
Defense Superior Service Medal, 1993, for “achievements in computer systems, networking, and simulation”; also 8 other military decorations of lesser importance
Fellow of the IEEE, 1990, “For technical leadership in computing systems and networking.”

RESEARCH INTERESTS

My interests fall broadly into the area of distributed/networked multimedia computing. Within this area, my work ranges from distributed education and training technologies, through network protocols for multicast support of group communication, to software comprising the underlying network and simulation thereof. I am currently engaged in externally funded projects in two areas:

- Networked multimedia for distributed education and collaboration: The hard problem here is how to build systems that are most effective within the framework of group psychology for collaboration and learning and also work well over the evolving Internet. There was very little in the formal educational literature that deals with effectively distributing teaching and learning, so I have undertaken with some success to address it using a combination of good engineering practice and experimental application. The current explosion in technologies for distributed multimedia makes this a fruitful area for experimentation both in sponsored research and in courses taught at GMU, where I have pioneered low-bandwidth, real-time Internet desktop teaching for students at home and office, and created open-source software used by 21 GMU courses for this purpose.
- Interoperability in networked systems of systems: The issue here is how to achieve semantic consistency among systems that were not designed to interoperate and do so quickly and efficiently. The specific software systems I’ve been funded to study are military command and control and simulation systems. The Mason C4I Center team that I lead has developed middleware software that enables interoperation of systems developed by various nations participating in the NATO Modeling and Simulation Group. An instance of six command and control systems from different nations interoperating with five simulation systems from different nations has been demonstrated, and the work continues to move forward. This inherently involves international collaboration and also has been the basis of industry support from Saab, MAK, and ESRI.

SPONSORED PROJECTS

It is my style in almost every project to work in a team. More often than not, I am the PI. In the list below any team members not working under my direct supervision are shown, and the fraction of funding which went to people and facilities at GMU is identified. I include subcontract personnel from A B Technologies in the GMU category in the period 1995-2001 because one or two of them generally worked under my close direction, alongside my graduate students and producing results attributed to my group.

“C2SIM Cyber,” US Army Modeling and Simulation Office, 2017, \$265,000, PI

“C2SIM Sandbox,” NATO Science & Technology Collaboration Support Office, 2016-2019, \$97,478

“C2SIM Open Standard,” US Army Modeling and Simulation Office, 2016, \$200,000, PI

“Expedite Second Generation C2SIM,” US Army Modeling and Simulation Office, 2015, \$150,000, PI

“ISBISS FY14”, US Army Modeling and Simulation Office, 2014, \$100,000, PI

“WISE-SBML Server Phase 3,” Saab Corporation, 2014, \$10,000, PI

“Academic PlugFest Pilot 2,” Defense Intelligence Enterprise Environment, 2014, \$87,678, PI

“Academic PlugFest Pilot,” Defense Intelligence Enterprise Environment, 2013, \$50,000, PI

“WISE-SBML Server Phase 2,” Saab Corporation, 2013, \$50,000, PI

“WISE-SBML Server Phase 1,” Saab Corporation, 2012, \$50,000, PI

“Geospatially Enabled Command and Control/Simulation Interoperation,” US Army Modeling and Simulation Office and Simulation/C4I Program, 2012-2013, \$170,000, PI

“WFPAC Performance Analysis,” US Marine Corps Program Manager for Intelligence, 2012, \$155,836, PI

“Integrated Standards-Based Interoperability Service Set for MSDL/CBML,” US Army Modeling and Simulation Office, 2011-2013, \$300,000, PI

“Battle Management Language Using C2Core,” US Army CIO/G6, 2011, \$140,000, PI

“RapidPro VIRT Collaborative Lifecycle Management,” US Marine Corps PM Intelligence, 2010, \$307,000, PI

“Battle Management Language Architecture,” US Army CIO/G6, 2009, \$280,000, PI

“Battle Management Language for Military Operations,” US Army Simulation to C4I Program, 2008-2010, \$700,000 (83% GMU). PI

“Integrated Battle Management Language,” Army Engineer R&D Center (as subcontract to NBM Technologies), 2008-2009, \$276,000 (100% GMU), PI

“Distributed Architecture for Geospatial Command and Control,” Army Engineer R&D Center, 2007-2009, \$502,000 (100% GMU), Task PI

“Joint Battle Management Language,” Defense Modeling and Simulation Office, 2006, \$438,491 (43% GMU), PI

“TEC-12: Terrain Reasoning: GeoBML,” Army Engineer R&D Center, 2006, \$948,646 (68% GMU), PI

“Private Overlay Multicast for Counter Threat Simulation,” Defense Threat Reduction Agency, 2005-2006, \$400,000 (68% GMU) partnered with NPS MOVES Institute, PI

“IPv6 QoS Simulation,” Lockheed-Martin Corporation, 2005, \$50,000 (100% GMU)

“Overlay Multicast Technology Evaluation,” Defense Modeling and Simulation Office and US Joint Forces Command (as subcontractor to Virginia Modeling Analysis and Simulation Center), 2005, \$120,000, PI

“Homeland Defense Exercise Command and Control Phase I,” US Joint Forces Command (as subcontractor to Virginia Modeling Analysis and Simulation Center), 2004, \$157,000 (100% GMU), PI

“XMSF Overlay Multicast and Standards Advocacy,” Defense Modeling and Simulation Office, 2004, \$320,000 (100% GMU), PI

“Experimentation Command and Control Interface,” US Joint Forces Command (as subcontractor to Virginia Modeling and Analysis Center), 2004, \$110,000 (100% GMU), PI

“XMSF-C4I Testbed,” funded by Defense Modeling and Simulation Office, 2003-2005, \$850,006 (16% GMU), PI. Other organizations in the project were Atlantic Consulting Services, Inc; Alion Science and Technology; and Virginia Modeling, Analysis and Simulation Center (VMASC) of Old Dominion University (ODU).

“Extensible Modeling and Simulation Framework,” funded by Defense Modeling and Simulation Office and Defense Threat Reduction Agency through Naval Postgraduate School, 2002-2003, \$275,000 (100% GMU), PI

“High Level Architecture RTI Enhancement Program,” contract to Defense Modeling and Simulation Office as subcontractor to IITRI, 2002, \$300,000 (100% GMU), PI

“Simulation and Analysis of Internet Quality of Service (QoS) Technologies,” contract to OPNET Technologies Inc., 2001, \$30,330 (100% GMU), PI

“Java-Based Distributed Simulation,” subcontract under DTRA WHILCO contract to Cubic Corp., 2000-2001, \$127,000 (100% GMU), PI

“Human Embryology Digital Library and Collaboratory Support Tools,” NLM Contract N01-LM-0-3508, 1999-2002, \$2,888,274 (36% GMU), PI

“Acquisition of a Superworkstation Cluster for Research and Teaching in Distributed Agent-Based Computing,” NSF Grant EIA-9977471, 1999-2002, \$639,762 (\$305,688 NSF, \$334,074 GMU matching) (100% GMU), PI

“Project InterActivate II: Middle School Mathematics,” MDA410-99-C0005, from DoD Education Activity 1999, \$659,800 (33% GMU), PI, subcontractor Shodor Foundation

“High-Performance Networked Training and C2 Study,” SPAWAR N66001-95-D-8655 DO#8, funded by DARPA, 1999, \$100,000 (100% GMU), PI

“Visible Embryo Project Planning,” NLM 467-MZ-802347, Co-PI with George Michaels of GMU-CSI, \$100,000 (100% GMU)

“George Mason University Request for High Performance Connection to the vBNS,” NSF ANI-9818122, successfully obtained access to Internet2 vBNS, Co-PI with David Jensen, Edward Wegman, and Menas Kafatos

“Collaboration, Critical Thinking, And Networked Multimedia Systems,” NRaD N66001-95-D-8655 DO#7, funding from DoDEA Presidential Technology Initiative (PTI), 1997-1998, \$962,000 (13% GMU), PI for team of GMU and subcontractors Shodor Foundation, Fountain Communications, and University of Pittsburgh

“DoDEA Internet-Based Distance Education,” NRaD N66001-95-D-8655 DO#4, funding from DoDEA-MIS, 1997, \$37,000 (100% GMU), PI

“DoDEA Network Assistance Center Enhanced Analysis,” NRaD N66001-95-D-8655 DO#4, funding from DoDEA-PTI, 1997-1998, \$179,000 (100% GMU), PI

“CAETI Network Assistance Center,” NRaD N66001-95-D-8655 DO#3, funding from DoDEA-MIS, 1997-1998, \$187,000 (100% GMU), PI,

“How Can an Information Environment Support Higher-Order Thinking Skills?” NSF CDA-9616478, initially co-PI with L. Fontana, G. Tecuci, P. Loustauneau; 1996-1997 \$446,777, 100% GMU, took over as PI when Fontana left GMU

“Simulation of QOSPF,” E-Systems Internal R&D, 1996, \$32,000 (100% GMU), PI, (this project also won MIL3 Inc. semi-annual award for Best University Project for myself, CS Master’s student Lava Lavu, and EE Master’s student Ravi Malghan)

“ModSAF Interface to COMPASS,” SAIC Subcontract, funded by Defense Modeling and Simulation Office, 1996-1997, \$50,000 (100% GMU), PI

“Tools for an Educational Internet,” team of five GMU and subcontractor activities in advanced technology for networked K-12 education, ARPA CAETI Program, 1995-1997, \$2,487,000 (86% GMU), PI and designated leader for all program participants in the Collaborative Applications for Project-Based Educational Resources area (about one fourth of CAETI program; projects totaled about \$15 million, contractors included MIT, Stanford, Georgia Tech, Xerox Parc, and BBN Labs)

Augmentation award to “Multicast networks for Distributed Simulation,” awarded under DoD Augmentation Awards for Science and Engineering Research Training program, 1995-1998, \$263,204 (100% GMU), PI

“Advanced Interfaces for Distributed Simulation,” task within Defense Information Systems Agency/GMU C3I Center contract, sponsored by Defense Modeling and Simulation Office, 1995-1996, \$268,000 (100% GMU), PI

“Multicast Networks for Distributed Simulation,” task within Defense Information Systems Agency/GMU C3I Center contract, sponsored by Defense Modeling and Simulation Office, 1994-1995, \$261,000 (100% GMU), PI

“Network-Based Instruction” (experimental use of the Internet for lecture distribution), GMU Zero-Based Curriculum Project provided \$9,400 for equipment and TA/RA support (100% GMU), PI

“Simulation Interoperation Technology,” task within Defense Information Systems Agency-GMU C3I Center contract, sponsored by Defense Modeling and Simulation Office, 1993-1994, \$215,000 (100% GMU), PI

“Prototype Vector Associative Processor,” one year release from teaching with \$10,000 stipend for equipment, US Military Academy, West Point, NY, 1984-1985, PI

SERVICE

PROFESSIONAL SOCIETIES

Member, Armed Forces Communications-Electronics Association (AFCEA) Technology Committee, 2010-present
Vice President for Technology Policy Activities, IEEE-USA, 2000

Chair, IEEE-USA Committee to Review Government Fellows Activities, 1999

Chair, IEEE Technology Policy Council 1996 Symposium “Role of the Federal Government in Technology Development”

Vice Chair, Technology Policy Council, IEEE United States Activities, 1992-1997

IEEE Representative to Engineers' Public Policy Council, American Association of Engineering Societies (AAES), 1993-1996

Chair, IEEE Technology Policy Council 1994 Symposium “The NII: What Will It Be? How Will We Use It?”

Member IEEE-USA Engineering Research and Development Policy Committee 1986-1996

Co-Vice Chair, IEEE-USA Technology Policy Council, 1993-1996

Member IEEE-USA Legislative Agenda Committee 1993

Chair, IEEE Engineering Research and Development Policy Committee, 1990-1991

Vice Chair, IEEE Engineering Research and Development Policy Committee, 1987-1989

Student Activities Chair, IEEE Mid-Hudson Section, 1993-1994

ACADEMIC

Member, Volgenau School of IT&E Distance Education Committee, 2008-2014

Chair, Naval Postgraduate School Computer Science Department External Review Committee, 2007

GMU Department of Computer Science Distance Education Coordinator, 2003-present

Member, GMU Distance Education Committee, 2003-2008

Member, GMU Provost's Advisory Committee on Global Research and Education, September 2001-August 2006

President, West Virginia University Academy of Computer Science and Electrical Engineering, 2001-2002; Vice President, 1999-2000

Director, GMU C⁴I Center, September 2005-present

Associate Director, GMU C³I Center, August 2001-August 2005

Member, GMU Information Technology Council, 2001-2004

Member, School of Information Technology and Engineering Promotion and Tenure Committee, 2000-2002

GMU Internet2 Applications Representative, 1998-2006

Chair, GMU CS Department Computing Committee, Fall 1993-Spring 2003; member, Fall 2003-Summer 2007

Member, GMU CS Department Systems Area Doctoral Examination Committee
 Member, GMU School of Information Technology and Engineering Computing Committee, Fall 1993-Fall 2003
 Presenter of major GMU demonstration “Distributed Education” for World Conference on Information Technology, 1998
 Member, GMU Federal Relations Policy Advisory Committee, 1996-1998
 Member, GMU Computer Science Graduate Committee, 1995-1997
 Member, GMU Distance Education Task Force, 1995-1996
 Manager of SITE Laboratory Computing Systems, May 1995-July 1996
 Member, SITE Committee on Computer Engineering Program Curricula, Fall 1994-Fall 1995
 Director, USMA West Point Summer Program for Gifted High School Students, 1985
 Member, Instructional Methods and Technology Committee, USMA West Point, 1983-1985

TECHNICAL

Invited member of panel “Towards the Next Generation Synthetic Battle Space,” NATO MSG-171 Modelling and Simulation Group Symposium 2019, Vienna Austria
 Invited presenter, NATO Modelling and Simulation Lecture Series *Command and Control-Simulation Interoperability*, presented Fall 2015 in Fairfax, VA, Farnborough, UK, and Arcueil, France; Fall 2016 in Madrid, Spain and Rome, Italy; Fall 2017 in Canberra, Australia, Auckland, New Zealand and Sibiu, Romania
 Co-Chair and development coordinator, Simulation Interoperability Standards Organization, Command and Control-Simulation Interoperability Product Development Group, 2014-present
 Editor, special issue on Interoperability for Military Superiority, *Journal of Defense Modeling and Simulation*, September 2009
 Co-chair, NATO MSG-138 Workshop *Command and Control-Simulation Interoperability*, 2014
 Session chair, “eLearning/Educational Systems Design,” *International Conference e-Society*, 2014
 Program Committee Chair, AFCEA/GMU Symposium *Critical Issues in C4I*, 2008-2019
 Member of Program Committee for 3rd IEEE International Conference on e-Science and Grid Computing, 2007
 Reviewer for Winter Simulation Conference (ACM, IEEE, SCS and others) 2007
 Reviewer for Consumer Communications and Networking Conference 2007
 Reviewer for Winter Simulation Conference Modeling Methodology Track, 2006
 Member of Program Committee, IASTAD Computers and Technology in Education Conference, 2005-2014
 Member of DOE Advanced Scientific Computing Committee of Visitors, 2004
 Session Chair, Studies in Open and Distance Education, IASTAD Computers and Technology in Education Conference, 2003
 Reviewer for Society for Computer Simulation *Transactions*, 2003-2005
 One of four partners developing the Extensible Modeling and Simulation Framework (XMSF) for Defense systems, 2001-2005
 General Chair, IEEE International Workshop on Distributed Interactive Simulation and Real Time Applications, 2001; Co-Chair of Program Committee, 2000; Member of Program Committee and Session Chair, 1999-2009
 Member of Program Committee and Session Chair for Web3D Symposium, 2003-2006
 Reviewer for ASEE Annual Conference, 2002
 Reviewer and Session Chair for IEEE/ASEE Frontiers in Education, 2001
 Reviewer for IEEE Transactions on Education, 2001
 Member of NSF Advanced Networking Infrastructure and Research Committee of Visitors, 2000
 Member of NSF Network for Earthquake Engineering Simulation review panel, recruited for expertise in distributed simulation and networking, 2000-2001
 Chair of NSF peer review panel, Special Projects in Networking and Communications, 1999
 Member of Program Committee, Society for Computer Simulation Workshop, Communication Networks and Distributed Systems, 1999 and 2000; Session Chair 1999 and 2000
 Reviewer for IEEE InfoCom’99
 GMU Applications Representative for the Internet 2 program and Co-PI on GMU vBNS proposal
 Member of Program Committee and Session Chair, IEEE ATM Workshop, 1998, 1999, 2000
 Chair, DARPA Computer Assisted Education and Training Conference, June 1997
 Member of Program Committee, Distributed Simulation Symposium, 1996-1997
 Member Internet Research Task Force, Reliable Multicast Research Group, 1997-present
 Member Internet Engineering Task Force, Large Scale Multicast Applications Working Group, 1996-1999
 Member Internet Engineering Task Force, Quality of Service Routing Working Group, 1996-1998

Member of Ballot Resolution Committee for IEEE Standard 1278.2 “Distributed Interactive Simulation Communications Services,” 1995
 Member Distributed Interactive Simulation Working Group, Communications Architecture and Security subgroup, 1993-1997
 Reviewer for journal *Information and Systems Engineering*, 1995
 Reviewer for the journal *PRESENCE* issue on Networked Virtual Environments and Teleoperation, 1995
 Session Chair, “Networked Virtual Reality,” INET’94 (conference of the Internet Society)
 Member Internet Engineering Task Force, Stream Protocol Working Group, 1993-1995
 Member Defense Information Systems Agency/Advanced Research Projects Agency review panel of nationally-recognized experts in networking protocols, December 1993
 Reviewer for *IEEE Transactions on Education*, 1989 and 2000
 Reviewer for *IEEE Computer*, 1988-1991
 Member of Technical Committee, IEEE International Conference on Computer Design, 1985
 Session Chair, IEEE International Conference on Computer Design, 1984

MEMBERSHIP IN SOCIETIES / ORGANIZATIONS

Armed Forces Communications-Electronics Association (AFCEA)
 Association for Computing Machinery (ACM)
 ACM Special Interest Group on Communications (SIGCOMM)
 ACM Special Interest Group on Computer Science Education (SIGCSE)
 Institute of Electrical and Electronics Engineers (IEEE)
 IEEE Computer Society
 IEEE Communications Society
 Internet Society
 Internet Engineering Task Force
 Society for Computer Simulation (SCS)
 Simulation Interoperability Standards Organization (SISO)

RECOGNITIONS

Academy of West Virginia University Computer Science and Electrical Engineering
 Department nominee for William P. Clements, Jr. award for excellence in education, US Military Academy
 Eta Kappa Nu electrical engineering honor society
 Finalist for George Mason University Teaching Excellence Award, AY 1999-2000
 Leader in group awarded NATO Scientific Achievement Award for command and control-simulation interoperation
 Phi Beta Delta international academic honorary society
 Phi Kappa Phi academic honor society
 Who’s Who in the South and Southwest
 Who’s Who in the Media and Communications

LICENSURE STATUS

Licensed Professional Engineer in Virginia and West Virginia

COURSES TAUGHT

GEORGE MASON UNIVERSITY, FAIRFAX, VIRGINIA

Web Applications Rapid Prototyping, project course for undergraduates, Fall’16.
 Open Source Common Map API Implementation, project course with 6 undergraduates, Spring’14
 Advanced Network Protocols, Advanced master’s/Doctoral-level elective, Fall’07
 Networked Virtual Environments, Advanced master’s/Doctoral-level elective, Spring’14, Fall’12, Spring’11, Spring ’09, Spring’07, Spring’06 (also offered at Old Dominion University Spring’05 and Spring’06)
 The Internet as a Resource for the Engineer, distributed professional education for IEEE, Fall’00, Spring’01
 Network Science II, Interdisciplinary Master’s-Level Elective, Spring ’07, Spring’05, Spring’03, Fall’99, served as organizer and team-taught

Network Science I, Interdisciplinary Master's-Level Elective, Fall'02, Spring'99, served as organizer and team-taught
 Data Communications/LANS and Wide-Area Network Protocols, Network Science Certificate Pilot, Spring '98 (also organized this course, which is distributed professional education taught by six GMU faculty)
 Performance Analysis of Computer Networks, Master's/Doctoral-level elective, Spring'16, Spring'13, Fall'10, Fall'08, Fall '06, Spring '00, Spring'98, Spring '94
 Computer Communications and Networking, Master's-level comprehensive introduction, Fall'18, Fall'16, Fall'15, Spring'15, Fall'12, Fall'11 (two sections), Spring'10, Fall'07, Spring'04, Fall'02, Summer'02, Summer '99, Spring '99, Fall'97, Fall'96, Spring'96, Spring'95, Spring'94
 Computer Networking Systems, Senior-level comprehensive introduction, Fall'19, Spring'19, Spring'17, Spring'16, Fall'15, Spring'14, Fall'09, Fall'07, Fall'03, Fall'01, Spring'01, Fall'00, Fall'99, Fall'98, Spring'97, Fall'96, Fall'95, Fall'92
 Introduction to Telecommunications Systems, Master of Arts in Telecommunications core, Summer'95, Summer'94
 Language Processors and Programming Environments, Senior core, Spring'93

NAVAL POSTGRADUATE SCHOOL, MONTEREY, CALIFORNIA

Networked Virtual Environments, graduate elective, Spring'09, Spring'08, Spring'06, Spring'04, Spring'03 (lectures recorded in Network EducationWare and also used as a basis for Old Dominion University graduate elective with the same title)

US MILITARY ACADEMY, WEST POINT NEW YORK

Parallel Computer Architecture, Senior elective, Spring'85
 Electrical Engineering Systems, Junior core, Spring'84, Fall '83, Spring'83 (Course Director)
 Basic Electrical Engineering, Junior core, Fall'82, Spring'82, Fall'81

NORTHERN VIRGINIA COMMUNITY COLLEGE, ALEXANDRIA, VIRGINIA

Structured Programming in PL/I, Sophomore elective, Spring'81, Fall'80
 Systems Analysis, Sophomore core, Spring'81, Fall'80, Spring'80
 Introduction to Data Processing, Freshman core, Spring'80, Fall'79

DEPARTMENT OF DEFENSE COMPUTER INSTITUTE, WASHINGTON, DC

Information System Project Management (25% of two-week graduate level short course), about 8 offerings 1978-79
 Systems Analysis (35% of one-week graduate level short course), 24 offerings 1977-79, Course Manager 1978-79
 Computer Performance Evaluation (10% of one-week graduate level short course), 6 offerings 1977-78
 Introduction to Teleprocessing (20% of one-week graduate level short course), about 10 offerings 1978-79
 Introduction to Computer Technology (20% of two-week graduate level short course), about 20 offerings 1976-79

PUBLICATIONS

PLEASE NOTE

- The nature of my work in the Department of Defense from 1972 to 1992 was such that I was generally not expected to publish and, in some assignments, required *not* to publish my work. Therefore most of the technical papers listed below date from after my joining the GMU faculty late in 1992.
- Please see Research Interests above for a summary of the major threads in my recent work.

REFEREED JOURNAL PAPERS
(all peer reviewed)

Published Papers

Pullen, J.M. and J. Chen, Distributed Application Launching for High Quality Graphics in Synchronous Distance Education, *ACM Special Interest Group on Computer Science Education (SIGCSE) Bulletin*, Vol 40 No. 3, pp 204-208, 2008

Pullen, J.M. and C. Snow, Integrating Synchronous and Asynchronous Internet Distributed Education for Maximum Effectiveness, *Educational and Information Technologies* (2007) 3, pp 137-148, Springer, New York NY

T. Zhou, J.X. Chen, and J.M. Pullen, Generating Accurate Depth Effects in OpenGL, *Computer Graphics Forum*, Vol. 26 No. 1, pp.15-23, 2007

Pullen, J.M., Scaling Up a Distance Education Program in Computer Science, *ACM Special Interest Group on Computer Science Education (SIGCSE) Bulletin*, Vol 38 No. 3, pp 33-37, 2006

Snow, C., J.M. Pullen and P. McAndrews, An Open-Source Web-Based System for Synchronous Distance Education, *IEEE Transactions on Education*, Vol.48 No. 4, pp 705-712, 2005

Pullen, J. and P. McAndrews, Low-Cost Internet Synchronous Distance Education Using Open-Source Software, *ASEE Computers in Education Journal*, Vol 25 No 5, 2005

Pullen, J., R. Simon and P. McAndrews, An Online Graduate Computer Science Program Delivered Via Simulteaching, *Advanced Technology for Learning* Vol 2 No 3 pp 148-155, 2005, ACTA Press, Calgary AB

Pullen, J.M., and P. McAndrews, A Web Portal for Open-Source Synchronous Distance Education, *Advanced Technology for Learning* Vol 2 No 1 pp 9-15, 2005, ACTA Press, Calgary AB

Pullen, J.M., R. Brunton, D. Brutzman, David Drake, Michael Hieb, K. Morse, and A. Tolk, Using Web Services to Integrate Heterogeneous Simulations in a Grid Environment, *Future Generation Computer Systems* Vol 21 No 1 pp 97-106, 2005, Elsevier

Sudnikovich, W., M. Kleiner, S. Carey, and J.M. Pullen, Extensible Battle Management Language as a Transformation Enabler, *SIMULATION: Transactions of the Society for Modeling and Simulation International* Vol 80 No 12 pp 669-680, special issue on Military Simulation Systems and Command and Control Systems Interoperability, December 2004

Pullen, J.M., The Network Workbench and Constructivism: Learning Protocols By Programming, *Computer Science Education* Vol 11 No 1 pp 1-14, September 2001

Chen, J.X, H. Wechsler, and J. M. Pullen, Y. Zhu, and E. B. McMahon, Knee Surgery Assistance: Patient Model Construction, Motion Simulation, and Biomechanical Visualization, *IEEE Transactions on Biomedical Engineering* Vol 48 No 9 pp 1042-1052, September 2001

Pullen, J.M., The Internet Lecture: Converging Teaching and Technology, *ACM Special Interest Group on Computer Science Education (SIGCSE) Bulletin* Vol 32 No 3 pp 101-104, September 2000

Pullen, J.M., E. Norris, and M. Fix, Teaching C++ in a Multi-User Virtual Environment, *ACM Special Interest Group on Computer Science Education (SIGCSE) Bulletin* Vol 32 No 2 pp 60-64

Pullen, J.M., The Network Workbench: Network Simulation Software for Academic Investigation of Internet Concepts, *Computer Networks* Vol 32 No 3 pp 365-378, March 2000

Pullen, J.M. and M. Benson, ClassWise: Synchronous Internet Desktop Education, November 1999 special multimedia CDROM issue of *IEEE Transactions on Education* Vol 42 No 4; printed abstract p 370

Bordeaux, A., D. Sprague, J. M. Pullen and D. Sterling, Taming the Electronic Frontier: A Distance Education Course for Defense Dependents School Teachers, *The Journal of Computing in Teacher Education*, Vol. 14 No. 3, Spring 1998

Pullen, J. M. and D. Wood, Networking Technology and DIS, *Proceedings of the IEEE*, August 1995 (invited paper, fully peer reviewed)

Pullen, J. M., Networking for Distributed Virtual Simulation, *Computer Networks and ISDN Systems Journal*, Vol. 27, 1994, Elsevier North-Holland (invited paper, fully peer reviewed)

Pullen, J. M. and R.T. Mercer, TUTOR301- A Successful Application of CAI for Electrical Engineering Problem-Solving, *IEEE Transactions on Education*, February, 1988

OTHER JOURNAL PUBLICATIONS

Pullen, J.M. and P. Reynolds, Guest Editors' Introduction to the Special Issue of Papers from the Distributed Simulation – Real Time Applications Workshop 2000, to appear in *SCS Transactions*, Society for Computer Simulation

Pullen, J. M., Network EducationWare Demonstration, abstract of referee-selected session, *SIGCSE Bulletin*, ACM Special Interest Group on Computer Science Education, Vol. 39, No. 3, 2007

INTERNET RFCs

RFC stands for Request for Comments. For historical reasons, this is the designation of the archival publications of the Internet Engineering Task Force. These documents start as Internet-Drafts. They are carefully screened by a peer-review process, with the result that less than one Internet Draft out of twenty is accepted into the archive. The documents are available electronically through <http://www.ietf.org>. RFCs fall into two categories: standards-related and informational. Those to which I have contributed are thoroughly researched expositions of future network architectures and requirements, and as such fall in the latter category.

Pullen, J.M., F. Zhao, and D. Cohen, "Selectively Reliable Multicast Protocol (SRMP)," Internet Engineering Task Force Experimental RFC 4410, Internet Society, February 2006

Pullen, J.M., L. Lavu, R. Malghan, G. Duan, J. Ma and H. Nah, "A Simulation Model for IP Multicast with RSVP," Internet Engineering Task Force Informational RFC 2490, Internet Society, 1999

Pullen, J.M., M. Myjak, and C. Bouwens, "Limitations of Internet Protocol Suite for Distributed Simulation in the Large Multicast Environment," Internet Engineering Task Force Informational RFC 2502, Internet Society, 1999

Symington, S., J. M. Pullen and D. Wood, "Modeling and Simulation Requirements for IPng," Internet Engineering Task Force RFC1667, August 1994

BOOK

Understanding Internet Protocols Through Hands-on Programming, published by John Wiley & Sons, January 2000. This is a project textbook for use with any college-level text on computer networking based on the Internet Protocol Suite. It is built around the Network Workbench, a software system for discrete event simulation of packet networks, allowing their investigation by students who write program modules implementing protocols. The Workbench was designed to be practical for networked access to GMU computers. I have since adapted it to operate on student home computers. It consists of over 60 code modules comprised of over thirteen thousand lines of C++ code. This software was originally sponsored in the Center for the New Engineer under the DARPA-funded High Performance Computing in the Curriculum project in 1994. Since that time I have developed it extensively as courseware, adding new modules and assignments each semester. Each chapter of the

book introduces an aspect of Internet technology and then goes on to present a project to be completed in the Workbench environment. This book represents both a contribution to state-of-the-art computer education and a culminating publication of my research in developing the Network Workbench.

REFEREED CONFERENCE PAPERS

(all peer reviewed; acceptance rates average around 50% across all conferences)

Pullen, J., K. Galvin and R. Brook, "Simulation in NATO Federated Mission Networking," *International Command and Control Research and Technology Symposium 2020*, online, November 2020

Pullen, J. and F. Corona, "Preparing for Operational Use of C2-Simulation Interoperation," *Simulation Interoperability Workshop 2020*, Orlando, FL, February 2020

Pullen, J., B. Wardman, and J. Ruth, "Experimental Evaluation of a Command and Control – Simulation Interoperation Standard in a Coalition Environment," *International Command and Control Research and Technology Symposium 2019*, Baltimore, MD, November 2019

Pullen, J. and F. Corona, "Preparing for Operational Use of C2-Simulation Interoperation," *NATO Modelling and Simulation Symposium 2019*, Vienna, Austria, October 2019

Pullen, J., D. Corner, S. Singapogu, C. Blais, D. Reece, and J. Ruth, "Command and Control System to Simulation System Interoperation: Development of the C2SIM Standard," *SISO Simulation Interoperability Workshop 2019*, Orlando, FL, February 2019

Pullen, J. and J. Ruth, "Training Operational Military Organizations in a Cyber-active Environment Using C2-Simulation Interoperation," *International Command and Control Research and Technology Symposium 2018*, Pensacola, FL, November 2018

Pullen, J., L. Khimeche and K. Galvin, "C2SIM in CWIX: Distributed Development and Testing for Multinational Interoperability," *NATO Modelling and Simulation Symposium 2018*, Ottawa, Canada, October 2018

Pullen, J. and J. Ruth, "Military Training in a Cyber-active Environment Exploiting C2-Simulation Interoperation," *SISO Simulation Interoperability Workshop 2018*, Orlando, FL, September 2018

Pullen, J., "Teaching Network Protocol Concepts in an Open Source Simulation Environment," *ACM Innovative Technology in Computer Science Applications*, Larnaca, Cyprus, July 2018

Pullen, J. and N. Clark, "A Distributed Development Environment for a C2SIM System of Systems," *International Command and Control Research and Technology Symposium 2017*, Los Angeles, CA, November 2017

Pullen, J., L. Khimeche and B. Patel, "C2-Simulation Interoperability for Operational Hybrid Environments," *NATO Modelling and Simulation Symposium 2016*, Bucharest, Romania, October 2016

Singapogu, S., K. Gupton and J. Pullen, "C2SIM Logical Data Model Development: Scope, Challenges and Future," *SISO Simulation Interoperability Workshop 2016*, Orlando, FL, September 2016

Pullen, J. and K. Galvin, "New Directions for C2-Simulation Interoperability Standards," *International Command and Control Research and Technology Symposium 2016*, London, UK, September 2016

Lesueur, K., J. Ruth and J. Pullen, "Operationalization of Standardized C2-Simulation (C2SIM) Interoperability," *International Command and Control Research and Technology Symposium 2016*, London, UK, September 2016

Singapogu, S., K. Gupton, U. Schade and J. Pullen, "The Role of Ontology in C2SIM," *International Command and Control Research and Technology Symposium 2016*, London, UK, September 2016

Voegeli, D., N. Clark and J. Pullen, "Better Online Teaching Support Using Open-source Web Applications," *ACM Innovative Technology in Computer Science Applications*, Arequipa, Peru, July 2016

Pullen, J. and O. Mevassvik, "Coalition Command and Control – Simulation Interoperation as a System of

Systems,” *IEEE International Conference on System of Systems Engineering*, Kongsberg, Norway, June 2016

Singapogu, S., P. Costa and J. Pullen, “Automated Ontology Creation Using XML Schema Elements,” *Semantic Technologies for Intelligence, Defense and Security 2015*, Fairfax, VA, October 2015

Pullen, J., S. Singapogu, K. Galvin, K. Gupton, S. Diallo and T. Shook, “Developing Effective Standards for C2-Simulation Interoperability,” *NATO Modelling and Simulation Symposium 2015*, Munich, Germany

Pullen, J., L. Khimeche, T. Remmersmann, U. Schade and X. Cuneo, “Distributed Server systems for C2-Simulation Interoperation,” *IEEE Fall Simulation Interoperability Workshop 2015*, Orlando, FL, September 2015

Pullen, J., “Enabling Military Coalition Command and Control with Interoperating Simulations,” *5th International Conference on Simulation and Modeling Methodologies, Technologies and Applications*, Colmar, France, August 2015

Clark, N., J. Pullen and C. Bashioum, “An Experimental Project Course to Prepare Students for Agile Web Application Development,” *ACM SIGCSE Innovative Technology in Computer Science Education*, Vilnius, Lithuania, July 2015

Pullen, J., L. Khimeche, X. Cuneo, U. Schade and T. Remmersmann, Linking C2-Simulation Interoperation Servers to Form Distributed Server Systems,” *International Command and Control Research and Technology Symposium 2015*, published online at <https://dodccrp-testorg.squarespace.com/2015>

Pullen, J. L. Khimeche, R. Wittman, B. Burland, J. Ruth and J. Hyndoy, “Coalition C2-Simulation History and Status,” *NATO Modelling and Simulation Symposium 2014*, Washington, DC

Pullen, J. and N. Clark, “Enhancing a Synchronous Online Education System for Cost Effective Delivery,” *CSEIT 2014*, Singapore

Pullen, J., D. Corner and M. Gronkvist, “Publish/Subscribe and Translation Performance in the WISE/SBML Server for MSDL and C-BML,” *IEEE Fall Simulation Interoperability Workshop 2014*, Orlando, FL

Pullen, J. and L. Khimeche, “Advances in Systems and Technologies Toward Interoperating Operational Military C2 and Simulation Systems,” *International Command and Control Research and Technology Symposium 2014*, Alexandria, VA

Pullen, J. and N. Clark, “An Open Source Synchronous Online Distance Education System with Reduced Support Requirements,” *IADIS eSociety Conference*, Madrid, Spain, February 2014

Pullen, J., D. Corner, R. Wittman, A. Brook, P. Gustavsson, U. Schade and T. Remmersmann, “Multi-Schema and Multi-Server Advances for C2-Simulation Interoperation in MSG-085,” *NATO Modeling and Simulation Symposium 2013*, Sydney, Australia

Pullen, J., D. Corner, T. Remmersmann and I. Trautwein, “Linked Heterogenous BML Servers in NATO MSG-085,” *IEEE Fall 2013 Simulation Interoperability Workshop*, Orlando, FL, 2013

Pullen, J., D. Corner, P. Gustavsson, and R. Wittman, “Order and Report Schema Translation in WISE-SBML Server,” *IEEE Fall 2013 Simulation Interoperability Workshop*, Orlando, FL, 2013

Pullen, J., D. Corner, P. Gustavsson, and M. Grönkvist, “Incorporating C2---Simulation Interoperability Services into an Operational C2 System,” *International Command and Control Research and Technology Symposium 2013*, Alexandria, VA

Pullen, J., D. Corner and R. Wittman, “Next Steps in MSDL and C-BML Alignment for Convergence,” *IEEE Spring Simulation Interoperability Workshop*, Orlando, FL, 2013

Pullen, J., D. Corner, R. Wittman, A. Brook, O. Mevassvik and A. Alstad, Technical and Operational Issues in Combining MSDL and C-BML Standards for C2-Simulation Interoperation in MSG-085, *NATO Modeling and Simulation Group Annual Symposium*, Stockholm, Sweden, October 2012

Pullen, J., D. Corner and R. Wittman, Next Steps in MSDL and C-BML Alignment for Convergence, *IEEE Fall Simulation Interoperability Workshop*, San Diego, CA, September 2012

Pullen, J., M. Ababneh, L. Niklas, M. Connor, and A. Barreto, An Open Source MSDL/C-BML Interface to VR-Forces, *IEEE Fall Simulation Interoperability Workshop*, Orlando, FL, September 2012

McAndrews, P., L. Niklas, and J. Pullen, A Web-Based Coordination System for MSDL/C-BML Coalitions, *IEEE Fall Simulation Interoperability Workshop*, Orlando, FL, September 2012

Pullen, J., Pros and Cons for Teaching Courses in the Classroom and Online Simultaneously, *ACM SIGCSE Information Technology in Computer Science Education 2012*, Haifa, Israel, July 2012

Pullen, J., P. McAndrews, and N. Clark, Simultaneous Classroom and Online Course Delivery Using Open Source Software, *IASTED Computers and Technology In Education 2012*, Naples, Italy, June 2012

Pullen, J., D. Corner, P. McAndrews and L. Niklas, Services to Support Experimentation for Operational Use of Simulations in Coalition Command and Control, *International Command and Control Research and Technology Symposium*, Fairfax, VA, June 2012

Pullen, J., D. Corner, R. Wittman, A. Brook, O. Mevassvik and A. Alstad, MSDL and C-BML Working Together for NATO MSG-085, *IEEE Spring Simulation Interoperability Workshop*, Orlando, FL, March 2012

Pullen, J., N. Clark and P. McAndrews, MIST/C: Open Source Software for Hybrid Classroom and Online Teaching, *IASTED Technology In Education 2011*, Dallas, TX, December 2011

Heffner, K. and J. Pullen, Effective Simulation Support for Operator Training in Unmanned Aircraft systems Development and Deployment, *NATO Modeling and Simulation Group Annual Symposium*, Berne, Switzerland, October 2011

Pullen, J., L. Nicklas, T. Crawford, L. Demasi and S. Levine, Investigating Contributions of the C2Core to Battle Management Language, *IEEE Fall Simulation Interoperability Workshop*, Orlando, FL, September 2011

Abbott, J., J. Pullen and S. Levine, Answering the Question: Why a BML Standard Has Taken So Long to be Established? *IEEE Fall Simulation Interoperability Workshop*, Orlando, FL, September 2011 (received best paper award)

Pullen, J. and L. Nicklas, Maturing Supporting Software for C2-Simulation Interoperation, *IEEE/ACM Distributed Simulation/Real Time Applications 2011 Symposium*, Salford, UK, September 2011

Pullen, J. and N. Clark, Moodle-Integrated Open Source Teaching, *ACM SIGCSE Information Technology in Computer Science Education 2011*, Darmstadt, Germany, June 2011

Pullen, J., M. Ababneh and S. Singapogu, Testing a NATO OPORD Schema with C-BML, *IEEE 2011 European Simulation Interoperability Workshop*, The Hague, Netherlands, June 2011

Ababneh, M. and J. Pullen, An Open Source Graphical User Interface Surrogate C2 System for Battle Management Language Experimentation, *International Command and Control Research and Technology Symposium*, Quebec, Canada, June 2011 (finalist for best student paper)

Pullen, J. and L. Nicklas, Supporting NATO C2-Simulation Experimentation with Scripted Web Services, *International Command and Control Research and Technology Symposium*, Quebec, Canada, June 2011

Nicklas, L., Pullen, J., and D. Corner, Dynamic Publish/Subscribe Topics in the Scripted BML Server, *Proceedings of the IEEE Spring 2011 Simulation Interoperability Workshop*, Boston, MA, April 2011

Pullen, J., M. Ababneh, S. Singapogu, R. Brown and V. Dobbs, A NATO OPORD Capability for BML, *Proceedings of the IEEE Spring 2011 Simulation Interoperability Workshop*, Boston, MA, April 2011

Pullen, J., D. Corner and L. Nicklas, Performance and Usability Enhancements in the Scripted BML Server, *Proceedings of the IEEE Fall 2010 Simulation Interoperability Workshop*, Orlando, FL, September 2010

Ababneh, M. and J.M. Pullen, Battle Management Language – Command and Control Graphical User Interface, *Proceedings of the IEEE Fall 2010 Simulation Interoperability Workshop*, Orlando, FL, September 2010

Heffner, K *et al.*, NATO MSG-048 C-BML Final Report Summary, *Proceedings of the IEEE Fall 2010 Simulation Interoperability Workshop*, Orlando, FL, September 2010

Heffner, K, J. Pullen and L. Khimeche, MSG-048 Technical Activity Experimentation to Evaluate Applicability of a Coalition Battle Management Language in NATO, *NATO Modeling and Simulation Group Annual Symposium*, Utrecht, Netherlands, September 2010

Pullen, J.M. *et al.*, Implementing a Condensed Scripting Language in the Scripted Battle Management Language Web Service, *Proceedings of the IEEE 2010 European Simulation Interoperability Workshop*, Ottawa, Canada, July 2010

Pullen, J.M. *et al.*, Integrating National C2 and Simulation Systems for BML Experimentation, *Proceedings of the IEEE 2010 European Simulation Interoperability Workshop*, Ottawa, Canada, July 2010

Pullen, J.M. *et al.*, An Expanded C2-Simulation Experimental Environment Based on BML, *Proceedings of the IEEE Spring 2010 Simulation Interoperability Workshop*, Orlando, FL, April 2010

Corner, D., J.M. Pullen, S. Singapogu, and B.Bulusu, Adding Publish/Subscribe to the Scripted Battle Management Web Service, *Proceedings of the IEEE Spring 2010 Simulation Interoperability Workshop*, Orlando, FL, April 2010

Pullen, J.M. and K. Heffner, Supporting Coalition Battle Management Language Experiments with Scripted Web Services, *NATO Modeling and Simulation Group Annual Symposium*, Brussels, Belgium, October 2009

Pullen, J.M., D. Corner and S. Singapogu, Scripted Battle Management Language 2 Operation and Mapping Description Language, *Proceedings of the IEEE Fall 2009 Simulation Interoperability Workshop*, Orlando, FL, September 2009

Pullen, J.M., D. Corner, S. Singapogu and P. McAndrews, Interpreted Web Services as a Tool for Development of Command and Control Interoperability with Simulations, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Symposium*, Singapore, October 2009

Pullen, J.M., D. Corner and S. Singapogu, Scripted Battle Management Language 1.0 Operation and Mapping Description Language, *Proceedings of the IEEE Spring 2009 Simulation Interoperability Workshop*, San Diego, CA, March 2009

Moen, D. and J.M. Pullen, The Case for Overlay Multicast Data Streaming in Conjunction with Service-Oriented Architectures, *IEEE MILCOM'08*, San Diego, CA, November 2008

Pullen, J.M., M. Hieb, U. Schade, K. Kruger and M. Frey, Enabling the MSG-048 Multinational Demonstration 2007 with the Command and Control Lexical Grammar and JBML Web Services, *NATO Modeling and Simulation Group Annual Symposium*, Vancouver, Canada, October 2008

Levine, S., J.M. Pullen, L. Topor and T. Troccola, A Practical Example of the Integration of Simulations, Battle Command, and Modern Technology, Paper 07F-SIW-050, *Proceedings of the IEEE Fall 2008 Simulation Interoperability Workshop*, Orlando, FL, September 2008, published online

Pullen, J.M. and J. Chen, Distributed Application Launching for High Quality Graphics in Synchronous Distance

Education, *Proceedings of the ACM Information Technology in Computer Science Education Workshop 2008*, Madrid, Spain, June 2008

Pullen, J.M., M. Hieb and S. Levine, Using Web Service-Based Command and Control to Support Coalition Collaboration in C2 and Simulation, Paper 234, *Proceedings of the 13th International Command and Control Research and Technology Symposium*, Bellevue, WA, June 2008

Pullen, J.M. *et al.* NATO MSG-048 Coalition Battle Management Initial Demonstration Lessons Learned and Follow-on Plans, Paper 08E-SIW-064, *Proceedings of the IEEE Euro-Simulation Interoperability Workshop*, Edinburgh, UK, June 2008

Pullen, J., K. Makenini and P. McAndrews, A Grammar-Based Web Service Enabling Multi-domain Distributed Interoperation of Command/Control and Simulation Systems, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Symposium*, Chania, Greece, October 2007

Cascante, F. and Pullen, J., “Synchronous Internet Teaching Using Open Source Software,” *Conferencia Latinoamericana de Informática*, October 2007

Pullen, J., M. Hieb, L. Khimeche, M. Powers, and K. Galvin, Evaluating the Proposed Coalition Battle Management Language Standard as a Basis for Enhanced C2 to M&S Interoperability, NATO Modeling and Simulation Group Annual Symposium, Prague, Czech Republic, October 2007, won outstanding paper award

Levine, S., M. Hieb, J. Pullen, C. Pandolfo, C. Blais, J. Roberts, and J. Kearley, Joint Battle Management Language (JBML) - Phase 1 Development and Demonstration Results, Paper 07F-SIW-051, *Proceedings of the IEEE Fall 2007 Simulation Interoperability Workshop*, Orlando, FL, September 2007

Hieb, M., S. McCay, M. Powers, H. Yu, M. Kleiner and J. Pullen, Geospatial Challenges in a Net Centric Environment: Actionable Information Technology, Design and Implementation, Paper 6578-43, SPIE Defense and Security Conference, June 2007, Orlando, FL

Pullen, J. A. Tolk, M. Hieb, S. Levine and C. Blais, Joint Battle Management Language (JBML) - US Contribution to the C-BML PDG and NATO MSG-048 TA, *Proceedings of the IEEE Euro-Simulation Interoperability Workshop*, Genoa, Italy, June 2007

Hieb, M., M. Nielsen, K. Pedersen, M. Powers, J. Pullen and D. Swann, A Standards-Based Framework for Integrating Command and Control Systems, Geospatial Information Systems and Simulations: Generating Actionable Geospatial Information, Paper 07E-SIW-043 *Proceedings of the IEEE Euro-Simulation Interoperability Workshop*, Genoa, Italy, June 2007, won outstanding paper award

Hieb, M., M. Powers, S. McKay, M. Kleiner, and J. Pullen, The Environment in Network Centric Operations: A Framework for Command and Control, *Proceedings of the International Command and Control Research and Technology Symposium 2007*, Newport, RI, June 2007

Tolk, A., J. Pullen, M. Hieb, S. Levine, and C. Blais, Joint Battle Management Language (JBML) - US Contribution to the C-BML PDG, *Proceedings of the IEEE Spring 2007 Simulation Interoperability Workshop*, Norfolk, VA, March 2007

Moen, D. and J. Pullen, Private Overlay Multicast for the Defense Threat Reduction Agency Collaboration Center (DCC), *Proceedings of the Society for Computer Simulation Spring 2007 Military Simulation Conference*, Norfolk, VA, March 2007

Bernard, F., J. Pullen, M. Hieb, L. Khimeche, M. Powers, P. De Champs, W. Sudnikovich, and A. Ritchie, Battle Management Language Transformations, *Proceedings of the NATO Modeling and Simulation Working Group 2006*, Rome, Italy, October 2006, published online

Pullen, J., M. Hieb, W. Sudnikovich, and P. de Champs, An International Experiment in Command and Control – Simulation Interoperability Using Web Services, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Symposium*, pp 235-241, Torremolinos, Spain, October 2006

Hieb, M., M. Powers, J.M. Pullen, and M. Kleiner, A Geospatial Battle Management Language (geoBML) for Terrain Reasoning, *Proceedings of the International Command and Control Research and Technology Symposium 2006*, Cambridge, UK, published online

Galvin, K., W. Sudnikovich, M. Hieb, J. Pullen, P. de Champes, and L. Khimiche, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 06F-SIW-111, Orlando, Florida, September 2006, published on CD

Pullen, J.M., Integrating Synchronous and Asynchronous Internet Distributed Education for Maximum Effectiveness, *Proceedings of the IFIP World Computer Congress TC3 – Education*, Santiago, Chile, August 2006

Pullen, J.M., Applying Overlay Multicast in C2 and Simulation Operations, *Proceedings of the IEEE European Simulation Interoperability Workshop*, paper 06E-SIW-024, Stockholm, Sweden, June 2006, published on CD

Sudnikovich, W., A. Ritchie, M. Hieb, J. Pullen, P. de Champes, and L. Khimiche, NATO Exploratory Team – 016 Integration Lessons Learned for C2IEDM and C-BML, *Proceedings of the IEEE European Simulation Interoperability Workshop*, paper 06E-SIW-033, Stockholm, Sweden, June 2006, published on CD

Tolk, A. and J.M. Pullen, Using Web Services and Data Mediation/Storage Services to Enable Command and Control to Simulation Interoperability, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Symposium*, pp 27-34, Montreal, Canada, October 2005

Moen, D. and J.M. Pullen, Modeling Real Time Distributed Simulation Message Flow in an Open Network, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Symposium*, pp 97-106, Montreal, Canada, October 2005

Tolk, A., M. Hieb, K. Galvin, L. Kimeche and M. Pullen, Developing a Coalition Battle Management Language to facilitate Interoperability between Operation CIS and Simulations in support of Training and Mission Rehearsal, *Proceedings of the International Command and Control Research and Technology Symposium 2005*, DoD Command and Control Research Program, Tyson's Corner, VA, June 2005, published online

Moen, D. and J.M. Pullen, Performance Evaluation of the XMSF Overlay Multicast Prototype, *Proceedings of the IEEE Spring Simulation Interoperability Workshop*, paper 04S-SIW-024, San Diego, CA, April 2005, published on CD

Perme, D., A. Tolk, W. Sudnikovich, J.M. Pullen, and M. Hieb, Integrating Air and Ground Operations Within a Common Battle Management Language, *Proceedings of the IEEE Spring Simulation Interoperability Workshop*, paper 05S-SIW-154, San Diego, CA, April 2005, (received outstanding paper award)

Morse, K., R. Brunton, J. Pullen, P. McAndrews, A. Tolk, and J. Muguira, An Architecture for Web-Services Based Interest Management in Real Time Distributed Simulation, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, pp 108-115, Budapest, Hungary, October 2004

Moen, D., J.M. Pullen, and F. Zhao, Implementation of Host-based Overlay Multicast to Support Web Based Services for RT-DVS, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, pp 4-11, Budapest, Hungary, October 2004

- Morse, K., A. Tolk, J.M. Pullen, and D. Brutzman, XMSF as an Enabler for NATO M&S, *Proceedings of the NATO Modeling and Simulation Working Group 2004*, Koblenz, Germany, October 2004, published online
- Morse, K., J.M. Pullen, R. Brunton, and D. Drake, Web Services Interest Management, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 04F-SIW-037, Orlando, FL, September 2004, published on CD
- Simon, R., W. Chang, and J.M. Pullen, Using Composable Simulation Agents in the Presence of Network Overload, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 04F-SIW-101, Orlando, FL, September 2004, published on CD
- Hieb, M., A. Tolk, M. Pullen, and W. Sudnikovich, Extensible Battle Management Language: A Methodology for Web Enabling Command and Control for Network Centric Warfare, *Proceedings of the International Command and Control Research and Technology Symposium 2004*, DoD Command and Control Research Program, Copenhagen, Denmark, September 2004, published online (finalist for Best Paper award)
- Pullen, J.M., and P. McAndrews, A Web Portal for Open-Source Synchronous Distance Education, *Proceedings of IASTED International Conference on Computers and Technology in Education 2004*, pp 351-356, IASTED, Calgary, AB, August 2004 (finalist for Best Paper)
- Pullen, J., R. Brunton, D. Brutzman, David Drake, Michael Hieb, K. Morse, and A. Tolk, Using Web Services to Integrate Heterogeneous Simulations in a Grid Environment, *Proceedings of the International Conference on Computational Science 2004*, Krakow, Poland, June 2004, published online (invited paper)
- Pullen, J. and P. McAndrews, Low-Cost Internet Synchronous Distance Education Using Open-Source Software, *Proceedings of the ASEE Annual Conference 2004*, Salt Lake City, UT, June 2004, published online (selected for journal publication)
- Hieb, M., A. Tolk, J. Pullen, and W. Sudnikovich, Extensible Battle Management Language: A Methodology for Web Enabling Command and Control for Network Centric Warfare, *Proceedings of the Command and Control Research and Technology Symposium 2004*, DoD Command and Control Research Program, San Diego, CA, June 2004, published online
- Hieb, M., A. Tolk, W. Sudnikovich, and J.M. Pullen, Developing Battle Management Language into a Web Service, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 04S-SIW-113, Arlington, VA, April 2004, published on CD (recognized as outstanding paper)
- Simon, R., W. Chang, and J.M. Pullen, Using Distributed Agents to Improve the Efficiency of End-Host Multicast, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 04S-SIW-035, Arlington, VA, April 2004, published on CD (recognized as outstanding paper)
- Moen, D. and J.M. Pullen, Enabling Real-Time Distributed Virtual Simulation over the Internet Using Host-based Overlay Multicast, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, Delft, Netherlands, October 2003
- Simon, R., W. Chang, and J.M. Pullen, An Agent Architecture for Network Support of Distributed Simulation Systems, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, Delft, Netherlands, October 2003
- Pullen, J.M, R. Simon, F. Zhao and W. Chang, NGI-FOM over RTI-NG and SRMP: Lessons Learned, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 03F-SIW-111, Orlando, FL, September 2003
- White, E. and J.M. Pullen, Adapting Legacy Computational Software for XMSF, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 03F-SIW-112, Orlando, FL, September 2003
- Pullen, J.M., A Software System for Cost-Effective Internet Delivery of Synchronous Distance Education, *Proceedings of IASTED International Conference on Computers and Advanced Technology in Education 2003*, IASTED, Calgary, AB, June 2003

- Pullen, J.M. and A. Tolk, Ideas for a Common Framework for Military M&S and C3I Systems, *Proceedings of the European Simulation Interoperability Workshop*, paper 03E-SIW-032, Stockholm, Sweden, June 2003
- Pullen, J.M. and D. Moen, Internet and Multicast Service Issues for XMSF, *Proceedings of the IEEE Spring Simulation Interoperability Workshop*, paper 03S-SIW-043, Orlando, FL, March 2003
- Pullen, J.M. and R. Simon, Selectively Reliable Multicast for the HLA, *Proceedings of the IEEE Fall Simulation Interoperability Workshop*, paper 02F-SIW-109, Orlando, FL, September 2002
- Pullen, J.M., System Design of Network EducationWare: Open-Source Software for Synchronous Internet Teaching and Learning, *Proceedings of the ASEE/SEFI/TUB Colloquium on Technology in Engineering Education*, Berlin, Germany, September 2002
- Pullen, J.M., R. Simon, C. Khunboa, M. Parupalli, and D. Brutzman, A Next-Generation Internet Federation Object Model for the HLA, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, Fort Worth, TX, October 2002
- Shanmugam, Babu and J.M. Pullen, Software Design for Implementation of the Selectively Reliable Multicast Protocol, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, Fort Worth, TX, October 2002
- Pullen, J.M. and R. Simon, Selectively Reliable Multicast for the HLA, *IEEE Simulation Interoperability Workshop*, Orlando, FL, September 2002
- Pullen, J.M., Applicability Of Internet Video In Distance Education For Engineering, *Proceedings of the IEEE Frontiers in Education Conference*, Reno, NV, October 2001
- Moen, D. and Pullen, J.M., A Performance Measurement Approach for the Selectively Reliable Multicast Protocol for Distributed Simulation, *Proceedings of the IEEE Distributed Simulation and Real Time Applications Workshop*, Cincinnati, OH, August 2001
- Denning, P., R. Athale, N. Dabbagh, D. Menasce, J. Offut, J.M. Pullen, S. Ruth, and R. Sandhu, Designing an IT College, *Proceedings of the World Conference on Computers in Education 2001*, Copenhagen, Denmark, August 2001
- Pullen, J.M., Effective Communication Using New Internet Technologies, *Proceedings of the IEEE-USA Professional Development Conference 2000*, Phoenix, AZ, September 2000, pp 69-78
- Pullen, J. M., E. Norris and M. Fix, Teaching Computer Science in a Multi-User Virtual Environment, *Proceedings of the 2000 Western Simulation Multi-Conference*, Society for Computer Simulation, San Diego, CA, Vol. 31, January 2000
- Pullen, J. M., Reliable Multicast Network Transport for Distributed Virtual Simulation, *Proceedings of the Third International Workshop on Distributed Interactive Simulation and Real Time Applications*, IEEE, 1999
- Pullen, J. M., Discrete Event Simulation of CSMA/CD Local Area Networks in the Network Workbench, *Proceedings of the 1999 Western Simulation Multi-Conference*, Society for Computer Simulation, San Diego, CA, Vol. 31, pp 125-130, January 1999
- Pullen, J. M. and H. Nah, A Multi-User Virtual Environment With Extensible User-Friendly Web-Based Interfaces, *Proceedings of the 1999 Western Simulation Multi-Conference*, Society for Computer Simulation, San Diego, CA, Vol. 31, January 1999
- Pullen, J. M. and N. Kakarlamudi, Performance Issues for the Light-Weight RTI, *IEEE Fall Simulation Interoperability Workshop*, Orlando, FL, September 1998

Pullen, J. M., Synchronous Distance Education and the Internet, Internet Society Annual Conference 1998, Geneva, Switzerland, July 1998

Pullen, J. M., The IETF, Reliable Multicast, and Distributed Simulation, IEEE Simulation Interoperability Workshop, Orlando, FL, March 1998

Pullen, J. M. and E. Norris, Using A Multi-User Virtual Environment As A Synchronous Teaching Tool, *Proceedings of the 1998 Western Simulation Multi-Conference*, Society for Computer Simulation San Diego, CA, Vol 30, January 1998

Hughes, C., J.M. Moshell, and J. M. Pullen, Two Dimensional Shared Virtual Worlds in Middle and Elementary Schools: Lessons Learned, *Proceedings of the 1998 Western Simulation Multi-Conference*, Society for Computer Simulation, San Diego, CA, Vol. 30, January 1998

Pullen, J. M. and V. Laviano, Adding Congestion Control To The Selectively Reliable Transmission Protocol For Large-Scale Distributed Simulation, Simulation Interoperability Workshop, Orlando, FL, September 1997

Pullen, J. M. and M. Moreau, Creating A Light-Weight RTI As An Evolution Of Dual-Mode Multicast Using Selectively Reliable Transmission, Simulation Interoperability Workshop, Orlando, FL, September 1997

Sprague, D. and J. M. Pullen, Integrating the Internet and Curriculum: A Web-Based Course for Teachers, National Educational Computing Conference, Seattle, WA, July 1997

Frosch, K. and J. M. Pullen, Design And Prototype Of A Dual-Mode Multicast Application Gateway, Simulation Interoperability Workshop, Orlando, FL, March 1997

Pullen, J. M., M. Myjak and C. Bouwens, Limitations Of The Internet Protocol Suite for Distributed Simulation In The Large Multicast Environment, Simulation Interoperability Workshop, Orlando FL, March 1997

Pullen, J. M., Synchronous Distance Education Via the Internet, IEEE Frontiers in Education Conference, Salt Lake City, UT, November 1996

Pullen, J. M. and K. Frosch, Design and Prototype of a Dual-Mode Multicast Application Gateway, Simulation Interoperability Workshop, Orlando, FL, September 1996

Pullen, J. M., M. Myjak and C. Bouwens, Limitations of the Internet Protocol Suite for Distributed Simulation in the Large Multicast Environment, Simulation Interoperability Workshop, Orlando, FL, September 1996

Hieb, M., G. Tecuci and J. M. Pullen, Training a ModSAF Command Agent Through Demonstration, Sixth Computer Generated Forces and Behavioral Representation Conference, Orlando, FL, July 1996

White, E., V. Laviano, K. Frosch and J. M. Pullen, Interfacing External Decision Processes to DIS Applications, Fifth Computer Generated Forces and Behavioral Representation Conference, Orlando, FL, July 1996

Pullen, J.M. and V. Laviano, Implementation of a Selectively Reliable Transport Protocol for DIS, Distributed Interactive Simulation Workshop, Orlando, FL, March 1996

Pullen, J. M. and E. White, Simulation of Dual-Mode Multicast using Real-World Data, Distributed Interactive Simulation Workshop, Orlando, FL, September 1995

Pullen, J. M. and V. Laviano, Prototyping the Selectively Reliable Transport Protocol, Distributed Interactive Simulation Workshop, Orlando, FL, September 1995

Pullen, J. M. and E. White, Analysis of Dual-Mode Multicast for Large Scale DIS Exercises,

Distributed Interactive Simulation Workshop, Orlando, FL, September 1995

Pullen, J. M. and V. Laviano, A Selectively Reliable Transport Protocol for Distributed Interactive Simulation, Distributed Interactive Simulation Workshop, Orlando, FL, September 1995

Hieb, M., G. Tecuci, J. M. Pullen, A. Ceranowicz, and D. Hille, A Methodology and Tool for Constructing Adaptive Command Agents for Computer Generated Forces, Fifth Computer Generated Forces and Behavioral Representation Conference, Orlando, FL, May 1995

Hille, D., M. Hieb, G. Tecuci, and J. M. Pullen, Abstracting Terrain Data Through Semantic Terrain Transformations, Fifth Computer Generated Forces and behavioral Representation Conference, Orlando, FL, May 1995

Pullen, J. M. and E. White, Dual-Mode Multicast: A New Multicasting Architecture for Distributed Interactive Simulation, Distributed Interactive Simulation Workshop, Orlando, FL, March 1995

G. Tecuci, M. Hieb, J. M. Pullen, and D. Hille, Building Adaptive Autonomous Agents for Adversarial Domains, AAAI 1994 Fall Symposium, New Orleans, LA, 1994

Pullen, J. M., Networking for Distributed Virtual Simulation, Joint European Networking /Internet Society Conference, Prague, Czech Republic, 1994 (invited paper)

Pullen, J. M., D. Cohen, D. Wood, Emerging Technologies - National/Defense Information Infrastructure and the Defense Information Systems Network, IEEE Military Communications Conference, Bedford, MA, 1993 (invited paper)

Pullen, J. M. and J. Entzminger, Applications of Networking Technology in Computer-Assisted Exercises, IEEE Military Communications Conference, McLean, VA, 1991

Pullen, J. M. and M. A. Kaura, Speech Recognition Using a Vector Associative Processor, IEEE International Conference on Computer Design, Port Chester, NY, 1985

Berkovich, S.Y. and J. M. Pullen, The Vector Associative Processor, IEEE International Conference on Computer Design, Port Chester, NY, 1984

Litynski, D., J. M. Pullen, S. Reinhart, R. Houts, Serving Dual Missions in the EE Department at the US Military Academy, Frontiers in Education Conference, Philadelphia, PA, 1984

Pullen, J. M., A General Purpose Simulation Program for Digital Networks Using a List Processing Technique, IEEE Conference on Modeling and Simulation, Pittsburgh, PA, 1972

Pullen, J. M. and M.S. Sarma, Application of ECAP to Power System Analysis, IEEE Conference on Modeling and Simulation, Pittsburgh, PA, 1972

Diener, R. G. and J. M. Pullen, An FET Triaxial Accelerometer with Vector Summing Capabilities, Proceedings of the ASAE 64th Annual Meeting, Pullman, WA, 1971

Pullen, J. M. and R. E. Swartwout, Expanding the Modeling Capabilities of ECAP for Large Active Systems, IEEE Conference on Modeling and Simulation, Pittsburgh, PA, 1971

BOOK CHAPTERS

Pullen, J.M., “Enabling Military Command and Control with Interoperating Simulations as a System of Systems,” *Simulation and Modeling Methodologies, Technologies and Applications*, Springer eBook, 2016

Pullen, J. M., “Network Issues in Distributed Simulation,” Chapter 17 in *Applied Modeling and Simulation: An Integrated Approach to Development and Operation*, D. Cloud and L. Rainey, eds., McGraw-Hill, 1998

CRC Handbook on Computing for Scientists and Engineers, Paul W. Ross, ed.; member of editorial board, primary editor for Networking, CRC Press, 1996

Pullen, J. M. and D. Jensen, “Modems and Interfaces,” *CRC Handbook on Computing for Scientists and Engineers*, Paul W. Ross, ed., CRC Press, 1996

Pullen, J. M. and D. Jensen, “Local Area Networks,” *CRC Handbook on Computing for Scientists and Engineers*, Paul W. Ross, ed., CRC Press, 1996

Griffeon, J., J. M. Pullen and S. Chaliki, “Internetworking,” *CRC Handbook on Computing for Scientists and Engineers*, Paul W. Ross, ed., CRC Press, 1996

Symington, S., J. M. Pullen, and D. Wood, “Modeling and Simulation Requirements for IPng” chapter in *Internet Protocol Next Generation*, S. Bradner and A. Mankin eds., Addison-Wesley, 1995

TECHNICAL REPORTS

Hieb, M., and J.M. Pullen, “An Investigation of Techniques for Training Agents for Use in Military Simulations,” accepted but never published *IEEE Transactions on Systems, Man, and Cybernetics*; published as Naval Postgraduate School technical report

Pullen, J. M., “DSI Strategic Planning: Multicast Protocol Selection,” white paper for Defense Information Systems Agency/Advanced Research Projects Agency panel on protocols for the Defense Simulation Internet (DSI), December, 1993

Pullen, J. M., “WVU SAMOS Programmer's Guide,” West Virginia University Computer Center, Morgantown, WV, 1972

Pullen, J. M., “WVU CalComp Programmer's Guide,” West Virginia University Computer Center, Morgantown, WV, 1971 (revised 1972)

GOVERNMENT DOCUMENTS

Study Report: Substantiation for a NATO C-BML, NATO Research Technology Organization, August 2007

Brutzman, D., K. Morse, J. M. Pullen and M. Zyda, *Extensible Modeling and Simulation Framework (XMSF): Challenges for Web-Based Modeling and Simulation*, Naval Postgraduate School, Monterey, CA, 2002

“The Federal High Performance Computing Program,” Executive Office of the President, Office of Science and Technology Policy, September 8, 1989 (member of primary drafting team, primary drafter of chapter on the National Research and Education Network)

“Program Plan for the National Research and Education Network” (published as draft), Federal Research Internet Coordinating Committee, May 23, 1989

Reinhart, S., D. Litynski, J. M. Pullen, and R. Houts, “Electricity and Electrical Engineering at USMA,” *ASSEMBLY* magazine of U.S. Military Academy, West Point, NY, June 1984

Student course notebook for EE301, Basic Electrical Systems, US Military Academy, West Point, NY, 1983

Student course notebook for Information System Analysis and Design, Department of Defense Computer Institute, Washington, DC, 1979

“Communications-Electronics Repair Parts Management,” Pamphlet 710-1, US Army 5th Signal Command, Worms, Germany, 1975

“Impact on Science of the Information Page,” Chapter 9 in the Report of the Science Policy Task Force, US House of Representatives, unpublished (primary drafter)

INVITED PRESENTATIONS AND ARTICLES

“Modeling and Simulation in NATO Federated Mission Networking,” NATO TIDE Sprint, online, November 2020

“Modeling and Simulation in NATO Federated Mission Networking,” (with Ole Martin Mevassvik, Norway, and Lt Col Claudio Zamponi, Italy), NATO Modeling and Simulation Group Military Operational Requirements Subgroup, online, October 2020

“SISO Command and Control to Simulation Systems Interoperation Standard,” InterService/Industry Training, Simulation and Education Conference 2020, online, FL, December 2020

“Command and Control-Simulation Interoperation is Support of Autonomy,” Command and Control of Autonomy Workshop, November 2019 as part of the DoD Modeling and Simulation (M&S) Community Of Interest (COI) Workshop on Autonomy.

“Command and Control – Simulation Interoperation Standard (C2SIM) Experimental Evaluation,” InterService/Industry Training, Simulation and Education Conference 2019, Orlando, FL, December 2019

“Standardized C2-Simulation Interoperability (C2SIM),” (with Major Fabio Corona, Italy), NATO Computer Assisted Exercise (CAX) Forum, Paris, France, September 2019

“NATO Simulation Standardization Initiatives,” Australasian Simulation Congress Masterclass (with Kevin Galvin of Thales), Sydney, Australia, August 2017

“C2SIM Functionality Can Contribute to ASDL,” AIAA SciTech 2017 conference, Grapevine, TX, January 2017

“Command and Control-Simulation Interoperation” (as part of international team of 5), NATO Lecture Series presented Fairfax, VA September 2015; Farnborough, UK and Paris, France October 2015; Lillestrom, Norway September 2016; Rome, Italy and Madrid, Spain November 2016; Canberra, Australia and Auckland, New Zealand September 2017; Sibiu, Romania October 2017

“C2SIM History and Status” (with R. Wittman), NATO Computer-Assisted Exercise Forum, Munich, Germany, September 2016

“C2-Simulation Interoperability (C2SIM),” NATO Joint Warfare Center, Stavanger, Norway, June 2016

“C2-Simulation Interoperability (C2SIM),” NATO TIDE Sprint Spring 2016, Krakow, Poland, April 2016

“Foundational BML Infrastructure,” NATO MSG-136 Command and Control-Simulation Interoperability, Arlington, VA, October 2014

“NATO MSG-085 Final Demonstration: Technical Advances,” NATO MSG-085 Final Demonstration, Fort Leavenworth, KS, 12 December 2013

“Advances in Open-Source Software for BML,” *BML Research Symposium, IEEE/SISO Fall Simulation*

Interoperability Workshop, Orlando, FL, September 2012

“Network EducationWare Open Source Internet Teaching Software,” (with Priscilla McAndrews) tutorial for Computers and Advanced Technology in Education (CATE-2012), June 2012, Napoli, Italy

“Battle Management Language: Data Interoperability for C2 and Simulation,” *Joint Forces Simulation and Training 2012*, SMi Conferences, London, UK, January 2012

“Agility vs Complexity: Competing Themes in Command and Control,” keynote talk for Instituto Tecnológico De Aeronáutica SIGE conference, Sao Jose Dos Campos, Brazil, September 2011

“Open Source Software for BML,” BML Technology Symposium 2011, Boston, MA (one of about ten invited talks)

“Digitized NATO OPORD for MSG-085,” *NATO MSG-091 C2-Simulation Workshop*, The Hague, Netherlands, December 2010

“Battle Management Language Enables Rapid Integration of Command and Control with Simulation,” IEEE/ACM Symposium on Distributed Simulation-Real Time Applications, Fairfax, VA, October 2010

“ACE Keynote,” Academic Challenges and Enrichment (ACE) Scholars Program, Volgenau School of Engineering, George Mason University, October 2010

“Moodle Integrated Synchronous Conferencing and Teaching: MIST/C,” (C. Snow and P. McAndrews, co-presenters), Distance Teaching and Learning 2010, University of Wisconsin, Madison WI, August 2010

“Creating a BML Software Infrastructure,” NATO Modeling and Simulation Working Group BML Symposium, Farnborough, UK, February 2010

“The Interplay of Simulation and Testbeds,” panelist, IEEE/ACM TridentCom 2009, Washington, DC, April 2009

“Network EducationWare: NEW Features for New Distance Learners,” (C. Snow and P. McAndrews, co-presenters), Distance Teaching and Learning 2009, University of Wisconsin, Madison WI, August 2009

“Distance Education in Computer Science” (J. Goodlett McDaniels, co-author) Encyclopedia of Computer Science and Engineering, (Benjamin Wah, ed.) Volume 2, pp 978-985, Hoboken, NJ, January 2009

“Battle Management Language: Bringing Command and Control Together with Simulation,” Ajou University International C4I Seminar, Korea, November 2008

“Application Sharing Techniques for Synchronous Distance Education” (C. Snow, co-author), Distance Teaching and Learning 2008, University of Wisconsin, Madison, WI, August 2008

“How Phasing Out ARPANET Helped NSFNET Spawn the Commercial Internet,” NSFNET: The Community, Arlington, VA, November 2007

“Create Interactive Online Classrooms Using Network EducationWare (NEW),” (Charles Snow and Priscilla McAndrews, co-presenters), Conference on Distance Teaching and Learning, Madison, WI, August 2007, repeated August 2008

“Battle Management Language Initiatives and Grammar,” Interoperability and Serious Gaming seminar for the Edutainment and Training Initiative Sweden (travel sponsored by Saab Corporation), Stockholm, Sweden, February 2007

Panelist for “Panel on Scalable Adaptive Multicast SAM RG in IRTF,” IEEE Peer-to-Peer Multicasting Symposium, Las Vegas, NV, January 2007

Workshop “Migration to a Net-Centric Environment for Modeling and Simulation,” (Michael Hieb, co-presenter), Second Annual Joint Training and Simulation Conference, Marcus-Evans Inc., Washington DC, 16 October 2006

“Open Source Software in Academic Projects” (Michael Hieb, co-presenter), IEEE Simulation Interoperability Workshop, Orlando, FL, September 2006

“XMSF and Grid Technology,” GridWorld 2006, Open Grid Consortium, Washington, DC, September 2006

“Create Your Own Interactive Online Classroom Using Network EducationWare,” (Priscilla McAndrews, co-presenter), 7th International Conference on Information Technology Based Higher Education and Training, Sydney, Australia, July 2006

“Combining Synchronous and Asynchronous Distributed Education for Best (Cost) Effectiveness,” GMU/DAU *Innovations in eLearning Symposium 2006*

Pullen, J. and D. Moen, “Overlay Multicast for Distributed Simulation,” DMSO Modeling & Simulation Community of Interest Technical Exchange Meeting November 2005

Tolk, A., K. Galvin, M. Hieb, L. Khimeche and J. Pullen, Speaking One Language, *Military Simulation and Training, the International Defence Training Journal*, Issue 4/2005 pp 18-21, National Training Systems Association, Farnborough, UK

“Advanced Multicast Networking for Distributed Simulation,” The Technology Cooperation Program, May 2005 meeting, Alexandria VA

“Open Web-Based Standards for M&S Interoperability Workshop,” SimTecT Simulation Conference and Exhibition, May 2005, Sydney, Australia

“Network EducationWare,” Old Dominion University Faculty Colloquium, Norfolk VA, May 2005

“NEW Internet Conferencing Tools,” GMU Center for Teaching Excellence Spring 2005 Faculty Showcase, March 2005

“Overlay Multicast Status Report,” Virginia Modeling, Analysis and Simulation Center, Suffolk VA, November 2004

“Web Services as a Mechanism to Integrate Heterogeneous Simulations and C4I Systems,” Nanyang University Symposium on HLA Simulation, Singapore, September 2004

“Fifty Years of Defense Computing,” Keynote address for Naval Postgraduate School Celebration of Fifty Years in Computing, August 2004

“XC2I Application of Overlay Multicast,” Naval Postgraduate School Modeling, virtual Environments and Simulation Open House, Monterey, CA, August 2004

“Extensible Modeling and Simulation Framework,” Tidewater Architecture Conference, Norfolk, VA, April 2004

“Extensible Modeling and Simulation Framework Progress Report,” Naval Postgraduate School Modeling, virtual Environments and Simulation Open House, Monterey, CA, August 2003

“Internet Distance Education Tools,” GMU Center for Teaching Excellence/Instructional Resource Center Faculty Showcase, February 2003

“Collaborative Online Embryology,” MAX High Performance Network Seminar, University of Maryland, College Park MD, September 2001

“HLA/RTI and the Selectively Reliable Multicast Protocol,” Naval Postgraduate School Modeling, virtual Environments and Simulation Open House, Monterey, CA, August 2001

“Internet Virtual Classrooms: Converging Teaching and Technology,” IEEE Information Literacy Workshop, Laurel MD, November 2000

“Information Literacy: The Workplace Requirement in the 21st Century, IT Odyssey, Expanding the Horizon, November 2000, Capitol College

“System/Software Engineering for Synchronous Distance Education: A Case Study,” keynote presentation for Workshop in Information and Computer Science, King Fahd University, Dhahran, Saudi Arabia

“Synchronous Distance Education and the Internet,” National Library of Medicine Workshop on Developing Curriculum for Internet-based teaching, Training and Research, Bethesda, MD, January 1999

“Grass Roots Information Pilot,” IEEE-USA Professional Activities for Engineers Conference, Phoenix, AZ, September 1998

“Information Technology and Public Policy,” Washington Operations Research-Management Science Symposium 1997, Washington, DC, November 1997

“A Grassroots Roadmap for the IEEE-USA,” IEEE-USA Professional Activities for Engineers Conference, Tampa, FL, August 1997

“How to Develop Software Across a 4000-Mile Gap,” DARPA Computer-Assisted Education and Training Initiative Program Meeting, George Mason University, Fairfax, VA, June 1997

“Distance Education and Training Via the Network,” Defense Simulation Internet User's Group, Alexandria, VA, February 1997

“Distance Education: Exploring the Future,” Defense Simulation Internet User's Group, Orlando, FL, February 1996

“Distributed Interactive Simulation Technology Challenges,” Machine Learning and Inference Laboratory Colloquium, George Mason University, October 1995

“Prototyping the Classroom of the Future,” Johns Hopkins University/IEEE Computer Society Rapid Systems Virtual Prototyping Symposium, May 1995

“Distributed Interactive Simulation: Challenging Information Technologies,” GMU C3I Center Seminar, March 1995 and GMU C3I Center Annual Review, May 1995

“Distributed Interactive Simulation Technology,” Planning Research Corporation seminar *Advanced Simulation for Acquisition, Operations and Training*, McLean, VA, March 1995

“Dual-Mode Multicast: A New Multicasting Architecture for Distributed Interactive Simulation,” Communications Architecture/Security subgroup of Distributed Interactive Simulation Working Group, Monterey, CA, January 1995

“A Reference Architecture for DIS Multicast Networking,” Distributed Interactive Simulation Workshop, Orlando FL, September 1994

“Distributed Modeling and Simulation for Defense,” GMU C3I Center Annual Review, May 1994

“Strategic Alliances in High Performance Computing and Communications,” George Mason University/Center for Innovative Technology Symposium *Forging Strategic Alliances for Technology Transfer*, May 1994

“Rapid System Virtual Prototyping and the Information Superhighway,” Johns Hopkins University/IEEE Computer Society Advanced Technology Symposium, March 1994

“The Defense Modeling and Simulation Office,” GMU C3I Center Annual Review, May 1993

“Multicast Network Architectures for DIS,” briefing for Distributed Interactive Simulation Communications Architecture-Security subgroup, Orlando, FL, September 1993