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Name: Anthony A. Maciejewski

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Electrical and Computer Engineering
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Education

<i>Degree</i>	<i>Date</i>	<i>School</i>
BSEE	1982	The Ohio State University
MS	1984	The Ohio State University
PhD	1987	The Ohio State University

MS Thesis: Obstacle Avoidance for Kinematically Redundant Manipulators

Dissertation: The Analysis and Control of Robotic Manipulators
Operating at or Near Kinematically Singular Configurations

Honorary Society Memberships

Eta Kappa Nu electrical engineering honorary society

Honors and Awards

1981-1982	Kodak Scholar
1982-1985	National Science Foundation Graduate Fellowship
1985-1986	American Electronics Association Japan Research Fellow
1986-1987	Litton Industrial Fellow
1988	Ruth and Joel Spira Outstanding Teacher Award
1989	William H. Hayt Outstanding Teacher Award (from Eta Kappa Nu)
1989-1991	NEC Faculty Fellow
1990	American Control Conference "Best Presentation in Session" Award
1990	D. D. Ewing Best Teacher Award
1991-1993	TRW Faculty Fellow
1994	D. D. Ewing Best Teacher Award
1994	Tektronix President's Award (\$5,000 Equipment Donation)
2001	Best paper award: CALICO Journal (Journal of the Computer Assisted Language Instruction Consortium), Vol. 18, (see Article [35])
2005	Fellow of the IEEE "for contributions to the design and control of kinematically redundant robots."
2010-2011	Visiting Scholar, University of Macau
2012	MERIT Visiting Scholar, University of Melbourne
2012-2014	Honorary Professor, Deakin University
2013	Best paper award: "The 2013 Zdzislaw Pawlak Best Paper Award, by the Award Committee of the 8th Symposium on Advances in Artificial Intelligence and Applications" (see Conference [152])
2014	Best paper award: "2014 International Conference of Parallel and Distributed Computing (ICPDC 2014)" (see Conference [158])
2014	IEEE Robotics and Automation Society Distinguished Service Award

- 2015 Best paper award: “2015 IEEE Power and Energy Society General Meeting” (see Conference [167])
- 2017 Best paper award: “15th IEEE International Conference on Smart City (SmartCity 2017)” (see Conference [192])
- 2018 Colorado State University Oliver Pennock Distinguished Service Award
- 2018 Intelligent Robots and Systems Conference Distinguished Service Award
- 2018 Colorado State University “N. Preston Davis Award for Instructional Innovation” for NSF-funded “RED” project (see Research Grants [56])
- 2019 National Society of Professional Engineering (NSPE) Colorado Chapter “Public Project of the Year” Award for NSF-funded “RED” project (see Research Grants [56])
- 2019 Electrical and Computer Engineering Department Head’s Association (ECEDHA) “Innovative Program” Award for NSF-funded “RED” project (see Research Grants [56])

Professional Experience

- June 1981 – Sept. 1981 Technical Engineer, Eastman Kodak Co., Rochester, New York.
- Oct. 1985 – Sept. 1986 Visiting Researcher, Hitachi Central Research Laboratory, Tokyo, Japan.
- March 1982 – Dec. 1987 Research Assistant, The Ohio State University, Columbus, Ohio.
- May 1989 – Aug. 1989 University Summer Faculty, Sandia National Laboratory, Albuquerque, New Mexico.
- May 1990 – Aug. 1990 University Summer Faculty, Sandia National Laboratory, Albuquerque, New Mexico.
- Jan. 1988 – July 1993 Assistant Professor, Purdue University, West Lafayette, Indiana.
- July 1993 – Aug. 1998 Associate Professor, Purdue University, West Lafayette, Indiana.
- Aug. 1998 – Aug. 2001 Professor, Purdue University, West Lafayette, Indiana.
- Aug. 2001 – Professor, Colorado State University, Fort Collins, Colorado.
- July 2003 – Head, Department of Electrical and Computer Engineering Colorado State University, Fort Collins, Colorado.

Consulting Activities

- 1988 – MTD Products Inc., Cleveland, OH.
- 1991 – University of Tsukuba, Tsukuba, Japan.
- 1993 – Sandia National Laboratories, Albuquerque, NM.
- 1995 – JMC Technology Group, Indianapolis, IN.
- 1997 – Caterpillar, Inc., Peoria, IL.
- 2015 – Wolf Robotics, Fort Collins, CO.

Research Grants and Contracts Received

- [1] Principal Investigator: National Science Foundation, “A Computer Tutor to Assist in Technical Japanese Language Instruction,” Grant No. INT-8818039, Aug. 15, 1988 to July 31, 1992, \$128,971.
- [2] Principal Investigator: David Ross Grant, Purdue Research Foundation, “Utilizing the Kinematically Singular Configurations of Robots in Work Cell Design and Manipulator Motion Planning,” Jan. 1, 1989 to Dec. 31, 1990, \$16,470.

- [3] Principal Investigator: NEC Corporation Faculty Fellowship, "Computer Graphic Simulation of Robotic Systems," Aug. 1, 1989 to July 31, 1991, \$50,000.
- [4] Co-Principal Investigator: 1989 AT&T University Equipment Donation Program and AT&T Pixel Machines, Pixel Machine Donation, \$146,385 (Principal Investigator: Leah H. Jamieson, additional Co-Principal Investigators: Edward J. Delp, George B. Adams III).
- [5] Principal Investigator: Purdue Global Initiative Faculty Grant, "Technical Japanese Language Instruction for Engineers," Spring 1991, \$2,500.
- [6] Principal Investigator: TRW Faculty Assistant Grant, "Motion Control of Redundant Manipulators," Jan. 1, 1991 to Dec. 31, 1993, \$45,000.
- [7] Principal Investigator: National Science Foundation, "Supplement to Grant INT-8818039: A Computer Tutor to Assist in Technical Japanese Language Instruction," March 5, 1991 to July 31, 1992, \$28,607.
- [8] Principal Investigator: Sandia National Laboratories, "Fault Tolerant Robot Design," Contract No. 27-3215, June 1, 1991 to Aug. 31, 1991, \$16,000.
- [9] Principal Investigator: Sandia National Laboratories, "Impact of Kinematic and Actuator Redundancy on Robot System Reliability," Contract No. 18-4379B, Oct. 4, 1991 to Aug. 30, 1993, \$61,799.
- [10] Co-Principal Investigator: NSF-Purdue Engineering Research Center for Intelligent Manufacturing Systems, "Intelligent Assembly Systems," Sept. 1, 1991 to Aug. 31, 1992, \$44,220 (Principal Investigator: C. S. George Lee, additional Co-Principal Investigator: Rahmat Shoureshi, total award: \$201,581).
- [11] Principal Investigator: Purdue Global Initiative Faculty Grant, "Technical Japanese Language Instruction for Engineers II," Spring 1992, \$2,500.
- [12] Principal Investigator: Purdue Research Foundation International Travel Grant, "1992 IEEE International Conference on Robotics and Automation," Nice, France, May 10-15, 1992, \$920.
- [13] Principal Investigator: Sandia National Laboratories, "Failure Tolerant Control of Robotic Manipulators," Contract No. AC0077, May 25, 1992 to Aug. 31, 1992, \$24,945.
- [14] Principal Investigator: NEC Corporation, "The Design of a Cooperation Controller for Multiple Robot Coordination," Aug. 1, 1992 to July 31, 1993, \$49,000 (Co-Principal Investigator: Charles A. Bouman, total award: \$70,000).
- [15] Co-Principal Investigator: NSF-Purdue Engineering Research Center for Intelligent Manufacturing Systems, "Intelligent Assembly Systems," Aug. 17, 1992 to Aug. 16, 1993, \$45,516 (Principal Investigator: C. S. George Lee, additional Co-Principal Investigator: Rahmat Shoureshi, total award: \$193,094).
- [16] Principal Investigator: Sandia National Laboratories, supplement to Contract No. 18-4379B, May 17, 1993 to Aug. 30, 1993, \$32,842.
- [17] Principal Investigator: Sandia National Laboratories, supplement to Contract No. 18-4379B, Sept. 1, 1993 to Aug. 31, 1994, \$77,656.
- [18] Principal Investigator: NEC Corporation, "The Design of a Cooperation Controller for Multiple Robot Coordination: Phase II," Aug. 1, 1993 to July 31, 1994, \$63,000
- [19] Principal Investigator: Purdue Global Initiative Faculty Grant, "Development of a Course Entitled: Introduction to Japanese Information Processing," Spring 1994, \$2,500.
- [20] Principal Investigator: Purdue Research Foundation International Travel Grant, "1994 International Conference on Intelligent Robots and Systems," Munich, Germany, Sept. 12-16, 1994, \$892.
- [21] Principal Investigator: Sandia National Laboratories, supplement to Contract No. 18-4379B, May 16, 1994 to Sept. 30, 1994, \$48,000.
- [22] Principal Investigator: Sandia National Laboratories, "Fault Tolerance and Kinematically Redundant Robots," Contract No. AL-3011, Sept. 1, 1994 to Aug. 30, 1995, \$117,851.
- [23] Principal Investigator: NEC Corporation, "Automated Failure Detection," Jan. 1, 1995 to Dec. 31, 1995, \$31,500 (Co-Principal Investigator: Charles A. Bouman, total award: \$63,000).
- [24] Principal Investigator: NASA, "Failure-Tolerant Control of Space-Based Robotic Manipulators," Grant No. NAG 9-793, July 1, 1995 to June 30, 1996, \$22,000 (training grant for James D. English III).

- [25] Co-Principal Investigator: NSF CISE Research Instrumentation Grant, "VIADUCT: A Testbed to Study Video, Image, Audio and Data Traffic on a High-Speed Network," Grant No. CDA-9422250, May 1, 1995 to April 30, 1996, \$120,811 (Principal Investigator: Edward J. Coyle; additional Co-Principal Investigators: Ness Shroff, Edwin K. P. Chong, Edward Delp).
- [26] Principal Investigator: Sandia National Laboratories, "Fault Tolerance and Kinematically Redundant Robots," Contract No. AL-3011, Sept. 1, 1995 to Aug. 31, 1996, \$115,700 (Co-Principal Investigator: Venkataramanan Balakrishnan, \$37,088).
- [27.1] Co-Principal Investigator: Hewlett-Packard Company Voluntary Support, Gift No. 30009.1 "Infrastructure for a New Curriculum in Video and Image Systems Engineering," March 1, 1996, \$29,170 (Principal Investigator: Jan P. Allebach, additional Co-Principal Investigators: C. A. Bouman, E. J. Coyle, E. J. Delp, Z. Pizlo, N. B. Shroff).
- [27.2] Co-Principal Investigator: Hewlett-Packard Company Voluntary Support, Gift No. 30009.2 "Infrastructure for a New Curriculum in Video and Image Systems Engineering," Aug. 22, 1996, \$6,000 (Principal Investigator: Jan P. Allebach, additional Co-Principal Investigators: C. A. Bouman, E. J. Coyle, E. J. Delp, Z. Pizlo, N. B. Shroff).
- [27.3] Co-Principal Investigator: Hewlett-Packard Company Voluntary Support, Gift No. 32322 "Infrastructure for a New Curriculum in Video and Image Systems Engineering," Sept. 6, 1996, \$479,609 (Principal Investigator: Jan P. Allebach, additional Co-Principal Investigators: C. A. Bouman, E. J. Coyle, E. J. Delp, Z. Pizlo, N. B. Shroff).
- [27.4] Co-Principal Investigator: Hewlett-Packard Company Voluntary Support, Gift No. 30009.3 "Infrastructure for a New Curriculum in Video and Image Systems Engineering," Dec. 17, 1996, \$201,000 (Principal Investigator: Jan P. Allebach, additional Co-Principal Investigators: C. A. Bouman, E. J. Coyle, E. J. Delp, Z. Pizlo, N. B. Shroff).
- [28] Faculty Collaborator: Purdue Reinvestment Program, "Center for Computational Image Analysis and Visualization," Jan. 1, 1996 to Dec. 31, 1996, \$100,000 (additional Faculty Collaborators: C. Bajaj, E. Sacks, J. Turek, P. Robinson, G. Blaisdell, G. Coppoc, G. Oglesby, E. Delp, A. Chaturvedi, S. Abhyankar, B. Lucier, B. Hillberry, S. Gupta)
- [29] Principal Investigator: NASA, "Failure-Tolerant Control of Space-Based Robotic Manipulators," Grant No. NGT 9-2, July 1, 1996 to Dec. 22, 1996, \$22,000 (training grant renewal for James D. English III).
- [30] Principal Investigator: Sandia National Laboratories, "Fault Tolerance and Kinematically Redundant Robots," Contract No. AL-3011, Sept. 1, 1996 to Jan. 7, 1997, \$51,424 (Co-Principal Investigator: Venkataramanan Balakrishnan, \$25,712).
- [31] Co-Principal Investigator: Caterpillar, Inc., "Prognostics Project," Jan. 1, 1997 to June 30, 1997, \$34,162 (Principal Investigator: Gary Krutz, additional Co-Principal Investigator: Patricia Davies, total award: \$55,077).
- [32] Co-Principal Investigator: Sze Tsao Chang Memorial Engineering Fund, "Optimization of Industrial Assembly Workcells Using the Chou H. Li Self-Optimization System," April 1, 1997 to March 31, 1998, \$46,279 (Principal Investigator: A. Kak, additional Co-Principal Investigator: C. S. G. Lee, total award: \$155,000).
- [33] Co-Principal Investigator: Caterpillar, Inc., "Smart Cylinders," June 27, 1997 to Aug. 26, 1997, \$5,000 (Principal Investigator: Gary Krutz, total award: \$10,000).
- [34] Co-Principal Investigator: part of Intel/Purdue equipment grant, "Optimization and Visualization for Network-Based Assembly Workcells for Advanced Manufacturing," part B.04 of parent Intel equipment grant to Purdue University (entitled "Utilization of Advanced Intel Based Platforms in Computationally Demanding Tasks"), July. 1, 1997 to June 30, 1998, \$147,876 (Principal Investigator of this part: A. Kak, additional Co-Principal Investigator: of this part C. S. G. Lee).
- [35] Collaborator: Research Grant Council of Hong Kong, "Mapping Applications to Heterogeneous Computing Systems Using Artificial Genetic Life and State-Space Pruning," Sept. 1, 1997 to Aug. 31, 1999, HK\$360,000 (US\$47,000) (Principal Investigator: Ishfaq Ahmad, Additional Collaborators: H. J. Siegel, Y.-K. Kwok)
- [36] Associate Deputy Director (Co-Principal Investigator): Caterpillar, Inc., "Electrohydraulics Center," Sept. 1, 1997 to March 31, 2000, \$250,000 (Director: Gary Krutz, Deputy Director: Matthew Francheck).

- [37] Principal Investigator: Sandia National Laboratories, “OpenGL Accelerated Robot Graphic Animation Program,” DSP No. 0CO42, Aug. 3, 1999 to Aug. 31, 1999, \$4,626.
- [38] Principal Investigator: DARPA Information Technology Office (ITO) Quorum Program through the Office of Naval Research, Math, Computer, and Information Sciences Division, “Adapting MSHN Scheduling Technology for HiPer-D,” Grant No. N00014-00-1-0599, May 1, 2000 to Sept. 30, 2001, \$758,997. (Other Principal Investigator: H. J. Siegel)
- [39] Principal Investigator: National Imagery and Mapping Agency (NIMA) “SVD-Based Analysis of Images, Video, and Multidimensional Data,” Grant No. NMA201-00-1-1003, July 1, 2000 to June 30, 2003, \$64,539. (Subcontract through Florida A&M / Florida State University, total award: \$132,340, Principal Investigator: Rodney G. Roberts)
- [40] Co-Principal Investigator: National Science Foundation, “Haptic Texture Perception and Rendering for Personal Robotics,” Award No. IIS-0098443, Aug. 1, 2001 to July 31, 2004, \$310,101. (Principal Investigator: Hong Tan, Other Co-Principal Investigators: David S. Ebert, Edwin D. Hirtleman, and Zygmunt Pizlo)
- [41] Principal Investigator: Non-lethal Technology Innovation Center (NTIC), “The Impact of Autonomous Robots on Crowd Behavior,” Jan. 1, 2003 to Dec. 31, 2003, \$48,000.
- [42] Co-Principal Investigator: The Johns Hopkins University Applied Physics Laboratory (subcontract for jointly funded DARPA contract), “Adaptive and Reflective Middleware Systems ARMS,” Contract No. 876378, Oct. 30, 2003 to Mar. 29, 2005, \$200,000. (Principal Investigator: H.J. Siegel)
- [43] Principal Investigator: Colorado Commission on Higher Education (CCHE) Technology Advancement Group (TAG), through the Colorado Institute of Technology (CIT), “Center for Robustness in Computer Systems,” May 17, 2004 to May 16, 2005, \$250,000. (Co-Principal Investigators: H.J. Siegel and Ralph H. Castain)
- [44] Principal Investigator: Wolf Robotics, “Development of a Novel Weld Tracking System for Robotic Arc Welding,” Aug. 15, 2005 to May 14, 2006, \$17,525.
- [45] Co-Principal Investigator: The Johns Hopkins University Applied Physics Laboratory (subcontract for jointly funded DARPA contract), “Allocation Algorithm Support for System Fault Tolerance,” Contract No. 901410, Sept. 12, 2005 to Feb. 28, 2006, \$75,000. (Principal Investigator: H.J. Siegel)
- [46] Principal Investigator: Missile Defense Agency (MDA) “SVD-Based Processing of Images and Video for Target Identification and Real-Time Visual Tracking,” Award No. HQ0006-05-C-0035, September 30, 2005 to June 30, 2007, \$145,178. (Subcontract through Florida A&M / Florida State University, total award: \$295,037, Principal Investigator: Rodney G. Roberts)
- [47] Co-Principal Investigator: National Science Foundation, “Robust Parallel and Distributed Computing Systems,” Award CNS-0615170, June 15, 2006 to May 31, 2010, \$585,821. (Principal Investigator: H.J. Siegel)
- [48] Principal Investigator: National Science Foundation, “The Design of Fault-Tolerant Robotic Systems for Robust Performance in Hazardous/Remote Environments,” Award IIS-0812437, August 1, 2008 to July 31, 2012, \$399,479.
- [49] Co-Principal Investigator: National Science Foundation, “CSR:Medium:Collaborative: Stochastically Robust Resource Allocation for Computing,” Award CNS-0905399, September 1, 2009 to August 31, 2012, \$1,042,470. (Principal Investigator: H.J. Siegel, Additional Co-PIs: Arnold L. Rosenberg and James T. Smith)
- [50] Co-Principal Investigator: Oak Ridge National Laboratory, for the Department of Defense (DoD), “Research on Resource Management Models and Methods for Heterogeneous Parallel and Distributed Computing Systems,” Subcontract Number 4000094858, June 10, 2010 to Jan. 31, 2011, \$150,000. (Principal Investigator: H.J. Siegel)
- [51] Co-Principal Investigator: Oak Ridge National Laboratory, for the Department of Defense (DoD), “Resource Management Models and Methods for Heterogeneous Parallel and Distributed Computing Systems,” Subcontract Number 40000108022, August 15, 2011 to September 15, 2012, \$286,316. (Principal Investigator: H.J. Siegel)
- [52] Co-Principal Investigator: Oak Ridge National Laboratory, for the Department of Defense (DoD), “Resource Management Models and Methods for Heterogeneous Parallel and Distributed Computing Systems,” Subcontract Number 40000108022, October 30, 2012 to Oct. 31, 2016, \$736,602. (Principal Investigator: H.J. Siegel, Additional Co-PI: Sudeep Pasricha)

- [53] Co-Principal Investigator: National Science Foundation, “SHF: Medium: Energy Efficient and Stochastically Robust Resource Allocation for Heterogeneous Computing,” Award CCF-1302693, July 1, 2013 to June 30, 2016, \$850,000. (Principal Investigator: Sudeep Pasricha, Additional Co-PI: H.J. Siegel, Patrick J. Burns)
- [54] Co-Principal Investigator: Chrysler Group, LLC, “Implementing Chrysler’s Powertrain Control Strategy on a Multicore Platform,” Contract No. 201503, March 3, 2015 to August 31, 2016, \$450,000. (Principal Investigator: H.J. Siegel, Additional Co-PI: Sudeep Pasricha)
- [55] Co-Principal Investigator: Energy Institute at Colorado State University, “Aggregator-based demand response in Smart Grid using incentive-based pricing: A novel approach for fully deregulating the electric power grid,” June 1, 2015 to May 30, 2016, \$25,000. (Principal Investigator: Sid Suryanarayanan, Additional Co-PI: H.J. Siegel)
- [56] Principal Investigator: National Science Foundation, “Revolutionizing Roles to Reimagine Integrated Systems of Engineering Formation,” Award EEC-1519438, July 1, 2015 to June 30, 2021, \$1,988,663. (Co-PIs: Zinta Byrne, Tom Chen, Laura Sample McMeeking, Michael De Miranda)
- [57] Co-Principal Investigator: National Science Foundation, “A Scalable Sustainability-Based Approach to a Novel Demand Response Paradigm in the Emerging Smart Grid,” Award ECCS - 1608898, August 15, 2016 to July 31, 2021, \$271,311. (Principal Investigator: Sid Suryanarayanan, Additional Co-PI: H.J. Siegel)
- [58] Co-Principal Investigator: National Science Foundation, “Workshop: Making and Makerspaces in Electrical and Computer Engineering Education,” Sept. 1, 2019 to Aug. 31, 2020, \$99,855. (Principal Investigator: Shawn Jordan, Additional Co-PI: Alan Cheville)

Journal Editorial Positions

- [1] Associate Editor: *International Journal of Robotics and Automation*, a journal of the International Association of Science and Technology for Development (IASTED) published by ACTA Press, from March 1994 to Feb. 1998.
- [2] Associate Editor: *Intelligent Automation and Soft Computing*, the journal of the World Automation Congress (WAC) published by AutoSoft Press, from June 1994 to Dec. 1996.
- [3] Regional Editor: *Intelligent Automation and Soft Computing*, the journal of the World Automation Congress (WAC) published by AutoSoft Press, from Dec. 1996 to July 2008.
- [4] Co-Guest Editor: *Journal of Intelligent and Robotic Systems*, Special Issue on Kinematically Redundant Manipulators, Kluwer Academic Publishers, Vol. 19, No. 1, May 1997.
- [5] Associate Editor: *IEEE Transactions on Robotics and Automation*, from Dec. 1998 to Dec. 2003.
- [6] Editorial Board: *Pattern Analysis and Applications*, from Jan. 2002 to Jan. 2006.
- [7] Associate Editor: *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans*, from July 2003 to Dec. 2011.
- [8] Editorial Board: *Journal of Automation and Mobile Robotics*, from Feb. 2007 to .
- [9] Editorial Board: *Journal of Robotics*, from Sep. 2008 to Sep. 2014.

Conference Organizing Committees

- Conference: IEEE Int’l Conf. on Robotics and Automation (ICRA)
 Chair of Technical Program: 2002
 Co-Chair of Technical Program: 1997
 Member of Technical Program Committee: 1990, 1996-2006, 2008
- Conference: IEEE/RSJ Int’l Conf. on Intelligent Robots and Systems (IROS)
 General Co-Chair 2022
 Editor in Chief of Conference Editorial Board: 2017-2019
 Member of Technical Program Committee:
 1994, 1996, 1998, 1999, 2002-2004, 2007-2010
- Conference: IEEE Int’l Conf. on Systems, Man, and Cybernetics (SMC)
 Chair of Technical Program: 2021
 Member of Technical Program Committee: 2005-2011

- Conference: IEEE World Engineering Education Conference (EDUNINE)
Member of International Program Committee: 2017
- Conference: IEEE Int'l Heterogeneous Computing Workshop (HCW)
Member of Technical Program Committee: 2003-2015
- Conference: IEEE Int'l Parallel & Distributed Processing Symposium (IPDPS)
Member of Technical Program Committee: 2014
- Conference: Int'l Conf. on Advanced Engineering Computing and Applications in Sciences (ADVCOMP)
Member of Technical Program Committee: 2007-2016
- Conference: Int'l Conf. on Informatics in Control, Automation and Robotics (ICINCO)
Member of Program Committee: 2005-2021
- Conference: IEEE Conf. on Systems of Systems Engineering (ICSoSE)
Member of Program Committee: 2007-2009
- Conference: Int'l Symposium on Robotics and Automation (ISRA)
Member of Technical Program Committee: 1998, 2000, 2002, 2004, 2006
- Conference: IASTED Int'l Conf. on Robotics and Manufacturing
Member of Technical Program Committee: 1995-1998, 2001
- Conference: IASTED Int'l Conf. on Robotics and Applications
Member of International Program Committee: 2000, 2001, 2003-2007, 2010-2011
- Conference: IASTED Int'l Conf. on Robotics
Member of Technical Program Committee: 1999, 2010-2011
- Conference: Int'l Conf. on Advanced Robotics (ICAR)
Member of Technical Program Committee: 2001, 2003, 2005
- Conference: World Manufacturing Congress (WMC)
Member of Technical Program Committee: 1997, 1999, 2001
- Conference: World Automation Congress (WAC)
Chair for Robotics Program: ISORA 2000
Co-Chair for Robotics Program: ISORA 1998
Member of Robotics Program Committee: ISORA 2004
- Conference: Int'l Symp. on Robotics and Manufacturing (ISRAM)
Member of Technical Program Committee: 1994, 1996
- Conference: Workshop on Optimization Issues in Grid and Parallel Computing Environments (part of HPCS)
Member of Technical Program Committee: 2008, 2009
- Conference: American Nuclear Society 4th Topical Meeting on Robotics
Member of Technical Program Committee: 1991
- Conference: 1st IEEE Conf. on Control Applications
Member of Technical Program Committee: 1992
- Conference: 7th Int'l Conf. on Human-Computer Interaction
Member of Human-Computer Interaction Board: 1997
- Conference: Third Int'l ICSC Symp. on Intelligent Industrial Automation (IIA'99)
Member of Technical Program Committee: 1999
- Conference: 3rd IMACS Int'l Multiconference Circuits, Systems, Communications and Computers (CSCC'99)
Member of International Scientific Committee: 1999
- Conference: Int'l Symp. on Robotics (ISR 2000)
Member of International Program Committee: 2000
- Conference: Fourth Int'l ICSC Symp. on Soft Computing and Intelligent Systems for Industry
Member of Technical Program Committee: 2001

- Conference: IEEE Int'l Conf. on Industrial Technology (ICIT 2001)
Member of International Advisory Committee: 2001
- Conference: 2002 Japan-USA Symp. on Flexible Automation (2002JUSFA)
Int'l Conf. on New Technological Innovation for the 21st Century
Member of Organizing Committee: 2002
- Conference: Mosharaka Int'l Conf. on Control, Robotics and Automation (M-CRA 2007)
Member of Technical Program Committee: 2007
- Conference: Mosharaka Int'l Conf. on Communication and Information Technology (M-CIT 2007)
Member of Technical Program Committee: 2007
- Conference: IEEE Workshop on Advanced Robotics and its Social Impacts (ARSO 2007)
Member of International Advisory Committee: 2007
- Conference: Mosharaka Int'l Conf. on Communications,
Networking and Information Technology (MIC-CNIT 2008)
Member of Technical Program Committee: 2008
- Conference: Mosharaka Int'l Conf. on Communications,
Propagation and Electronics (MIC-CPE 2009)
Member of Technical Program Committee: 2009
- Conference: Mosharaka Int'l Conf. on Communications, Signals and Coding (MIC-CSC 2009)
Member of Technical Program Committee: 2009
- Conference: Int'l Conf. on Informatics on Applied Bionics and Biomechanics (ICABB-2010)
Member of Program Committee: 2010
- Conference: IEEE Int'l Conf. on Automation and Logistics (ICAL)
Member of Technical Program Committee: 2010-2012
- Conference: SICE Annual Conference (SICE 2010)
Member of Technical Program Committee: 2010
- Conference: IEEE Int'l Conf. on Intelligent Robotics, Automation and Applications (IRoA-11)
Member of Technical Program Committee: 2011
- Conference: Int'l Workshop on Heterogeneous Architectures and Computing (HAC 2012)
Member of Technical Program Committee: 2012
- Conference: Int'l Workshop on Extreme Scale Parallel Architectures and Systems (ESPAS)
Member of Technical Program Committee: 2012, 2014
- Conference: 9th IEEE Int'l Symp. on Mechatronics and its Applications (ISMA 2013)
Member of Technical Program Committee: 2013
- Conference: Int'l Conf. on Advanced Communications and Computation (INFOCOMP)
Member of Technical Program Committee: 2013-2016
- Conference: IEEE 57th Int'l Midwest Symp. on Circuits and Systems (MWSCAS 2014)
Member of Technical Program Committee: 2013

Professional Society Activities

- Organization: IEEE (Institute of Electrical and Electronics Engineers)
 Activity: Student Member, 1982 to 1987
 Member, 1987 to 2000
 Senior Member, 2000 to 2004
 Fellow, 2005 to present
 Awards Board: Medal for Environmental & Safety Technologies Comm., 2015-2018; Chair 2016, 2017
 Society Liaison for Region 5, 2016 to 2017
 Student Activity Chair for Region 5, 2018 to 2019
 IEEE TAB Finance Committee, member 2006, 2013-2015, 2017
 IEEE EAB Faculty Resource Committee, member 2018-2021
 IEEE EAB University Resource Committee, member 2019-
- Organization: IEEE Robotics and Automation Society
 Activity: Secretary, 1996 to 1999
 Constitution & Bylaws Comm., Chair 1996 to 1999; Member 2011
 Administrative Committee Member, 2000 to 2004, 2017-2019
 Vice President for Finances, 2004 to 2006, 2012 to 2015
 Publications Board Member, 2002 to 2006
 Financial Activities Board Member, 2002 to 2006
 Fellow Nominations Committee, Chair 2013; Member 2008, 2012
 Fellow Evaluations Committee Member, 2010, 2011
 Awards Nomination Committee, Chair 2014-2017
 Parliamentarian, 2010 to 2012
 Long Range Planning Committee, 2016 to 2017
 Nominations Committee, member, 2018 to 2019
- Organization: IEEE Systems, Man, and Cybernetics Society
 Activity: Board of Governors Member, 2011 to 2013
- Organization: IEEE Education Society
 Activity: Board of Governors Member, 2017 to 2019, 2021 to 2023
 Treasurer, 2021 to 2022
 Fellows Evaluations Committee Member, 2020, 2021
 Finance Committee Member, 2020-
- Organization: ECEDHA (Electrical & Computer Eng. Dept. Head's Assoc.)
 Activity: Secretary/Treasurer, 2016 to 2017
 Vice-President, 2017 to 2018
 President, 2018 to 2019
 Past-President, 2019 to 2020
 Board Member, 2016 to
 Western Region (WECEDHA) Co-Leader, 2016 to 2019
- Organization: ACM (Association for Computing Machinery)
 Activity: Member, 1983 to present
- Organization: SCS (Society for Computer Simulation)
 Activity: Member, 1988 to 1990
- Organization: CALICO (Computer Assisted Language Learning Consortium)
 Activity: Member, 1988 to present
- Organization: AIAA (American Institute of Aeronautics and Astronautics)
 Activity: Member, 1994 to 1995

Ph.D. Supervision Completed

<i>Name</i>	<i>Date</i>	<i>Thesis Title</i>
Q. Xue	May 1990	“Path Planning for Mobile Robots with Manipulator” (Co-Advisor: P. Sheu) (Publications: Journal [10],[26])
R. G. Roberts	May 1992	“The Design of Repeatable Control Strategies for Kinematically Redundant Manipulators” (Publications: Journal [8],[12],[14],[19]; Conference [11],[17],[18],[20],[23], [25],[28])
Y.-S. Kang	May 1994	“Knowledge Base Acquisition for a Japanese Language Intelligent Tutoring System” (Publications: Journal [17],[21],[24],[35]; Conference [19],[26]; Report [7])
C. L. Lewis	Aug. 1994	“Fault Tolerance for Kinematically Redundant Robotic Manipulators” (Publications: Journal [15],[27]; Conference [29],[30],[36],[50])
J. J. Fox	Dec. 1994	“Path Planning for Articulated Manipulators” (Publications: Journal [13], [36]; Conference [27],[37])
K. W. Khawaja	Dec. 1995	“Generation of Synthetic Images for Training Automated Inspection Algorithms” (Publications: Book Chapter [3]; Journal [20],[25]; Conference [31],[34],[41])
J. D. English	Dec. 1996	“Free-Swinging Failure Tolerance for Robotic Manipulators” (Publications: Journal [28],[30],[32],[34],[38]; Conference [39],[42],[44],[50])
K. N. Groom	Sept. 1997	“Real-Time Failure Tolerant Control of Kinematically Redundant Robotic Manipulators” (Co-Advisor: V. Balakrishnan) (Publications: Journal [31]; Conference [46],[47],[50])
M. Goel	Dec. 1998	“Tolerating Undetected Failures in Robotic Manipulators” (Co-Advisor: V. Balakrishnan) (Publications: Journal [40]; Conference [45],[50],[51],[55],[56])
C.-Y. Chang	Dec. 1999	“Eigenspace Methods for Correlated Images” (Publications: Journal [33],[50]; Conference [52],[54],[61])
T. D. Braun	May 2001	“Heterogeneous Distributed Computing: Off-line Mapping Heuristics for Independent Tasks and for Tasks with Dependencies, Priorities, Deadlines, and Multiple Versions” (Co-Advisor: H. J. Siegel) (Publications: Book Chapter [2],[4]; Journal [51],[58]; Conference [60], [61], [64], [68])

- S. Ali Aug. 2003 “Robust Resource Allocation in Dynamic Distributed Heterogeneous Computing Systems” (Co-Advisor: H. J. Siegel)
(Publications: Book Chapter [4]; Journal [39],[41],[54]; Conference [61], [63], [65], [66], [69], [73], [79])
- J.-K. Kim Aug. 2004 “Resource Management in Heterogeneous Computing Systems: Continuously Running Applications, Tasks with Priorities and Deadlines, and Power Constrained Mobile Devices” (Co-Advisor: H. J. Siegel)
(Publications: Journal [39],[41],[51],[54],[59]; Conference [63], [65], [66], [68], [69], [79])
- K. Saitwal Aug. 2006 “Fast Eigenspace Decomposition of Correlated Images Using Their Spatial and Temporal Properties”
(Publications: Journal [46],[50],[57]; Conference [67],[71],[76],[81],[86],[91])
- J. Smith Aug. 2008 “Robust Resource Allocation in Heterogeneous Parallel and Distributed Computing Systems” (Co-Advisor: H. J. Siegel)
(Publications: Book Chapter [6]; Journal [44],[52],[55],[64],[74],[76]; Conference [92],[93],[94],[95],[98],[99], [101],[106],[111],[112],[121])
- V. Shestak Dec. 2008 “Robust Resource Allocation Methods for QoS-Constrained Parallel and Distributed Computing Systems” (Co-Advisor: H. J. Siegel)
(Publications: Journal [48],[53],[55],[68]; Conference [84],[85],[88],[89],[90] [92],[95],[98],[99])
- R. Hoover Aug. 2009 “Pose Estimation of Spherically Correlated Images Using Eigenspace Decomposition in Conjunction with Spectral Theory” (Publications: Journal [60],[61],[79]; Conference [103],[108],[109],[110],[114], [122],[123])
- L. Briceno Aug. 2010 “Resource Allocation for Heterogeneous Computing Systems: Performance Criteria, Robustness Measures, Optimization Heuristics, and Properties” (Co-Advisor: H. J. Siegel)
(Publications: Journal [62],[66],[67],[74],[75],[81]; Conference [99],[100],[107],[117],[126],[137],[138],[140])
- P. Maxwell May 2012 “Robust Resource Allocation Heuristics for Military Village Search Missions” (Co-Advisor: H. J. Siegel)
(Publications: Journal [70],[74],[78]; Conference [119],[126],[127],[130],[139])

- A. Al-Qawasmeh Aug. 2012 “Heterogeneous Computing Environment Characterization and Thermal-Aware Scheduling Strategies to Optimize Data Center Power Consumption”
(Co-Advisor: H. J. Siegel)
(Publications: Journal [63],[72],[74];
Conference [120],[124],[126],[136],[142])
- D. Brake Dec. 2012 “Homotopy Continuation Methods, Intrinsic Localized Modes, and Cooperative Robotic Workspaces”
(Co-Advisor: V. Putkaradze)
(Publications: Journal ;)
Conference [132],[171])
- B. Khemka Aug. 2014 “Resource Management in Heterogeneous Computing Systems With Tasks of Varying Importance”
(Co-Advisor: H. J. Siegel)
(Publications: Journal [67],[80],[81],[82];)
Conference [137],[138],[140],[144],[148],[157])
- K. Ben-Gharbia Dec. 2014 “Kinematic Design of Redundant Robotic Manipulators that are Optimally Fault Tolerant”
(Publications: Journal [73],[77],[79],[87];)
Conference [131],[135],[141],[151],[163],[165])
- R. Friese Aug. 2015 “Resource Management for Heterogeneous Computing Systems: Utility Maximization, Energy-Aware Scheduling, and Multi-Objective Optimization”
(Co-Advisor: H. J. Siegel)
(Publications: Book Chapter [9]; Journal [70],[80],[81],[85],[86]; Conference [130],[139],[145],[148],[150],[152],[157],[161],[166],[169])
- T. Hansen Aug. 2015 “Resource Allocation Optimization in the Smart Grid and High-Performance Computing”
(Co-Advisor: H. J. Siegel)
(Publications: Book Chapter [10];
Journal [83],[84],[88],[92];
Conference [143],[146],[158],[167])
- K. Tarplee Aug. 2015 “Highly Scalable Algorithms For Scheduling Tasks and Provisioning Machines on Heterogeneous Computing Systems”
(Publications: Book Chapter [9]; Journal [85],[86],[93];
Conference [152],[159])
- C. Eaton May 2018 “Autonomous UAV Control and Testing Methods Utilizing Partially Observable Markov Decision Processes ”
(Co-Advisor: E.K.P.Chong)
(Publications: Journal [89],[103];
Conference [190],[196])
- B. Xie Aug. 2019 “Kinematic Design and Motion Planning of Fault Tolerant Robots with Locked Joint Failures”
(Publications: Journal [97],[99])

M.S.E.E. Supervision Completed

<i>Name</i>	<i>Date</i>	<i>Thesis Title</i>
K.-W. Leung	May 1990	“The Nihongo Tutorial System for Learning Technical Japanese” (Publications: Journal [9]; Conference [15], [22]; Reports [3],[4],[5])
C. L. Lewis	Aug. 1990	“On-Line Trajectory Generation for Robots Cooperating to Perform an Assembly Task” (Publications: Conference [13])
J. M. Reagin	May 1991	“An Algorithm for the Parallel Computation of the Kinematic Equations of Motion for a Robot Manipulator” (Publications: Journal [16]; Conference [24])
T. D. Braun	Dec. 1997	“Parallel Algorithms for Singular Value Decomposition as Applied to Failure Tolerant Manipulators” (Co-Advisor: H. J. Siegel) (Publications: Journal [37]; Conference [53])
J. A. Kirkland	May 2004	“The Impact of Social Robots on Pedestrian Dynamics” (Publications: Conference [70],[78])
A. Mehta	May 2006	“Robust Resource Allocation in a Dynamic Heterogeneous Environment using Deterministic Execution Time Estimates” (Co-Advisor: H. J. Siegel) (Publications: Journal [48]; Conference [84],[88],[93],[94])
M. Oltikar	May 2006	“Heuristics for Robust Resource Allocation in a Weather Data Processing System” (Co-Advisor: H. J. Siegel) (Publications: Journal [48], [62]; Conference [84],[88],[96],[100])
R. Jamisola	Dec. 2006	“Failure Tolerant Path Planning for Kinematically Redundant Manipulators” (Publications: Journal [49]; Conference [72],[75],[77])

M.S. and Ph.D. Thesis Students Currently Being Supervised

A. Almarkhi	Ph.D.	(Publications: Journal [104],[109] ; Conference [204])
A. Bader	Ph.D.	(Publications: Journal [106],[111]; Conference)
M. Emmons	Ph.D.	(Co-Advisor: E. K. P. Chong) (Publications: Journal [107]; Conference [195])
M. Greer	Ph.D.	(Publications: Journal; Conference)
C. Guo	Ph.D.	(Publications: Journal; Conference)
B. Lickiss	Ph.D.	(Publications: Journal ; Conference)

Courses Developed

EE660W (1 cr. hr.)	Computer Graphic Simulation and Visualization (Spring 1990)
EE628 (3 cr. hrs.)	Computer Graphic Simulation and Visualization (Spring 1991)
EE660U (1 cr. hr.)	Image Synthesis: Ray Tracing (Spring 1994)
EE660V (1 cr. hr.)	Image Synthesis: Aliasing and Texture (Spring 1994)
EE660W (1 cr. hr.)	Image Synthesis: Advanced Rendering (Spring 1994)
EE576 (3 cr. hr.)	Image Synthesis (Fall 1995)
EE495T (3 cr. hrs.)	Introduction to Japanese Information Processing (Fall 1994)
EE402 (3 cr. hrs.)	EE Design Projects (Fall 1997) (with J. A. Nyenhuis, L. L. Ogborn, and B. F. Robinson)
ECE555 (3 cr. hrs.)	Robot Motion Planning (Fall 2002)
ECE666 (3 cr. hrs.)	Topics in Robotics (Spring 2003)
ECE501 (3 cr. hrs.)	Foundations of Systems Engineering (Fall 2008) (with Ron Sega)
ECE455 (3 cr. hrs.)	Introduction to Robot Simulation and Programming (Spring 2015)
ECE555 (3 cr. hrs.)	Advanced Robotics (Spring 2016)

Courses “In Charge Of”

EE266	– Digital Logic Design (1998 to 2000)
EE267	– Digital Logic Design Laboratory (1998 to 2000)
EE365	– Introduction to the Design of Digital Computers (1997 to 1998)
EE466	– Introduction to the Design of Digital Computers (1989 to 1996)
EE576	– Image Synthesis (1995 to 2001)
EE628	– Computer Graphic Simulation and Visualization (1991 to 2001)
ECE555	– Robot Motion Planning (2002 to present)
ECE666	– Topics in Robotics (2003 to present)
ECE501	– Foundations of Systems Engineering (2008 to 2015)

Purdue Electrical Engineering Industrial Institute (PEEII) Workshops

Fall 88:	Presentation “Computer Graphic Simulation of Motion Planning for Robotic Systems” Anthony A. Maciejewski
Fall 92:	Poster “Fault Tolerance for Robotic Manipulators” Christopher L. Lewis and Anthony A. Maciejewski
Spring 93:	Organizer for theme “Robotics Research at Purdue” Presentation “Applications of Computer Graphics for Robotics and Automation” Anthony A. Maciejewski Presentation “Path Planning for Articulated Robots” John J. Fox (presenter) and Anthony A. Maciejewski Presentation “Generation of Synthetic Images for Training Assembly Error Detection Algorithms” Khalid W. Khawaja (presenter) and Anthony A. Maciejewski

- Spring 94: Poster
 “A CAD Driven Multiscale Approach to Automated Inspection”
 Daniel Tretter, Khalid W. Khawaja,
 Charles A. Bouman, and Anthony A. Maciejewski
- Poster
 “The Design of Failure Tolerant Robots”
 Christopher L. Lewis, James D. English,
 Maithreyi Ramabadran, and Anthony A. Maciejewski
- Spring 95: Organizer for theme
 “Engineering Our Future”
- Spring 97: Poster
 “Locked-Joint Failures in Robotic Manipulators”
 Kenneth Groom, Anthony A. Maciejewski,
 and Venkataramanan Balakrishnan
- Poster
 “Undetected Failures in Robotic Manipulators”
 Manish Goel, Anthony A. Maciejewski,
 and Venkataramanan Balakrishnan
- Spring 98: Presentation
 “Failure Tolerant Operation of Articulated Machinery”
 Anthony A. Maciejewski

University Committee Activities

- Committee: Study Abroad Program at Nanzan University, Japan
 Activity: Member of Selection Committee, 1991, 1992
- Committee: Committee on Duplication in CS and ECE Curriculum and Courses
 Activity: Member, 1995
- Committee: International Educational Programs Committee
 Activity: Member, 1995 to 1998
- Committee: Campus Grievance Steering Committee
 Activity: Member, 1998 to 2000
- Committee: Industrial Research Activities Committee
 Activity: Member, 1999 to 2001
- Committee: Center for Image Analysis and Data Visualization
 Activity: Advisory Board, 1999 to 2001
- Committee: Associate Dean of Academic Affairs Search Committee
 Activity: Member, 2002
- Committee: Chemical and Biological Engineering Head Search Committee
 Activity: Chair, 2006 to 2007
- Committee: Faculty Council Committee on Scholarship,
 Research, and Graduate Education
 Activity: Chair, 2008 to 2009; Member, 2007 to 2010
- Committee: College of Engineering Diversity Committee
 Activity: Member, 2007 to 2009
- Committee: Department of Physics University Review Committee
 Activity: Member, 2008
- Committee: Honorary Degree Committee
 Activity: Member, 2008 to 2009
- Committee: Vice-President for Research’s Strategic
 Plan Area Review Committee (SPARC)
 Activity: Member, 2008 to 2010
- Committee: Department of Statistics University Review Committee

Activity: Member, 2009
 Committee: Responsible Conduct of Research Training
 Working Group (for NSF compliance)
 Activity: Member, 2009
 Committee: Faculty Council Committee on Strategic and Financial Planning
 Activity: Chair, 2011 to 2012; Member, 2009 to 2012
 Committee: Vice-President for Diversity's Strategic Plan Area Review
 Committee (SPARC) and Internal Advisory Committee
 Activity: Member, 2010 to
 Committee: Department of Computer and Information Systems
 University Review Committee
 Activity: Member, 2012
 Committee: Monfort Professor Selection Committee
 Activity: Member, 2012
 Committee: Department of Bioagricultural Science and
 Pest Management University Review Committee
 Activity: Member, 2014
 Committee: Department of Mathematics University Review Committee
 Activity: Member, 2015

School Committee Activities at Purdue University

Committee: Automatic Control Area Committee
 Activity: Member, 1988 to 2001
 Chairman, 1990 to 1992, 1999 to 2001
 Committee: Computer Engineering Area Committee
 Activity: Member, 1988 to 2001
 Committee: Computer Engineering Area Seminar Series
 Activity: Co-Organizer, 1989 to 1990
 Committee: Graduate Committee
 Activity: Member, 1989 to 1992, 1998 to 2001
 Interim Chairman, Spring 2000
 Committee: Purdue Chapter of Eta Kappa Nu Advisory Committee
 Activity: Member, 1989 to 2001
 Committee: B.S. in Computer Engineering Degree Program
 Activity: Member, 1991 to 1992
 Committee: Curriculum Committee
 Activity: Member, 1993 to 1999
 Committee: Computer Engineering Area Seminar Series
 Activity: Co-Organizer, 1995 to 1996
 Committee: ECE School Head Search Committee
 Activity: Member, 1995 to 1996
 Committee: Computer Engineering Area Chaired Professorship Search Committee
 Activity: Member, 1995 to 1999
 Committee: ABET Design Criteria Committee
 Activity: Member, 1996 to 1997
 Committee: Computer Engineering Area Faculty Recruiting Committee
 Activity: Member, 1996 to 2001
 Committee: National Technical University (NTU)
 Activity: Purdue EE representative, 1996 to 2001
 Committee: ECE School Head Evaluation Committee
 Activity: Member, 1999 to 2000

Research Book Contributions

- [1] C. A. Klein and A. A. Maciejewski, “Simulators, Graphic,” in the *International Encyclopedia of Robotics: Applications and Automation*, John Wiley and Sons, New York, pp. 1599–1608, 1988. (Also included in the *Concise International Encyclopedia of Robotics: Applications and Automation*, John Wiley and Sons, New York, pp. 923–929, 1990.)
- [2] M. Girard and A. A. Maciejewski, “Computational modeling for the computer animation of legged figures,” in *Seminal Graphics: Pioneering Efforts that Shaped the Field*, ACM Press, pp. 255-262, 1998. (Reprinted from *Computer Graphics*, Vol. 19, No. 3, pp. 263–270, July 1985. Proceedings of the ACM SIGGRAPH conference. Conference item [1] below.)
- [3] M. D. Theys, T. D. Braun, Yu-Kwong Kwok, H. J. Siegel, and A. A. Maciejewski, “Mapping of Tasks onto Distributed Heterogeneous Computing Systems Using a Genetic Algorithm Approach,” in *Solutions to Parallel and Distributed Computing Problems: Lessons from Biological Sciences*, Albert Y. Zomaya (ed.), John Wiley & Sons, New York, NY, 2001, pp. 135-178.
- [4] K. W. Khawaja, D. Tretter, A. A. Maciejewski and C. A. Bouman, ‘Automated Visual Assembly Inspection,’ in *Expert Systems: The Technology of Knowledge Management and Decision Making for the 21st Century*, C. T. Leondes, (ed.), Academic Press, Vol. 3, 2002, pp. 661-700.
- [5] S. Ali, T. D. Braun, H. J. Siegel, A. A. Maciejewski, N. Beck, L. Boloni, M. Maheswaran, A. I. Reuther, J. P. Robertson, M. D. Theys, and B. Yao, “Characterizing resource allocation heuristics for heterogeneous computing systems,” in *Computer Architecture*, A. R. Hurson, ed., vol. 63 of *Advances in Computers*, Elsevier, New York, NY, pp. 93-128, 2005.
- [6] S. Ali, J.-K. Kim, Y. Yu, S. B. Gundala, S. Gertphol, H. J. Siegel, A. A. Maciejewski, and V. Prasanna, “Utilization-based techniques for statically mapping heterogeneous applications onto the HiPer-D heterogeneous computing system,” in *Algorithms and Tools for Parallel Computing On Heterogeneous Clusters*, F. Desprez, E. Fleury, A. Kalinov, and A. Lastovetsky, eds., Nova Publishers, pp. 79-96, 2007. (Reprinted from *Parallel and Distributed Computing Practices*, Special Issue on Parallel Numeric Algorithms on Faster Computers, Vol. 5, No. 4, Dec. 2002. Journal item [39] below).
- [7] S. Ali, A. A. Maciejewski, and H. J. Siegel, “Perspectives on Robust Resource Allocation for Heterogeneous Parallel Systems,” in *Handbook of Parallel Computing: Models, Algorithms, and Applications*, edited by S. Rajasekaran and J. Reif, Chapman & Hall/CRC Press, Boca Raton, FL, pp. 41.1-41.30, 2008.
- [8] J. Smith, H. J. Siegel, and A. A. Maciejewski, “Robust Resource Allocation in Heterogeneous Parallel and Distributed Computing Systems,” in *Wiley Encyclopedia of Computer Engineering*, edited by Benjamin W. Wah, John Wiley & Sons, Hoboken, NJ, Vol. 4, pp. 2461-2470, 2009.
- [9] K. M. Tarplee, R. Friese, A. A. Maciejewski, and H. J. Siegel, “Efficient and Scalable Pareto Front Generation for Energy and Makespan in Heterogeneous Computing Systems,” *Recent Advances in Computational Optimization*, Studies in Computational Intelligence Series, Vol. 580, edited by Stefka Fidanova, Springer, pp. 161-180, 2014.
- [10] T. M. Hansen, R. Roche, S. Suryanarayanan, A. A. Maciejewski, H. J. Siegel, and E. K. P. Chong, “Customer modeling and pricing-mechanisms for demand response in smart electric distribution grids,” *Cyber-Physical-Social Systems and Constructs in Electrical Power Engineering*, edited by S. Suryanarayanan, R. Roche, and T. M. Hansen, The Institution of Engineering and Technology (IET), London, UK, ch. 6, pp. 135 160, 2016.
- [11] F. Ehlers-Zavala and A. A. Maciejewski, “Engineering Pathways in a U.S. Public Institution of Higher Education: A Strategy for Fostering Student Diversity,” *Strategies for Increasing Diversity in Engineering Majors and Careers*, edited by M. Gray and K. D Thomas, A volume in the Advances in Higher Education and Professional Development (AHEPD) book series, IGI Global, ch. 11, pp. 236 259, 2017.
- [12] B. M. Notaros, R. McCullough, S. B. Manic, and A. A. Maciejewski, “Computer-assisted learning of electromagnetics through MATLAB programming of electromagnetic fields in the creativity thread of an integrated approach to electrical engineering education,” Chapter in “Teaching and learning electromagnetics in 2020”, Editors: S. Krishnasamy and K. Warnick, IEEE Press, 2020 (Reprinted from *Computer Applications in Engineering Education*, Vol. 27, pp. 271-287, 2018. Journal item [102] below.)

Serial Journal Articles

- [1] A. A. Maciejewski and C. A. Klein, "Obstacle avoidance for kinematically redundant manipulators in dynamically varying environments," *International Journal of Robotics Research*, Vol. 4, No. 3, pp. 109–117, Fall 1985.
- [2] A. A. Maciejewski and C. A. Klein, "SAM: Animation software for simulating articulated motion," *Computers and Graphics*, Vol. 9, No. 4, pp. 383–391, 1985.
- [3] A. A. Maciejewski, "Computationally efficient ray tracing of parametric surfaces," *Jyohou Syori Gakkai Kenkyuu Houkoku*, Information Processing Society of Japan, Vol. 86, No. 43, pp. 1–9, July 1986.
- [4] A. A. Maciejewski and C. A. Klein, "Numerical filtering for the operation of robotic manipulators through kinematically singular configurations," *Journal of Robotic Systems*, Vol. 5, No. 6, pp. 527–552, Dec. 1988.
- [5] A. A. Maciejewski and C. A. Klein, "The singular value decomposition: Computation and applications to robotics," *International Journal of Robotics Research*, Vol. 8, No. 6, pp. 63–79, Dec. 1989.
- [6] A. A. Maciejewski, "Dealing with the ill-conditioned equations of motion for articulated figures," *IEEE Computer Graphics and Applications*, Vol. 10, No. 3, pp. 63–71, May 1990.
- [7] A. A. Maciejewski, "Kinetic limitations on the use of redundancy in robotic manipulators," *IEEE Transactions on Robotics and Automation*, Vol. 7, No. 2, pp. 205–210, April 1991.
- [8] R. G. Roberts and A. A. Maciejewski, "Nearest optimal repeatable control strategies for kinematically redundant manipulators," *IEEE Transactions on Robotics and Automation*, Vol. 8, No. 3, pp. 327–337, June 1992.
- [9] A. A. Maciejewski and N. K. Leung, "The Nihongo Tutorial System: An intelligent tutoring system for technical Japanese language instruction," *Computer Assisted Language Instruction Consortium (CALICO) Journal*, Vol. 9, No. 3, pp. 5–25, Spring 1992.
- [10] Q. Xue, A. A. Maciejewski, and P.C-Y. Sheu, "Determining the collision-free joint space graph for two cooperating manipulators," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 23, No. 1, pp. 285–294, Jan./Feb. 1993.
- [11] W. G. Nation, A. A. Maciejewski, and H. J. Siegel, "A methodology for exploiting concurrency among independent tasks in partitionable parallel processing systems," *Journal of Parallel and Distributed Computing*, Special Issue on Performance of Supercomputers, Vol. 19, No. 3, pp. 271–278, 1993.
- [12] R. G. Roberts and A. A. Maciejewski, "Repeatable generalized inverse control strategies for kinematically redundant manipulators," *IEEE Transactions on Automatic Control*, Vol. 38, No. 5, pp. 689–699, May 1993.
- [13] A. A. Maciejewski and J. J. Fox, "Path planning and the topology of configuration space," *IEEE Transactions on Robotics and Automation*, Vol. 9, No. 4, pp. 444–456, Aug. 1993.
- [14] R. G. Roberts and A. A. Maciejewski, "Singularities, stable surfaces, and the repeatable behavior of kinematically redundant manipulators," *International Journal of Robotics Research*, Vol. 13, No. 1, pp. 70–81, Feb. 1994.
- [15] C. L. Lewis and A. A. Maciejewski, "Dexterity optimization of kinematically redundant manipulators in the presence of failures," *Computers and Electrical Engineering*, Special Issue on Fault Tolerant Robotics, Vol. 20, No. 3, pp. 273–288, May 1994.
- [16] A. A. Maciejewski and J. M. Reagin, "A parallel algorithm and architecture for the control of kinematically redundant manipulators," *IEEE Transactions on Robotics and Automation*, Vol. 10, No. 4, pp. 405–414, Aug. 1994.
- [17] A. A. Maciejewski and Y.-S. Kang, "A student model of katakana reading proficiency for a Japanese language intelligent tutoring system," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 24, No. 9, pp. 1347–1357, Sept. 1994.
- [18] A. A. Maciejewski and R. G. Roberts, "On the existence of an optimally failure tolerant 7R manipulator Jacobian," *Applied Mathematics and Computer Science*, Special Issue on Mathematical Methods in Robotics, Vol. 5, No. 2, pp. 343–357, 1995.

- [19] R. G. Roberts and A. A. Maciejewski, "Calculation of repeatable control strategies for kinematically redundant manipulators," *Journal of Intelligent and Robotic Systems*, Special Issue on Parallel and Redundant Robots, Vol. 14, No. 1, pp. 105-130, Sept. 1995.
- [20] D. Tretter, C. A. Bouman, K. W. Khawaja, and A. A. Maciejewski, "A multiscale stochastic image model for automated inspection," *IEEE Transactions on Image Processing*, Vol. 4, No. 12, pp. 1641-1654, Dec. 1995.
- [21] Y.-S. Kang and A. A. Maciejewski, "An algorithm for domain knowledge acquisition in an intelligent tutoring system: Japanese transliteration rules," *System*, Vol. 24, No. 1, pp. 65-81, 1996.
- [22] A. Sato and A. A. Maciejewski, "A virtual manufacturing workcell for automated assembly," *Intelligent Automation and Soft Computing*, Vol. 2, No. 1, pp. 1-14, 1996.
- [23] R. G. Roberts and A. A. Maciejewski, "A local measure of fault tolerance for kinematically redundant manipulators," *IEEE Transactions on Robotics and Automation*, Vol. 12, No. 4, pp. 543-553, Aug. 1996.
- [24] Y.-S. Kang and A. A. Maciejewski, "An algorithm for generating a dictionary of Japanese scientific terms," *Literary and Linguistic Computing*, Vol. 11, No. 2, pp. 77-87, June 1996.
- [25] K. W. Khawaja, A. A. Maciejewski, D. Tretter and C. A. Bouman, "A multiscale assembly inspection algorithm," *IEEE Robotics and Automation Magazine*, Vol. 3, No. 2, pp. 15-22, June 1996.
- [26] Q. Xue, P. C-Y. Sheu, A. A. Maciejewski and S. Y. P. Chien, "Planning of collision-free paths for a reconfigurable dual manipulator equipped mobile robot," *Journal of Intelligent and Robotic Systems*, Vol. 17, No. 3, pp. 223-242, Nov. 1996.
- [27] C. L. Lewis and A. A. Maciejewski, "Fault tolerant operation of kinematically redundant manipulators for locked joint failures," *IEEE Transactions on Robotics and Automation*, Vol. 13, No. 4, pp. 622-629, Aug. 1997.
- [28] J. D. English and A. A. Maciejewski, "Robotic workspaces after a free-swinging failure," *Journal of Intelligent and Robotic Systems*, Special Issue on Redundant Manipulators, Vol. 19, No. 1, pp. 55-72, May 1997.
- [29] L. Wang, H. J. Siegel, V. P. Roychowdhury, and A. A. Maciejewski, "Task matching and scheduling in heterogeneous computing environments using a genetic-algorithm-based approach," *Journal of Parallel and Distributed Computing*, Special Issue on Parallel Evolutionary Computing, Vol. 47, No. 1, pp. 8-22, Nov. 25, 1997.
- [30] J. D. English and A. A. Maciejewski, "Fault tolerance for kinematically redundant manipulators: Anticipating free-swinging joint failures," *IEEE Transactions on Robotics and Automation*, Vol. 14, No. 4, pp. 566-575, Aug. 1998.
- [31] K. N. Groom, A. A. Maciejewski, and V. Balakrishnan, "Real-time failure tolerant control of kinematically redundant manipulators," *IEEE Transactions on Robotics and Automation*, Vol. 15, No. 6, pp. 1109-1116, Dec. 1999.
- [32] J. D. English and A. A. Maciejewski, "On the implementation of velocity control for kinematically redundant manipulators," *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, Vol. 30, No. 3, pp. 233-237, May 2000.
- [33] C-Y. Chang, A. A. Maciejewski, and V. Balakrishnan, "Fast Eigenspace Decomposition of Correlated Images," *IEEE Transactions on Image Processing*, Vol. 9, No. 11, pp. 1937-1949, Nov. 2000.
- [34] J. D. English and A. A. Maciejewski, "Measuring and reducing the Euclidean-space measures of robotic joint failures," *IEEE Transactions on Robotics and Automation*, Vol. 16, No. 1, pp. 20-28, Feb. 2000.
- [35] Y.-S. Kang and A. A. Maciejewski, "A student model of technical Japanese reading proficiency for an intelligent tutoring system," *Computer Assisted Language Instruction Consortium (CALICO) Journal*, Vol. 18, No. 1, pp. 9-40, 2000. (Best Paper Award)
- [36] J. J. Fox and A. A. Maciejewski, "Utilizing the topology of configuration space in real-time multiple manipulator path planning," *International Journal of Robotics and Automation*, Vol. 16, No. 1, pp. 1-13, 2001.
- [37] T. D. Braun, R. Ulrey, A. A. Maciejewski, and H. J. Siegel, "Parallel Approaches for Singular Value Decomposition as Applied to Robotic Manipulator Jacobians," *International Journal of Parallel Programming*, Vol. 30, No. 1, pp. 1-35, 2002.

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- [188] B. M. Notaros, R. McCullough, P. S. Athalye, and A. A. Maciejewski, "WIP: Using Conceptual Questions to Assess Class Pre-Work and Enhance Student Engagement in Electromagnetics Learning Studio Modules," *American Association of Engineering Education (ASEE) 124th Annual Conference and Exposition*, Columbus, OH, June 25-28, 2017.
- [189] B. M. Notaros, R. McCullough, S. B. Manic, and A. A. Maciejewski, "WIP: Introducing MATLAB-Based Instruction and Learning in the Creativity Thread of a Novel Integrated Approach to ECE Education," *American Association of Engineering Education (ASEE) 124th Annual Conference and Exposition*, Columbus, OH, June 25-28, 2017.
- [190] C. M. Eaton, E. K. P. Chong, and A. A. Maciejewski, "Robust UAV Path Planning using POMDP with Limited FOV Sensor," *IEEE Conference on Control Technology and Applications*, pp. 1530-1535, Kohala Coast, HI, Aug. 27-30, 2017.
- [191] B. Celik, S. Suryanarayanan, A. A. Maciejewski, H. J. Siegel, S. Sharma, and R. Roche, "A Comparison of Three Parallel Processing Methods for a Resource Allocation Problem in the Smart Grid," *North American Power Symposium (NAPS)*, 6 pages, Morgantown, WV, Sept. 17-19, 2017.
- [192] S. Sharma, V. Durvasulu, B. Celik, S. Suryanarayanan, T. Hansen, A. A. Maciejewski, and H. J. Siegel, "Metrics-Based Assessment of Sustainability in Demand Response," *15th IEEE International Conference on Smart City (SmartCity2017)*, Bangkok, Thailand, Dec. 18-20, 2017. (Winner of the Best Paper Award)
- [193] D. Dauwe, R. Jhaveri, S. Pasricha, A. A. Maciejewski, and H. J. Siegel, "Optimizing Checkpoint Intervals for Reduced Energy Use in Exascale Systems," *8th International Green and Sustainable Computing Conference, Workshop on Energy Efficient Networks of Computers*, 8 pages, Orlando, FL, Oct. 23-25, 2017.
- [194] D. Dauwe, S. Pasricha, A. A. Maciejewski, and H. J. Siegel, "An Analysis of Multilevel Checkpoint Performance Models," *20th Workshop on Advances in Parallel and Distributed Computational Models (APDCM 2018)*, pp. 783-792, Vancouver, BC, May 21, 2018.
- [195] M. Emmons, A. A. Maciejewski, and E. K. P. Chong, "Modelling Emergent Swarm Behavior Using Continuum Limits for Environmental Mapping," *14th IEEE International Conference on Control & Automation (ICCA 2018)*, pp. 86-93, Anchorage, AK, June 12-15, 2018.
- [196] A. A. Maciejewski, T. Chen, Z. Byrne, M. D. Reese, A. M. Leland, B. M. Notaros, A. Pezeshki, S. Roy, L. B. Sample-McMeeking, and T. J. Siller, "Throwing Away the Course-Centric Teaching Model to Enable Change," *American Association of Engineering Education (ASEE) 125th Annual Conference and Exposition*, Salt Lake City, UT, June 24-27, 2018.
- [197] T. J. Siller, A. A. Maciejewski, A. M. Leland, T. Chen, B. M. Notaros, S. Roy, and A. C. Hicks, "Using Student Video Presentations to Develop Communication Skills," *American Association of Engineering Education (ASEE) 125th Annual Conference and Exposition*, Salt Lake City, UT, June 24-27, 2018.
- [198] M. Ghorbani, A. A. Maciejewski, T. J. Siller, E.K.P Chong, P.Omur-Ozbek, and R. A. Atadero, "Incorporating Ethics Education into an Electrical and Computer Engineering Undergraduate Program," *American Association of Engineering Education (ASEE) 125th Annual Conference and Exposition*, Salt Lake City, UT, June 24-27, 2018.
- [199] S. Roy, B. M. Notaros, A. Pezeshki, T. Chen, T. J. Siller, A. A. Maciejewski, and L. B. Sample-McMeeking, "Active Learning Model as a Way to Prepare Students for Knowledge Integration," *American Association of Engineering Education (ASEE) 125th Annual Conference and Exposition*, Salt Lake City, UT, June 24-27, 2018.
- [200] C. M. Eaton, L. W. Krakow, E. K. P. Chong, and A. A. Maciejewski, "Fuel Efficient Moving Target Tracking using POMDP with Limited Field of View Sensor," *IEEE Conference on Control Technology and Applications*, pp. 331-336, Copenhagen, Denmark, Aug. 21-24, 2018.
- [201] F. Ehlers-Zavala, M. Correa and A. A. Maciejewski, "Mental imagery experienced by diverse learners in a graduate engineering course and its impact on reading comprehension," presented at *American Association for Applied Linguistics (AAAL) Annual Conference*, Atlanta, GA, March 9-12, 2019.
- [202] Y. Zheng, S. Suryanarayanan, A. A. Maciejewski, H. J. Siegel, and B. Celik, "An Application of Machine Learning for a Smart Grid Resource Allocation Problem," *13th IEEE PES PowerTech Conference*, 6 pages, Milan, Italy, June 23-27, 2019.

- [203] K. Cave, Z. Byrne, T. J. Siller, and A. A. Maciejewski, “What Engineering Students Think About How They Learn Professional Skills,” *American Association of Engineering Education (ASEE) 126th Annual Conference and Exposition*, Tampa, FL, June 16-19, 2019.
- [204] A. Almarkhi, and A. A. Maciejewski, “Singularity Analysis for Redundant Manipulators of Arbitrary Kinematic Structures,” *International Conference on Informatics in Control, Automation and Robotics (ICINCO 2019)*, pp. 42-49, Prague, Czech Republic, July 29-31, 2019.
- [205] S. Pasricha, N. Hogade, H. J. Siegel, and A. A. Maciejewski, “Green Computing with Geo-Distributed Heterogeneous Data Centers,” *IEEE International Green and Sustainable Computing Conference (IGSC)*, 6 pp., Alexandria, VA, Oct. 2019.
- [206] D. Machovec, J. Crowder, H. J. Siegel, S. Pasricha, and A. A. Maciejewski, “Dynamic Heuristics for Surveillance Mission Scheduling with Unmanned Aerial Vehicles in Heterogeneous Environments,” accepted to appear in *The 22nd Int’l Conf on Artificial Intelligence (ICAI’20)*, pp. XXX-XXX, Las Vegas, NV, July 27-30, 2020.

Published Book Reviews

- [1] *Robotics and Remote Systems for Hazardous Environments*, edited by Mohammad Jamshidi and Patrick J. Eicker, Prentice-Hall, 1993, in *IEEE Transactions on Robotics and Automation*, vol. 10, no. 4, pp. 572-573, Aug. 1994.

Tutorials, Workshops, and Panels

- [1] Tutorial Speaker: “Redundancy: Performance indices, singularity avoidance, and algorithmic implementations,” at *1992 IEEE International Conference on Robotics and Automation*, Nice, France, May 10–15, 1992.
- [2] Tutorial Speaker: “Automatic generation of vision recognition programs from CAD models,” at *Flexible Parts Feeding for Automated Handling and Assembly Workshop*, sponsored by Automated Imaging Association (AIA) and the Robotics Industries Association (RIA), Cincinnati, OH, Oct. 25-27, 1994.
- [3] Workshop Organizer and Speaker: “Fault tolerant robots,” at *1997 IEEE International Conference on Robotics and Automation*, Albuquerque, NM, April 20-25, 1997.
- [4] Tutorial: “Kinematically redundant robots: The promise of human-like dexterity,” presented at WorldComp 2011, Las Vegas, NV, July 19, 2011.
- [5] Tutorial: “Redundant robots: The promise of human-like dexterity,” presented at IASTED Int’l Conf. on Robotics, Pittsburgh, PA, Nov. 9, 2011.
- [6] Panel: E. L. Ingram (moderator), E. Berger, M. Koretsky, S. Lord, A. A. Maciejewski, and M. Maher, “Changing Your Department: Examples from Revolutionizing Engineering Departments,” *Frontiers in Education*, Erie, PA, Oct. 12-15, 2016.

Invited Lectures

- [1] “Obstacle avoidance for redundant manipulators,” presented at Hitachi Ltd., Hitachi City, Japan, May 14, 1986.
- [2] “Japan and the current state of automated manufacturing,” presented at MTD Products Inc., Valley City, OH, Dec. 6, 1986.
- [3] “Future trends in automated manufacturing,” presented at MTD Products Inc., Huron, OH, July 11, 1988.
- [4] “Computer graphic simulations for analyzing kinematically redundant robotic systems,” presented at Wright Patterson Air Force Base, Dayton, OH, Dec. 1, 1989.
- [5] “An intelligent tutoring system for technical Japanese-language instruction,” presented at the National Science Foundation, Washington, DC, Jan. 24, 1990.
- [6] “Tutoring by computer in studying technical Japanese,” presented at the University of Wisconsin-Madison, Madison, WI, March 29, 1990.
- [7] “Motion control of kinematically redundant manipulators,” presented at Oak Ridge National Laboratory, Oak Ridge, TN, May 25, 1990.

- [8] "Computer aided instruction of Japanese," presented at NEC International Convention, Tokyo, Japan, Oct. 23, 1990.
- [9] "Computer graphic simulations for analyzing kinematically redundant manipulators," presented at NEC International Convention, Tokyo, Japan, Oct. 23, 1990.
- [10] "Failure tolerant design and control of robotic manipulators," presented at NEC International Convention, Tokyo, Japan, Oct. 22, 1991.
- [11] "Computer graphic simulation of motion planning for robotic systems," presented at TRW Ross Gear Division, Lafayette, IN, March 19, 1992.
- [12] "Impact of redundancy on robot reliability," presented at Lawrence Livermore National Laboratory, Livermore, CA, Oct. 12, 1992.
- [13] "Design of a cooperation controller for multiple robot coordination," presented at NEC Kawasaki Engineering Research Center, Tokyo, Japan, Oct. 20, 1992.
- [14] "Impact of redundancy on robot reliability," presented at Sandia National Laboratory, Albuquerque, NM, Nov. 9, 1992.
- [15] "Impact of redundancy on robot reliability," presented at Los Alamos National Laboratory, Los Alamos, NM, Nov. 10, 1992.
- [16] "Failure tolerant robotic systems through the use of kinematic redundancy," presented at Wright Patterson Air Force Base, Dayton, Ohio, April 29, 1993.
- [17] "Multiple robot coordination," presented at NEC Kawasaki Engineering Research Center, Tokyo, Japan, Nov. 16, 1993.
- [18] "The design of failure tolerant robotic systems," presented at IEEE Control System Society Seminar, University of Dayton, Dayton, OH, Dec. 3, 1993.
- [19] "Failure tolerant design and control of kinematically redundant manipulators," presented at University of Waterloo, Waterloo, Canada, Aug. 22, 1994.
- [20] "Kinematics and motion control for robots," presented at NEC Kawasaki Engineering Research Center, Tokyo, Japan, Oct. 19, 1994.
- [21] "Applications of Singular Value Decomposition to the Motion Control of Kinematically Redundant Manipulators," presented at Purdue University, Computer Science Dept., West Lafayette IN, Feb. 3, 1999.
- [22] "The Use of Kinematic Redundancy for Failure Tolerant Robotic Systems," presented at Colorado State University, Ft. Collins CO, Sept. 22, 2000.
- [23] "The Use of Kinematic Redundancy for Failure Tolerant Robotic Systems," presented at New Mexico Highlands University, Las Vegas, NM, Sept. 29, 2000.
- [24] "The Use of Kinematic Redundancy for Failure Tolerant Robotic Systems," presented at University of New Mexico, Albuquerque, NM, Nov. 17, 2000.
- [25] "Kinematically redundant robots: The promise of human-like dexterity," presented at Dean's Lecturer Series, University of Wyoming, Laramie, WY, Dec. 13, 2002.
- [26] "Kinematically redundant robots: The promise of human-like dexterity," presented at Ohio State University, Columbus, OH, Jan. 20, 2004.
- [27] "The Impact of Autonomous Robots on Crowd Behavior," presented at Non-lethal Technology and Academic Research Symposium, Winston-Salem, NC, Nov. 15-17, 2004.
- [28] "Kinematically redundant robots: The promise of human-like dexterity," presented at Colorado State University, Jan. 30, 2005.
- [29] "The Use of Kinematic Redundancy for Failure Tolerant Robotic Systems," presented at Vanderbilt University, Nashville, TN, March 20, 2006.
- [30] "Kinematically redundant robots: The promise of human-like dexterity," presented at University of Macau, China, June 29, 2006.
- [31] "Who will engineer our future: Engineering education in a global society," presented at "IEEE Presents ? Engineering the Future of Colorado" sponsored by the IEEE Denver Section, Denver CO, Sept. 18, 2006.

- [32] “Robust Resource Allocation in a Client/Server Hybrid Network for Virtual World Environments and Massive Multiplayer Online Gaming,” presented at the University of Luxembourg, Luxembourg, Jan. 13, 2010.
- [33] “Expanding Semiconductor Job Opportunities in Northern Colorado: A Panel Discussion,” presented with M. Freeman, D. McGrath, D. Bartlett, and P. O’Neil, jointly sponsored by the IEEE High Plains Section and Solid-State Circuits Chapter, Fort Collins CO, June 8, 2011.
- [34] “Kinematically redundant robots: The promise of human-like dexterity,” presented at Deakin University, Australia, August 8, 2011.
- [35] “Research in the Electrical and Computer Engineering Department at Colorado State University,” IEEE High Plains Section, Fort Collins CO, March 21, 2012.
- [36] “Utility Maximization and Energy-Aware Scheduling,” presented at Oak Ridge National Laboratory, Oak Ridge, TN, July 30, 2012. (co-presenters: H.J. Siegel, B. Khemka, R. Friese)
- [37] “An Overview of Research in the Electrical and Computer Engineering Department at Colorado State University,” presented at Deakin University, Geelong, Australia, Sept. 13, 2012.
- [38] “Kinematically redundant robots: The promise of human-like dexterity,” presented at University of Melbourne, Melbourne, Australia, Sept. 20, 2012.
- [39] “Bi-Objective Optimization for Scheduling in Parallel Computing Systems,” presented at Technische Universitaet Dresden (TUD), Center for Information Services and High Performance Computing (ZIH), Dresden, Germany, Sep. 13, 2013.
- [40] “Using kinematic redundancy to design fault tolerant robotic systems,” presented at Iowa State University, Ames, Iowa, Jan. 31, 2014.(Distinguished Lecture series)
- [41] “Using kinematic redundancy to design fault tolerant robotic systems,” presented at Michigan State University, Lansing, Michigan, Feb. 18, 2014.
- [42] “Computing the failure-tolerant workspace for a kinematically redundant robot,” presented to the Polish Section of the IEEE Robotics and Automation Society, Poznan Univeristy of Technology, Poznan, Poland, July 24, 2014.
- [43] “An Overview of Research in the Electrical and Computer Engineering Department at Colorado State University,” presented at Huazhong University of Science and Technology, Wuhan, China, Oct. 10, 2014.
- [44] “An introduction to kinematically redundant robots,” presented at Huazhong University of Science and Technology, Wuhan, China, Oct. 10, 2014.
- [45] “Using kinematic redundancy to design fault tolerant robotic systems,” presented at Shandong University, Jinan, China, Oct. 13, 2014.
- [46] “Kinematically redundant robots: The promise of human-like dexterity,” presented at Zhejiang University, Hangzhou, China, Oct. 14, 2014.
- [47] “The state of electrical and computer engineering in higher education,” presented at by the IEEE High Plains Section, Fort Collins, CO, June 18, 2015.
- [48] “Revolutionizing Engineering Departments (RED) at Colorado State University and beyond,” presented at Washington State University, Pullman, WA Sept. 3 2015.
- [49] “Kinematically redundant robots: The promise of human-like dexterity,” presented at New York University Tandon School of Engineering, Brooklyn, NY Dec. 7, 2015. (Weber Lecture Series)
- [50] “Who Will Engineer Our Future?,” presented at Rose-Hulman Institute of Technology, Terre Haute, IN Aug. 26, 2016.
- [51] “Designed to Fail: Incorporating Kinematic Redundancy into Robotic Systems,” presented at *2016 World Robotics Conference (WRC2016)*, Beijing, China, October 21-25, 2016.
- [52] “Kinematically redundant robots: The promise of human-like dexterity,” presented at Beijing University of Technology, Beijing, China, Nov. 22, 2016.
- [53] “Redundant robots: Achieving human levels of dexterity,” presented at Manipal Academy of Higher Education, Karnataka, India, Mar. 26, 2018.
- [54] “Redundant robots: Achieving human levels of dexterity,” presented at SRM University, Chennai, India, Mar. 27, 2018.

- [55] “Recent trends in Advanced Manufacturing,” presented at *International Conference on Green Manufacturing*, Rajalakshmi Engineering College, Chennai, India, Mar. 28, 2018. (keynote address)
- [56] “Redundant robots: Achieving human levels of dexterity,” presented at Jawaharlal Nehru Technological University, Hyderabad, India, Mar. 29, 2018.
- [57] “Redundant robots: Achieving human levels of dexterity,” presented at Muffakham Jah College of Engineering and Technology, Hyderabad, India, Mar. 29, 2018.
- [58] “Redundant robots: Achieving human levels of dexterity,” presented at BMS Institute of Technology and Management, Bangaluru, India, Mar. 31, 2018.
- [59] “Redundant robots: Achieving human levels of dexterity,” presented at St. Francis Institute of Technology, Mumbai, India, April 2, 2018.
- [60] “Redundant robots: Achieving human levels of dexterity,” presented at Delhi Technological University, Delhi, India, April 4, 2018.
- [61] “Redundant robots: Achieving human levels of dexterity,” presented at Netaji Subhas Institute of Technology, Delhi, India, April 4, 2018.
- [62] “A Holistic Approach to Transforming Undergraduate Engineering Education,” presented at Seattle University, Seattle, WA, Nov. 13, 2018.
- [63] “Designed to Fail: Fault-Tolerant Control of Kinematically Redundant Robots,” presented at Manipal Institute of Technology, Manipal, India, Feb. 25, 2019.
- [64] “Kinematically redundant robots: The promise of human-like dexterity,” presented at New Horizons College, Bangalore, India, Feb. 26, 2019.
- [65] “Kinematically redundant robots: The promise of human-like dexterity,” presented at Vellore Institute of Technology, Vellore, India, Feb. 28, 2019.
- [66] “Designed to Fail: Fault-Tolerant Control of Kinematically Redundant Robots,” Muffakham Jah College of Engineering and Technology, Hyderabad, India, March 4, 2019.
- [67] “Kinematically redundant robots: The promise of human-like dexterity,” presented at V.V.P. Engineering College, Rajkot, India, March 6, 2019.
- [68] “Kinematically redundant robots: The promise of human-like dexterity,” presented at Marwadi University, Rajkot, India, March 6, 2019.
- [69] “The Design of Failure-Tolerant Robots,” presented at the International Forum on Innovation and Emerging Industries Development (IEID 2019), organized by Chinese Academy of Engineering, Shanghai, China, September 18, 2019.
- [70] “The Design of Failure-Tolerant Robots,” presented at the International Conference on Automation, Signal Processing, Instrumentation and Control (i’CASIC 2020), Vellore, India, Feb, 27, 2020.

Symposia Attended (by invitation)

- [1] National Science Foundation (NSF) and Japanese Ministry of International Trade and Industry (MITI), “The Research and Development Activities of the Agency of Industrial Science and Technology (AIST),” Atlanta, GA, March 13, 1989.
- [2] Japan Information Center of Science and Technology (JICST) and National Technical Information Service (NTIS) conference on “Japanese Scientific and Technical Information,” Washington, DC, April 1-2, 1991.
- [3] Department of Energy (DOE) Office of Technology Development (OTD), “Workshop on Modular Robotics,” Park City, UT, May 12-13, 1993.

Technical Reports

- [1] A. A. Maciejewski, “Computationally efficient ray tracing of parametric surfaces,” Technical Report No. 16700, Hitachi Central Research Laboratory, Tokyo, Japan, Jan. 1986, 34 pages.
- [2] A. A. Maciejewski, “Parametric volume based modeling for the display of natural phenomena,” Technical Report No. 16701, Hitachi Central Research Laboratory, Tokyo, Japan, Aug. 1986, 27 pages.
- [3] K. W. Leung and A. A. Maciejewski, “User’s guide for the Nihongo tutorial system,” Technical Report No. TR-EE 90-26, School of Electrical Engineering, Purdue University, April 1990, 90 pages.

- [4] K. W. Leung and A. A. Maciejewski, "Technical specifications of the Nihongo tutorial system," Technical Report No. TR-EE 90-27, School of Electrical Engineering, Purdue University, April 1990, 64 pages.
- [5] K. W. Leung and A. A. Maciejewski, "Source code for the Nihongo tutor," Technical Report No. TR-EE 90-28, School of Electrical Engineering, Purdue University, April 1990, 105 pages.
- [6] B.-L. Yeo, M. Yeung, and A. A. Maciejewski, "An X11-based Japanese language processing and learning environment," Technical Report No. TR-EE 92-33, School of Electrical Engineering, Purdue University, Aug. 1992, 37 pages.
- [7] Y.-S. Kang and A. A. Maciejewski, "Data on English to Japanese transliteration of technical terminology," Technical Report No. TR-EE 92-34, School of Electrical Engineering, Purdue University, Aug. 1992, 210 pages.
- [8] Y.-K. Kwok, A. A. Maciejewski, H. J. Siegel, A. Ghafoor, and I. Ahmad, "Design and Analysis of A Semi-Static Approach to Mapping Dynamic Iterative Tasks onto Heterogeneous Computing Systems," Technical Report TR-2001-CSN-036, Department of Electrical and Electronic Engineering, The University of Hong Kong, September 20, 2001, 36 pages.

Conference Session Chairman

- [1] Session Chairman, "Path Planning in Known Environment," 1990 IEEE International Conference on Robotics and Automation, Cincinnati, OH, May 13-18, 1990.
- [2] Session Chairman, "Robotics III," 1990 IEEE International Conference on Systems Engineering, Pittsburgh, PA, Aug. 9-11, 1990.
- [3] Session Chairman, "Path Planning and Collision Avoidance," 1991 IEEE International Conference on Robotics and Automation, Sacramento, CA, April 7-12, 1991.
- [4] Session Co-Chairman, "Kinematics Analysis of Redundant Robots," 1992 IEEE International Conference on Robotics and Automation, Nice, France, May 10-15, 1992.
- [5] Session Co-Chairman, "Robotics I," 1st IEEE Conference on Control Applications, Dayton, OH, Sept. 13-16, 1992.
- [6] Session Co-Chairman, "Fault Detection and Error Recovery," 1994 IEEE International Conference on Robotics and Automation, San Diego, CA, May 8-13, 1994.
- [7] Session Co-Chairman, "Inspection," 1994 IEEE International Conference on Robotics and Automation, San Diego, CA, May 8-13, 1994.
- [8] Session Organizer and Chairman, "Applications of robotic redundancy," International Symposium on Robotics and Manufacturing, Maui, HI, Aug. 14-18, 1994.
- [9] Session Co-Chairman, "Multiple Manipulators: Planning & Control," IEEE/RSJ/GI International Conference on Intelligent Robots and Systems (IROS '94), München, Germany, Sept. 12-16, 1994.
- [10] Session Chairman, "Robot Kinematics," IASTED International Conference on Robotics and Manufacturing, Cancún, Mexico, June 14-17, 1995.
- [11] Session Co-Chairman, "Redundant Robots III," 1996 IEEE International Conference on Robotics and Automation, Minneapolis, MN, April 22-28, 1996.
- [12] Session Co-Chairman, "Flexible Robot Modeling and Simulation," 1996 IEEE International Conference on Robotics and Automation, Minneapolis, MN, April 22-28, 1996.
- [13] Session Chairman, "Fault Tolerance I," 1997 IEEE International Conference on Robotics and Automation, Albuquerque, NM, April 20-25, 1997.
- [14] Session Chairman, "Robot Programming," 1998 IEEE International Conference on Robotics and Automation, Leuven, Belgium, May 16-20, 1998.
- [15] Session Chairman, "Motion Control," 1998 IEEE International Conference on Robotics and Automation, Leuven, Belgium, May 16-20, 1998.
- [16] Session Chairman, "Fault-Tolerant Robots," 1999 IEEE International Conference on Robotics and Automation, Detroit, MI, May 10-15, 1999.

- [17] Session Chairman, "Hyper Redundant Robots," 1999 IEEE International Conference on Robotics and Automation, Detroit, MI, May 10-15, 1999.
- [18] Session Chairman, "Control Applications," Second International Conference on Recent Advances in Mechatronics, Istanbul, Turkey, May 24-26, 1999.
- [19] Session Chairman, "Redundant Manipulators," 2000 IEEE International Conference on Robotics and Automation, San Francisco, CA, April 24-28, 2000.
- [20] Session Chairman, "Manipulator Control," 2000 IEEE International Conference on Intelligent Robots and Systems, Takamatsu, Japan, Oct. 31 - Nov. 1, 2000.
- [21] Session Co-Chairman, "Vision Sensing and Algorithms I," 2001 IEEE International Conference on Intelligent Robots and Systems, Maui, Hawaii, Oct. 29 - Nov. 3, 2001.
- [22] Session Co-Chairman, "Redundant Robots," 2003 IEEE International Conference on Robotics and Automation, Taipei, Taiwan, Sep. 16-18, 2003.
- [23] Session Co-Chairman, "Motion and Path Planning," 2003 IEEE International Conference on Intelligent Robots and Systems, Las Vegas, NV, Oct. 27-31, 2003.
- [24] Session Co-Chairman, "Environmental Robots," 2004 IEEE International Conference on Robotics and Automation, New Orleans, LA, April 26-May 1, 2004.
- [25] Session Chairman, "Control Architectures and Human Interaction," 10th International Symposium on Robotics and Applications (ISORA 2004), Seville, Spain, June 28-July 1, 2004.
- [26] Session Co-Chairman, "Redundant Manipulators," 2004 IEEE International Conference on Intelligent Robots and Systems, Sendai, Japan, Sept. 28 - Oct. 2, 2004.
- [27] Session Chairman, "Scheduling and Load Balancing," 19th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2005) Denver, CO, April 3-8, 2005
- [28] Session Chairman, "Tracking People," 2005 IEEE International Conference on Robotics and Automation, Barcelona, Spain, April 18-22, 2005.
- [29] Session Co-Chairman, "Haptics," 2005 IEEE International Conference on Robotics and Automation, Barcelona, Spain, April 18-22, 2005.
- [30] Session Co-Chairman, "Man-Machine Systems 3," 2005 IEEE International Conference on Systems, Man and Cybernetics, Hawaii, Oct. 10-12, 2005.
- [31] Session Co-Chairman, "Redundant Robots," 2006 IEEE International Conference on Robotics and Automation, Orlando, FL, May 17, 2006.
- [32] Session Chairman, "Continuum and Redundant Systems," 2007 IEEE International Conference on Robotics and Automation, Rome, Italy, April 11, 2007.
- [33] Session Chairman, "Redundant Manipulators and Mobility," 2007 IEEE International Conference on Intelligent Robots and Systems, San Diego, CA, Nov. 1, 2007.
- [34] Session Chairman, "Redundant and Parallel Robots," 2007 IEEE International Conference on Intelligent Robots and Systems, San Diego, CA, Nov. 1, 2007.
- [35] Session Co-Chairman, "Algorithmic Automation," The 4th Annual IEEE Conference on Automation Science and Engineering (CASE 2008), Washington, DC, Aug. 24, 2008.
- [36] Session Co-Chairman, "Machine Vision," 2009 IEEE International Conference on Systems, Man and Cybernetics, San Antonio, TX, Oct. 14, 2009.
- [37] Session Chairman, "Social Human-Robot Interaction II," 2010 IEEE International Conference on Intelligent Robots and Systems, Taipei, Taiwan, Oct. 21, 2010.
- [38] Session Co-Chairman, "Visual Navigation IV," 2011 IEEE International Conference on Robotics and Automation, Shanghai, China May 9-13, 2011.
- [39] Session Chairman, "Redundant Robots," 2011 IEEE International Conference on Robotics and Automation, Shanghai, China May 9-13, 2011.

- [40] Session Chairman, “Scheduling and Resource Allocation in Heterogeneous Environments,” 20th International Heterogeneity in Computing Workshop, Anchorage, Alaska May 16, 2011.
- [41] Session Chairman, “Humanoid Robot and Redundant Manipulator Control,” IEEE International Conference on Systems, Man, and Cybernetics, Anchorage, Alaska, Oct. 11, 2011.
- [42] Session Chairman, “Kinematics and Redundancy,” 2013 IEEE International Conference on Robotics and Automation, Karlsruhe, Germany, May 8, 2013.
- [43] Session Chairman, “Calibration and Identification / Kinematics and Mechanism Design I,” 2014 IEEE International Conference on Intelligent Robots and Systems, Chicago, IL, September 15, 2014.
- [44] Session Chairman, “Industrial Robots,” 2017 IEEE International Conference on Intelligent Robots and Systems, Vancouver, BC, Canada, September 25, 2017.
- [45] Session Chairman, “Mapping and Localization,” 14th IEEE International Conference on Control & Automation (ICCA 2018), Anchorage, AK, Canada, June 13, 2018.

Activities as a Referee

Journals

IEEE Transactions on Robotics and Automation (1988-present)
 IEEE Transactions on Systems, Man, and Cybernetics (1989-present)
 IEEE Transactions on Industrial Electronics (1992-present)
 IEEE Transactions on Control Systems Technology (1993-present)
 IEEE Transactions on Automatic Control (1996-present)
 IEEE Transactions on Parallel and Distributed Systems (2010-present)
 IEEE Transactions on Image Processing (2012)
 IEEE/ASME Transactions on Mechatronics (2001-present)
 IEEE Computer Graphics and Applications (1987-present)
 IEEE Computer (1988-present)
 IEEE Control Systems Magazine (1988-present)
 IEEE Robotics and Automation Magazine (1994-present)
 ASME Journal of Dynamic Systems, Measurement and Control (1990-present)
 ASME Journal of Engineering for Industry (1992-present)
 ASME Journal of Mechanical Design (2007)
 International Journal of Robotics Research (1990-present)
 International Journal of Robotics and Automation (1996-present)
 International Journal of Computer Simulation (1990-present)
 Intelligent Automation and Soft Computing (1996-present)
 Optimal Control Applications and Methods (1990-present)
 Journal of Robotic Systems (1991-present)
 Robotics and Autonomous Systems (1995-present)
 Robotics and Computer-Integrated Manufacturing (1995-present)
 Journal of Intelligent and Fuzzy Systems (1993-present)
 Journal of Intelligent and Robotic Systems (1992-present)
 Computers and Electrical Engineering (1991-present)
 Proceedings of the IEEE (1993)
 Journal of Intelligent Manufacturing (1994)
 CALICO Journal (1994)
 Microcomputers in Civil Engineering (Special Issue on Robotics) (1994)
 Autonomous Robots (1996)
 Automation in Construction (1997-present)
 Reliability Engineering and System Safety (2000)
 Mechanism and Machine Theory (2004-present)
 Robotica (2006)
 Systems and Control Letters (2009)
 Journal of Supercomputing (2009)

Journal of Parallel and Distributed Processing (2012-present)
 Cluster Computing (2013)
 Computer Vision and Image Understanding (2013)

Conferences

IEEE Conference on Robotics and Automation (1989-present)
 IEEE Conference on Decision and Control (1989-present)
 IEEE Conference on Control Applications (1992-present)
 IEEE/RSJ International Conference on Intelligent Robots and Systems (1992-present)
 American Control Conference (1993-present)
 American Nuclear Society Meeting Review Panel (1990)
 18th Annual International Symposium on Computer Architecture (1991)
 ISRAM Best Paper Review Panel (1994)
 ICRA Best Paper Review Committee (2006)
 IEEE CDC Best Student Paper Review Panel (1991)
 IFAC Symposium on Robot Control (1997)
 ASME Mechanisms Conference (1998)

Funding Agencies

National Science Foundation (1991-present)
 National Science Foundation Japan Language Review Panel (1988,1990)
 Natural Sciences and Engineering Research Council of Canada (1990, 2002, 2003, 2006, 2008)
 State of Kentucky EPSCoR Program (1990)
 Purdue Global Initiative Faculty Grants (1999)
 U.S. Civilian Research and Development Foundation (2000)

Other Activities

- 1990 Presentation at President's Council Annual Weekend Back to Class Program, "Your own Japanese tutor—It's a computer!" Purdue University, West Lafayette, IN, Nov. 2, 1990.
- 1990- School of Electrical Engineering Undergraduate Academic Counseling Program (advising students on careers and research in the areas of robotics and computer graphics.)
- 1993 Presentation at President's Council Annual Weekend Back to Class Program, "Intelligent machines: What can they do for you?" Purdue University, West Lafayette, IN, Nov. 12, 1993 (with Mary P. Harper, Leah H. Jamieson, and Avinash C. Kak).
- 1994 External Ph.D. Thesis Examiner for "Robot Motion Planning: A Geometric Reasoning Approach," by King-Sun Ma, Department of Systems Design Engineering, University of Waterloo, Aug. 21, 1994.
- 1999 Boiler Goldrush sponsor
- 2000 Interview Freshman Engineering Merit Scholar applicants
- 2003 External Ph.D. Thesis Committee for Sumeet Aphale, Department of Electrical and Computer Engineering, University of Wyoming.
- 2006 External Ph.D. Thesis Committee for Yugang Liu, Department of Electromechanical Engineering, University of Macau, Macau, China.
- 2011 External Ph.D. Thesis Committee for Yuan Yun, Department of Electromechanical Engineering, University of Macau, Macau, China.
- 2013 External Ph.D. Thesis Examiner for Mats Isaksson, Deakin University, Geelong, Australia.
- 2014 External Ph.D. Thesis Examiner for Darwin Lau, University of Melbourne, Melbourne, Australia.
- 2019 Advisory Board Member: University of Washington, Electrical and Computer Engineering Department.
- 2019 Advisory Board Member: Seattle University, Electrical and Computer Engineering Department.