

VITA

6/09

Name: Anthony A. Maciejewski

Address: Colorado State University
Electrical and Computer Engineering
Fort Collins, CO 80523-1373, USA

Phone: office: 970-491-6600, fax: 970-491-2249

Email: aam@colostate.edu

Personal

Date of Birth: July 19, 1960
Place of Birth: Cleveland, Ohio
Citizenship: U.S.A.
Marital Status: Married
Wife's Name: Margaret D.
Children's names
and Birthdates: Melissa - 2/9/89
Matthew - 2/20/92

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 Fellowship
1985-1986 American Electronics Association Japan Research Fellow
1986-1987 Litton Industrial Fellow

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|-----------|--|
| 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.” |

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.

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 Franchek).
- [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, 2011, \$399,479.
- [49] Co-Principal Investigator: National Science Foundation, “CSR:Medium:Collaborative: Stochastically Robust Resource Allocation for Computing,” Award CNS-???????, August 15, 2009 to August 14, 2012, \$1,042,470. (Principal Investigator: H.J. Siegel, Additional Co-PIs: Arnold L. Rosenberg and James T. Smith)

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 Kinetically 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 present.
- [8] Editorial Board: *Journal of Automation and Mobile Robotics*, from Feb. 2007 to present.
- [9] Editorial Board: *Journal of Robotics*, from Sep. 2008 to present.

Conference Organizing Committees

- | | |
|-------------|--|
| Conference: | IEEE International Conference on Robotics and Automation (ICRA 1990) |
| Position: | Member of Technical Program Committee, 1990 |
| Conference: | American Nuclear Society 4th Topical Meeting on Robotics |
| Position: | Member of Technical Program Committee, 1991 |
| Conference: | 1st IEEE Conference on Control Applications |
| Position: | Member of Technical Program Committee, 1992 |
| Conference: | 5th International Symposium on Robotics and Manufacturing (ISRAM) |
| Position: | Member of Technical Program Committee, 1994 |
| Conference: | International Conference on Intelligent Robots and Systems (IROS '94) |
| Position: | Member of Technical Program Committee, 1994 |
| Conference: | IASTED International Conference on Robotics and Manufacturing |
| Position: | Member of Technical Program Committee, 1995 |
| Conference: | IEEE International Conference on Robotics and Automation (ICRA 1996) |
| Position: | Member of Technical Program Committee, 1996 |
| Conference: | 6th International Symposium on Robotics and Manufacturing (ISRAM) |
| Position: | Member of Technical Program Committee, 1996 |
| Conference: | International Conference on Intelligent Robots and Systems (IROS '96) |
| Position: | Member of Technical Program Committee, 1996 |
| Conference: | IASTED International Conference on Robotics and Manufacturing |
| Position: | Member of Technical Program Committee, 1996 |

Conference: IEEE International Conference
on Robotics and Automation (ICRA 1997)
Position: Co-Chair of Technical Program, 1997

Conference: 7th International Conference
on Human-Computer Interaction
Position: Member of Human-Computer Interaction Board, 1997

Conference: IASTED International Conference
on Robotics and Manufacturing
Position: Member of Technical Program Committee, 1997

Conference: World Manufacturing Congress (WMC '97)
Position: Member of Technical Program Committee, 1997

Conference: World Automation Congress (WAC '98)
Position: Co-Chair for Robotics Program (ISORA '98)

Conference: IEEE International Conference
on Robotics and Automation (ICRA 1998)
Position: Member of Technical Program Committee, 1998

Conference: IASTED International Conference
on Robotics and Manufacturing
Position: Member of Technical Program Committee, 1998

Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '98)
Position: Member of Technical Program Committee, 1998

Conference: International Symposium on
Robotics and Automation (ISRA '98)
Position: Member of Technical Program Committee, 1998

Conference: IEEE International Conference
on Robotics and Automation (ICRA 1999)
Position: Member of Technical Program Committee, 1999

Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '99)
Position: Member of Technical Program Committee, 1999

Conference: Third International ICSC Symposium on
Intelligent Industrial Automation (IIA'99)
Position: Member of Technical Program Committee, 1999

Conference: World Manufacturing Congress (WMC '99)
Position: Member of Technical Program Committee, 1999

Conference: 3rd IMACS International Multiconference Circuits,
Systems, Communications and Computers (CSCC'99)
Position: Member of International Scientific Committee, 1999

Conference: IASTED International Conference on Robotics
Position: Member of Technical Program Committee, 1999

Conference: World Automation Congress (WAC 2000)
Position: Chair for Robotics Program (ISORA 2000)

Conference: International Symposium on Robotics (ISR 2000)
Position: Member of International Program Committee

Conference: IEEE International Conference
on Robotics and Automation (ICRA 2000)
Position: Member of Technical Program Committee, 2000

Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2000

Conference: International Symposium on
Robotics and Automation (ISRA 2000)
Position: Member of Technical Program Committee, 2000

Conference: IEEE International Conference
on Robotics and Automation (ICRA 2001)
Position: Member of Technical Program Committee, 2001

Conference: Fourth International ICSC Symposium on
Soft Computing and Intelligent Systems for Industry
Position: Member of Technical Program Committee, 2001

Conference: World Manufacturing Congress (WMC '01)
Position: Member of Technical Program Committee, 2001

Conference: IEEE International Conference on
Industrial Technology (ICIT 2001)
Position: Member of International Advisory Committee, 2001

Conference: IASTED International Conference on
Robotics and Manufacturing
Position: Member of Technical Program Committee, 2001

Conference: The 10th International Conference on
Advanced Robotics (ICAR 2001)
Position: Member of Technical Program Committee, 2001

- Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2001
- Conference: 2002 Japan-USA Symposium on Flexible Automation
(2002JUSFA)International Conference on New Technological
Innovation for the 21st Century
Position: Member of Organizing Committee, 2002
- Conference: IEEE International Conference
on Robotics and Automation (ICRA 2002)
Position: Chair of Technical Program, 2002
- Conference: International Symposium on
Robotics and Automation (ISRA 2002)
Position: Member of International Program Committee, 2002
- Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '02)
Position: Member of Technical Program Committee, 2002
- Conference: The 11th International Conference on
Advanced Robotics (ICAR 2003)
Position: Member of Technical Program Committee, 2003
- Conference: 12th International Heterogeneous
Computing Workshop (HCW 2003)
Position: Member of Technical Program Committee, 2003
- Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '03)
Position: Member of Technical Program Committee, 2003
- Conference: IEEE International Conference
on Robotics and Automation (ICRA 2003)
Position: Member of Technical Program Committee, 2003
- Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2003
- Conference: World Automation Congress (WAC '04)
Position: Member of Robotics Program Committee (ISORA '04)
- Conference: IEEE International Conference
on Robotics and Automation (ICRA 2004)
Position: Member of Technical Program Committee, 2004

- Conference: 13th International Heterogeneous
Computing Workshop (HCW 2004)
Position: Member of Technical Program Committee, 2004
- Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2004
- Conference: International Symposium on
Robotics and Automation (ISRA 2004)
Position: Member of International Program Committee, 2004
- Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '04)
Position: Member of Technical Program Committee, 2004
- Conference: 14th International Heterogeneous
Computing Workshop (HCW 2005)
Position: Member of Technical Program Committee, 2005
- Conference: IEEE International Conference
on Robotics and Automation (ICRA 2005)
Position: Member of Technical Program Committee, 2005
- Conference: The 12th International Conference on
Advanced Robotics (ICAR 2005)
Position: Member of Technical Program Committee, 2005
- Conference: IEEE International Conference
on Systems, Man, and Cybernetics (SMC 2005)
Position: Member of Technical Program Committee, 2005
- Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2005
- Conference: International Conference on Informatics in
Control, Automation and Robotics (ICINCO 2005)
Position: Member of Program Committee, 2005
- Conference: 15th International Heterogeneous
Computing Workshop (HCW 2006)
Position: Member of Technical Program Committee, 2006
- Conference: IEEE International Conference
on Systems, Man, and Cybernetics (SMC 2006)
Position: Member of Technical Program Committee, 2006

- Conference: IEEE International Conference
on Robotics and Automation (ICRA 2006)
Position: Member of Technical Program Committee, 2006
- Conference: International Conference on Informatics in
Control, Automation and Robotics (ICINCO 2006)
Position: Member of Program Committee, 2006
- Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2006
- Conference: International Symposium on
Robotics and Automation (ISRA 2006)
Position: Member of International Program Committee, 2006
- Conference: 16th International Heterogeneous
Computing Workshop (HCW 2007)
Position: Member of Technical Program Committee, 2007
- Conference: IASTED International Conference
on Robotics and Applications
Position: Member of International Program Committee, 2007
- Conference: International Conference on Informatics in
Control, Automation and Robotics (ICINCO 2007)
Position: Member of Program Committee, 2007
- Conference: IEEE Conference on Systems of
Systems Engineering (ICSoSE 2007)
Position: Member of Program Committee, 2007
- Conference: Mosharaka International Conference on
Control, Robotics and Automation (M-CRA 2007)
Position: Member of Technical Program Committee, 2007
- Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '07)
Position: Member of Technical Program Committee, 2007
- Conference: IEEE International Conference
on Systems, Man, and Cybernetics (SMC 2007)
Position: Member of Technical Program Committee, 2007
- Conference: International Conference on Advanced Engineering
Computing and Applications in Sciences (ADVCOMP 2007)
Position: Member of Technical Program Committee, 2007

- Conference: Mosharaka International Conference on
Communication and Information Technology (M-CIT 2007)
Position: Member of Technical Program Committee, 2007
- Conference: IEEE Workshop on Advanced Robotics
and its Social Impacts (ARSO 2007)
Position: Member of International Advisory Committee, 2007
- Conference: 17th International Heterogeneous
Computing Workshop (HCW 2008)
Position: Member of Technical Program Committee, 2008
- Conference: IEEE International Conference
on Robotics and Automation (ICRA 2008)
Position: Associate Editor for Conference Editorial Board, 2008
- Conference: International Conference on Informatics in
Control, Automation and Robotics (ICINCO 2008)
Position: Member of Program Committee, 2008
- Conference: Second International Conference on Advanced Engineering
Computing and Applications in Sciences(ADVCOMP 2008)
Position: Member of Technical Program Committee, 2008
- Conference: Workshop on Optimization Issues in Grid and
Parallel Computing Environments (part of HPCS08)
Position: Member of Technical Program Committee, 2008
- Conference: IEEE/RSJ International Conference on
Intelligent Robots and Systems (IROS '08)
Position: Member of Technical Program Committee, 2008
- Conference: IEEE Conference on Systems of
Systems Engineering (ICSoSE 2008)
Position: Member of Program Committee, 2008
- Conference: IEEE International Conference
on Systems, Man, and Cybernetics (SMC 2008)
Position: Member of Technical Program Committee, 2008
- Conference: Mosharaka International Conference on Communications,
Networking and Information Technology (MIC-CNIT 2008)
Position: Member of Technical Program Committee, 2008
- Conference: 18th International Heterogeneous
Computing Workshop (HCW 2009)
Position: Member of Technical Program Committee, 2009

Conference: Mosharaka International Conference on Communications, Propagation and Electronics (MIC-CPE 2009)
Position: Member of Technical Program Committee, 2009

Conference: International Conference on Informatics in Control, Automation and Robotics (ICINCO 2009)
Position: Member of Program Committee, 2009

Conference: Third International Conference on Advanced Engineering Computing and Applications in Sciences(ADVCOMP 2009)
Position: Member of Technical Program Committee, 2009

Conference: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '09)
Position: Member of Technical Program Committee, 2009

Conference: Workshop on Optimization Issues in Grid and Parallel Computing Environments (part of HPCS09)
Position: Member of Technical Program Committee, 2009

Conference: IEEE Conference on Systems of Systems Engineering (ICSoSE 2009)
Position: Member of Program Committee, 2009

Conference: IEEE International Conference on Systems, Man, and Cybernetics (SMC 2009)
Position: Member of Technical Program Committee, 2009

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

Organization: IEEE Robotics and Automation Society
Activity: Secretary, 1996 to 1999
Constitution and Bylaws Committee Chair, 2000 to 2004
Administrative Committee Member, 2000 to 2004
Vice President for Finances, 2004 to 2006
Publications Board Member, 2002 to 2006
Financial Activities Board Member, 2002 to 2006
Fellow Nominations Committee Member, 2008 to

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 [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 [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 [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]; 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]; 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]; Conference [103],[108],[109],[110],[114], [122],[123]) |

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]) |

(A. A. Maciejewski)

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|----------------|-----------|--|
| 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]; Conference [84],[88],[96],[100]) |
| R. Jamisola | Dec. 2006 | “Failure Tolerant Path Planning for Kinetically Redundant Manipulators” (Publications: Journal [49]; Conference [72],[75],[77]) |

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

| | | |
|----------------|-------|--|
| S. Hinton | M.S. | (Publications: Conference [113]) |
| L. Briceno | Ph.D. | (Co-Advisor: H. J. Siegel) (Publications: Journal ; Conference [99],[100],[107],[117]) |
| P. Maxwell | Ph.D. | (Co-Advisor: H. J. Siegel) (Publications: Conference [119]) |
| A. Al-Qawasmeh | Ph.D. | (Co-Advisor: H. J. Siegel) (Publications: Conference [120]) |
| J. Li | Ph.D. | (Co-Advisor: H. J. Siegel) (Publications: |
| D. Brake | Ph.D. | (Co-Advisor: V. Putkaradze) (Publications:) |
| K. Bengharbia | Ph.D. | (Publications:) |
| P. Naik | Ph.D. | (Publications:) |

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)
ECE501 (3 cr. hrs.) Fundamentals of Systems Engineering (Fall 2008)
(with Ron Sega)

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)

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: | Chemical and Biological Engineering Head Search Committee |
| Activity: | Chair, 2006 to 2007 |
| Committee: | Faculty Council Committee on Scholarship, Research, and Graduate Education |

Activity: Member, 2007 to 2010
Committee: College of Engineering Diversity Committee
Activity: Member, 2007 to
Committee: Department of Physics University Review Committee
Activity: Member, 2008
Committee: Faculty Council Committee on Scholarship, Research, and Graduate Education
Activity: Chair, 2008 to 2009
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 2009
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: Member, 2009 to 2012

School Committee Activities

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 |
| Committee: | Associate Dean of Academic Affairs Search Committee |
| Activity: | Member, 2002 |

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. 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.
- [3] 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.
- [4] 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.
- [5] 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.

- [6] 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.

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.
- [38] J. D. English and A. A. Maciejewski, "Failure Tolerance through Active Braking: A Kinematic Approach," *International Journal of Robotics Research*, Vol. 20, No. 4, pp. 287-299, April 2001.
- [39] 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," *Parallel and Distributed Computing Practices*, Special Issue on Parallel Numeric Algorithms on Faster Computers, Vol. 5, No. 4, pp. 351-, April 2002.
- [40] M. Goel, A. A. Maciejewski, V. Balakrishnan, and R. W. Proctor, "Failure tolerant teleoperation of a kinematically redundant manipulator: An experimental study," *IEEE Transactions on Systems, Man, and Cybernetics Part A Systems and Humans*, Vol. 33, No. 6, pp. 758-765, Nov. 2003.
- [41] S. Ali, A. A. Maciejewski, H. J. Siegel, and J-K. Kim, "Measuring the Robustness of a Resource Allocation," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 15, No. 7, pp. 630-641, July 2004.
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- [44] S. Shivle, P. Sugavanam, H. J. Siegel, A. A. Maciejewski, T. Banka, K. Chindam, S. Dussinger, A. Kutruff, P. Penumarthi, P. Pichumani, P. Satyasekaran, D. Sendek, J. Sousa, J. Sridharan, J. Velazco, and J. Smith, "Mapping Subtasks with Multiple Versions on an Ad Hoc Grid," *Parallel Computing*, Special Issue on Heterogeneous Computing, Vol. 31, No. 7, pp. 671-690, 2005.
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- [46] K. Saitwal, A. A. Maciejewski, R. G. Roberts, and B. Draper, "Using the Low-Resolution Properties of Correlated Images to Improve the Computational Efficiency of Eigenspace Decomposition," *IEEE Transactions on Image Processing*, Vol. 15, No. 8, pp. 2376-2387, August 2006.
- [47] S. Shivle, H. J. Siegel, A. A. Maciejewski, P. Sugavanam, T. Banka, R. Castain, K. Chindam, S. Dussinger, P. Pichumani, P. Satyasekaran, W. Saylor, D. Sendek, J.

- Sousa, J. Sridharan, and J. Velazco, "Static Allocation of Resources to Communicating Subtasks in a Heterogeneous Ad Hoc Grid Environment," *Journal of Parallel and Distributed Computing*, Special Issue on Algorithms for Wireless and Ad-hoc Networks, Vol. 66, No. 4, pp. 600-611, April 2006.
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- [49] R. S. Jamisola, A. A. Maciejewski, and R. G. Roberts, "Failure-Tolerant Path Planning for Kinematically Redundant Manipulators Anticipating Locked-Joint Failures," *IEEE Transactions on Robots*, Vol. 22, No. 4, pp. 603-612, August 2006.
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- [86] K. Saitwal, A. A. Maciejewski, and R. G. Roberts, "The Effect of Spatial Resolution Reduction Techniques on the Temporal Properties of Video Sequences," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 4049-4054, Edmonton, Alberta, Canada, August 2-6, 2005.
- [87] B. D. Eldridge and A. A. Maciejewski, "Using Genetic Algorithms to Optimize Social Robot Behavior for Improved Pedestrian Flow," *IEEE International Conference on Systems, Man, and Cybernetics*, pp. 524-529, Hawaii, Oct. 10-12, 2005.
- [88] P. Sugavanam, H. J. Siegel, A. A. Maciejewski, J. Zhang, V. Shestak, M. Raskey, A. Pippin, R. Pichel, M. Oltikar, A. Mehta, P. Lee, Y. Krishnamurthy, A. Horiuchi, K. Guru, M. Aydin, M. Al-Otaibi, and S. Ali, "Robust Mapping of Independent Tasks when Dollar Cost for Processors is a Constraint," *4th International Workshop on Algorithms, Models, and Tools for Parallel Computing on Heterogeneous Networks (HeteroPar-05)*, in the proceedings of the 2005 International Conference on Cluster Computing (Cluster 2005), Boston, MA, Sept. 2005.
- [89] V. Shestak, H. J. Siegel, A. A. Maciejewski, and S. Ali, "Robust Resource Allocations in Parallel Computing Systems: Model and Heuristics" *8th International Symposium on Parallel Architectures, Algorithms, and Networks (I-SPAN 2005)*, Las Vegas, NV, Dec. 2005. (Note: This item is a keynote paper/presentation presented by H. J. Siegel by invitation.)
- [90] V. Shestak, H. J. Siegel, A. A. Maciejewski, and S. Ali, "The Robustness of Resource Allocations in Parallel and Distributed Computing Systems: Method and Examples"

19th International Conference on Architecture of Computing Systems: System Aspects in Organic Computing (ARCS '06), pp. 17-30, Frankfurt, Germany, Mar. 2006. (Note: This item is a keynote paper/presentation presented by H. J. Siegel by invitation.)

- [91] K. Saitwal, A. A. Maciejewski, and R. G. Roberts, "Eigendecomposition of Correlated Images Characterized by Three Parameters," *2006 IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 203-207, Denver, CO, March 26-28, 2006.
- [92] V. Shestak, J. Smith, R. Umland, J. Hale, P. Moranville, A. A. Maciejewski, and H. J. Siegel, "Greedy Approaches to Stochastic Robust Resource Allocation for Periodic Sensor Driven Distributed Systems" *2006 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '06)*, pp. 3-9, Las Vegas, NV, June 26-29, 2006.
- [93] A. M. Mehta, J. Smith, H. J. Siegel, A. A. Maciejewski, A. Jayaseelan, and B. Ye, "Dynamic Resource Allocation Heuristics for Maximizing Robustness with an Overall Makespan Constraint in an Uncertain Environment," *2006 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '06)*, pp. 24-30, Las Vegas, NV, June 26-29, 2006.
- [94] A. M. Mehta, J. Smith, H. J. Siegel, A. A. Maciejewski, A. Jayaseelan, and B. Ye, "Dynamic Resource Management Heuristics for Minimizing Makespan while Maintaining an Acceptable Level of Robustness in an Uncertain Environment," *12th International Conference on Parallel and Distributed Systems (ICPADS 2006)*, pp. 107-114, Minneapolis, MN, July 12-15, 2006.
- [95] V. Shestak, J. Smith, H. J. Siegel, and A. A. Maciejewski, "A Stochastic Approach to Measuring the Robustness of Resource Allocations in Distributed Systems" *35th International Conference on Parallel Processing (ICPP06)*, pp. 459-467, Columbus, OH, Aug. 14-18, 2006.
- [96] M. Oltikar, J. Brateman, J. White, J. Martin, K. Knapp, A. A. Maciejewski, and H. J. Siegel, "Robust Resource Allocation in Weather Data Processing Systems," *8th Workshop on High Performance Scientific and Engineering Computing (HPSEC-06)*, pp. 445-454, Columbus, OH, Aug. 18, 2006.
- [97] S. Bhat and A. A. Maciejewski, "An Agent Based Simulation of the L.A. 1992 Riots," *2006 International Conference on Artificial Intelligence (ICAI '06)*, pp. 76-79, Las Vegas, NV, June 26-29, 2006.
- [98] V. Shestak, J. Smith, A. A. Maciejewski, and H. J. Siegel, "Iterative Algorithms for Stochastically Robust Static Resource Allocation in Periodic Sensor Driven Clusters," *18th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2006)*, pp. 166-174, Dallas, TX, Nov. 13-15, 2006.
- [99] J. Smith, L. Briceno, A. A. Maciejewski, H. J. Siegel, T. Renner, V. Shestak, J. Ladd, A. Sutton, D. Janovy, S. Govindasamy, A. Alqudah, R. Dewri, P. Prakash, "Measuring the Robustness of Resource Allocations in a Stochastic Dynamic Environment," *21st*

- IEEE International Parallel and Distributed Processing Symposium (IPDPS 2007)*, Long Beach, CA, March 26-30, 2007.
- [100] L. Briceno, M. Oltikar, H. J. Siegel, and A. A. Maciejewski, "Study of an Iterative Technique to Minimize Completion Times of Non-Makespan Machines" *16th Heterogeneous Computing Workshop (HCW 2007)*, in the CD-ROM proceedings of the 21st International Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA, March 26-30, 2007.
- [101] D. L. Janovy, J. Smith, H. J. Siegel, and A. A. Maciejewski, "Models and Heuristics for Robust Resource Allocation in Parallel and Distributed Computing Systems" *NSF Next Generation Software Program Workshop (NSFNGS 2007)*, in the CD-ROM proceedings of the 21st International Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA, March 26-30, 2007.
- [102] R. G. Roberts, R. Jamisola, and A. A. Maciejewski, "Identifying the Failure-Tolerant Workspace Boundaries of a Kinematically Redundant Manipulator," *IEEE International Conference on Robotics and Automation*, pp. 4517-4523, Rome, Italy, April 10-14, 2007.
- [103] R. C. Hoover, R. G. Roberts, and A. A. Maciejewski, "Implementation Issues in Identifying the Failure-Tolerant Workspace Boundaries of a Kinematically Redundant Manipulator," *2007 International Conference on Intelligent Robots and Systems (IROS 2007)*, pp. 3528-3533, San Diego, CA, Oct. 29 - Nov. 2, 2007.
- [104] R. G. Roberts, H. G. Yu and A. A. Maciejewski, "Characterizing Optimally Fault-Tolerant Manipulators Based on Relative Manipulability Indices," *2007 International Conference on Intelligent Robots and Systems (IROS 2007)*, pp. 3925-3930, San Diego, CA, Oct. 29 - Nov. 2, 2007.
- [105] S. Khan, A. A. Maciejewski, H. J. Siegel, and I. Ahmad, "A Game Theoretical Data Replication Technique for Mobile Ad Hoc Networks," *22nd IEEE International Parallel and Distributed Processing Symposium (IPDPS 2008)*, Miami, FL, April 14-18, 2008.
- [106] J. Smith, E. K. P. Chong, A. A. Maciejewski, and H. J. Siegel, "Decentralized Market-Based Resource Allocation in a Heterogeneous Computing System," *22nd IEEE International Parallel and Distributed Processing Symposium (IPDPS 2008)*, Miami, FL, April 14-18, 2008.
- [107] L. Briceno, H. J. Siegel, A. A. Maciejewski, Y. Hong, B. Lock, M. N. Teli, F. Wedyan, C. Panaccione, C. Zhang, C. Klumph, and K. Willman, "Resource Allocation in a Client/Server Hybrid Network for Virtual World Environments" *17th Heterogeneous Computing Workshop (HCW 2008)*, in the CD-ROM proceedings of the 22nd International Parallel and Distributed Processing Symposium (IPDPS 2008), Miami, FL, April 14-18, 2008.
- [108] R. C. Hoover, A. A. Maciejewski, and R. G. Roberts, "Pose Detection of 3-D Objects Using S^2 -Correlated Images and Discrete Spherical Harmonic Transforms," *2008*

- IEEE International Conference on Robotics and Automation*, pp. 993-998, Pasadena, CA, May 19-23, 2008.
- [109] R. C. Hoover, A. A. Maciejewski, and R. G. Roberts, "Aerial Pose Detection of 3-D Objects Using Hemispherical Harmonics," *2008 IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 157-160, Santa Fe, NM, March 24-26, 2008.
- [110] R. C. Hoover, A. A. Maciejewski, and R. G. Roberts, "An Analysis of Sphere Tessellations for Pose Estimation of 3-D Objects Using Spherically Correlated Images," *2008 IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 41-44, Santa Fe, NM, March 24-26, 2008.
- [111] J. Smith, H. J. Siegel, and A. A. Maciejewski, "A Stochastic Model for Robust Resource Allocation in Heterogeneous Parallel and Distributed Computing Systems" *NSF Next Generation Software Program Workshop (NSFNGS 2008)*, in the CD-ROM proceedings of the 22nd International Parallel and Distributed Processing Symposium (IPDPS 2008), Miami, FL, April 14-18, 2008.
- [112] J. Smith, H. J. Siegel, and A. A. Maciejewski, "Iterative Techniques for Maximizing Stochastic Robustness of a Static Resource Allocation in Periodic Sensor Driven Clusters" *2008 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '08)*, Vol. 1, pp. 3-9, Las Vegas, NV, July 14-17, 2008.
- [113] S. Hinton, R. C. Hoover, and A. A. Maciejewski, "An Evaluation of Visual Interfaces for Teleoperated Control Kinematically Redundant Manipulators" *Nineteenth International Conference on Systems Engineering (ICSENG 2008)*, pp. 242-247, Las Vegas, NV, Aug. 19-21, 2008.
- [114] R. C. Hoover, A. A. Maciejewski, and R. G. Roberts, "Pose Detection of 3-D Objects Using Images Sampled on $SO(3)$, Spherical Harmonics, and Wigner- D Matrices," *4th Annual IEEE Conference on Automation Science and Engineering (CASE 2008)*, pp. 47-52, Washington, DC, August 23-26, 2008.
- [115] R. G. Roberts, S. A. Siddiqui, and A. A. Maciejewski "Designing Equally Fault-Tolerant Configurations for Kinematically Redundant Manipulators," *41st Southeastern Symposium on System Theory (SSST2009)*, pp. 335-339, University of Tennessee Space Institute, Tullahoma, Tennessee, March 15-17, 2009.
- [116] V. Shestak, E. K. P. Chong, A. A. Maciejewski, and H. J. Siegel, "Robust Sequential Resource Allocation in Heterogeneous Distributed Systems with Random Compute Node Failures," *18th International Heterogeneity in Computing Workshop (HCW 2009)*, in the CD-ROM proceedings of the 23rd International Parallel and Distributed Processing Symposium (IPDPS 2009), Rome, Italy, May 25, 2009.
- [117] L. Briceno, H. J. Siegel, A. A. Maciejewski, Y. Hong, B. Lock, M. N. Teli, F. Wedyan, C. Panaccione, C. Klumph, K. Willman, and C. Zhang, "Robust Resource Allocation in a Massive Multiplayer Online Gaming Environment" *Fourth International Conference on the Foundations of Digital Games (FDG 2009)*, pp. 232-239, Port Canaveral, FL, April 26-30, 2009.

- [118] S. U. Khan, A. A. Maciejewski, and H. J. Siegel, "Robust CDN Replica Placement Techniques," *Workshop on Dependable Parallel, Distributed and Network-Centric Systems (DPDNS 2009)*, in the CD-ROM proceedings of the 23rd International Parallel and Distributed Processing Symposium (IPDPS 2009), Rome, Italy, May 25, 2009.
- [119] P. Maxwell, A. A. Maciejewski, H. J. Siegel, J. Potter, and J. Smith, "A Mathematical Model of Robust Military Village Searches for Decision Making Purposes" accepted to appear in *2009 International Conference on Information and Knowledge Engineering (IKE'09)*, pp. - , Las Vegas, NV, July 13-16, 2009.
- [120] A. M. Al-Qawasmeh, A. A. Maciejewski, H. J. Siegel, J. Smith, and J. Potter, "Task and Machine Heterogeneities: Higher Moments Matter" accepted to appear in *2009 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'09)*, pp. - , Las Vegas, NV, July 13-16, 2009.
- [121] J. Smith, E. K. P. Chong, A. A. Maciejewski, and H. J. Siegel, "Stochastic-Based Robust Dynamic Resource Allocation in a Heterogeneous Computing System" accepted to appear in *38th International Conference on Parallel Processing (ICPP-2009)*, pp. -, Vienna, Austria, Sept. 22-25, 2009.
- [122] R. C. Hoover, A. A. Maciejewski, and R. G. Roberts, "Designing Eigenspace Manifolds: With Application to Object Identification and Pose Estimation," accepted to appear in *2009 IEEE Conference on Systems, Man, and Cybernetics*, pp. -, San Antonio, TX, Oct. 11-14, 2009.
- [123] R. C. Hoover, A. A. Maciejewski, R. G. Roberts, and R. P. Hoppal, "An Illustration of Eigenspace Decomposition for Illumination Invariant Pose Estimation," accepted to appear in *2009 IEEE Conference on Systems, Man, and Cybernetics*, pp. -, San Antonio, TX, Oct. 11-14, 2009.

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 and Workshops

- [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.

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.

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.
- [34] Session Co-Chairman, "Algorithmic Automation," The 4th Annual IEEE Conference on Automation Science and Engineering (CASE 2008), Washington, DC, Aug. 24, 2008.

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 Computer Graphics and Applications (1987-present)
IEEE Computer (1988-present)
IEEE Control Systems Magazine (1988-present)
IEEE Robotics and Automation Magazine (1994-present)
IEEE/ASME Transactions on Mechatronics (2001-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)

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, Macao, China.