

DAVID M. KORTENKAMP

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RESEARCH INTERESTS

- Software architectures for intelligent control
- Human-robot/human-intelligent system interaction and cooperation
- Integrating perception and artificial intelligence
- Mobile robot mapping and navigation

EDUCATIONAL EXPERIENCE

- Ph.D., The University of Michigan, Computer Science and Engineering, 1993, Dissertation: *Cognitive Maps for Mobile Robots: A Representation for Mapping and Navigation*. Committee: Edmund Durfee, John Laird, Stephen Kaplan, David Wehe, and Terry Weymouth (chair)
- M.S., The University of Michigan, Computer Science and Engineering, 1990
- B.S., The University of Minnesota, Computer Science, 1988

WORK EXPERIENCE

- Senior Scientist and Vice President, TRACLabs Inc. Houston, TX 77058, 7/94 – present
 - Co-founder of Metrica’s Texas Robotics and Automation Center (TRACLabs), which conducts artificial intelligence and robotics research primarily for NASA Johnson Space Center. As senior scientist at TRACLabs I oversee seven full-time researchers and am responsible for developing new research directions. I am lead of the commanding and execution technical area of NASA’s Spacecraft Autonomy Project. The commanding and execution technical area is a multi-center effort funded at over \$1 million annually.
 - Leadership positions (partial list):
 - * Lead, Commanding and Execution technical area of the NASA Spacecraft Autonomy Project, 01/2006 - present
 - * Human-robot interaction task manager, Modular, Multifunctional and Reconfigurable Super-Bot Project 05/2005 to 01/2006
 - * JSC liaison to NASA Intelligent Systems Automated Reasoning Program, 09/2001 to 09/2004
 - * Project lead, EVA Robotic Assistant, 05/2002 to 09/2004
 - * JSC lead for NASA Space Robotics Assessment Project, 06/2001 to 06/2003
- Technical Staff Member, The MITRE Corp. Houston, TX 77058, 9/93–7/94
- Research Assistant, University of Michigan, Ann Arbor, MI 48109, 9/89–8/93
- Teaching Assistant, University of Michigan, Ann Arbor, MI 48109, 9/88–5/89

GRANTS

- Principal Investigator, “Building a Coherent World View from Sensory Data,” DARPA Small Business Innovation Research Grant, 1/18/2008 – 7/17/08, \$98,769 with Dr. Nick Cassimitas, RPI
- Principal Investigator, “A Data Abstraction Architecture for Spacecraft Autonomy,” NASA Small Business Innovation Research Grant, 1/18/2007 – 1/17/10, \$700,000
- Co-Investigator, “Task Examination/Aggregation/Learning (TEAL) to Support Adjustable Autonomy,” Army Small Business Innovation Research Grant, 11/15/2006 – 11/15/09, \$850,000 with Dr. Bob Bechtel (PI) Soar Technologies Inc.
- Co-Investigator, “Modular, Multifunctional and Reconfigurable SuperBot,” NASA Human and Robotic Technology Program, 05/01/05 – 04/31/06 (Phase 1), \$212,000 (TRACLabs portion), with Dr. Wei-Min Shen (PI), University of Southern California
- Co-Investigator, “Development and Application of Reliability Analysis Techniques to Early Advanced Life Support Systems,” NASA Research Announcement (NRA) Grant, 03/01/04 - 09/30/07, \$710,040 with Dr. Luis Rodriguez (PI), University of Illinois Urbana Champaign
- Principal Investigator, “Qualitative Models for Planning, Scheduling and Control of Integrated Advanced Life Support Systems,” NASA Research Announcement (NRA) Grant, 3/01/04 – 2/29/07, \$482,661.
- Principal Investigator, “A Procedure Representation Language,” NASA Engineering for Complex Systems NRA Grant, 01/01/04 – 12/31/06, \$1,020,000.
- Principal Investigator, “Intelligent Procedure Tracking and Assistance,” NASA Small Business Innovation Research Grant, 01/01/03 – 06/30/03, \$69,993.
- Co-Investigator, “Distributed Monitoring and Control of Complex Dynamic Systems,” NASA Research Announcement (NRA) Grant (NRA 02-OBPR-01), 12/01/02 – 12/01/05, \$277,200 with Dr. Gautam Biswas (PI), Vanderbilt University.
- Principal Investigator, “Automated Mobile Inspection of Spacecraft Exteriors,” NASA Engineering Complex Systems Grant, 10/01/01 – 9/30/02, \$300,000.
- Co-Investigator, “Space Robotics Assessment and Projections,” NASA NEXT Grant, 06/01/01 – 09/30/02, \$298,000, with Dr. Liam Pedersen and Dr. Daniel Clancy (PI), NASA Ames Research Center.
- Co-investigator, “Distributed Crew Interaction with Advanced Life Support Control Systems,” NASA Intelligent Systems Research Grant, 03/05/01 – 02/28/04, \$1,417,250 with Debra Schreckenghost (PI), NASA Johnson Space Center.
- Co-investigator, “A Hybrid Discrete/Continuous System for Health Management,” NASA Intelligent Systems Research Grant, 03/05/01 – 02/28/04, \$1,517,000, with Dr. Brian Williams (PI), MIT.
- Co-investigator, “Automatically Synthesizing Guaranteed Hybrid Controllers,” NASA CETDP Research Grant, 10/01/00 – 09/30/03, \$1,396,377, with Dr. Robert Goldman (PI), Honeywell Technology Center).
- Principal Investigator, “Evaluating the Application of Machine Learning to the Control of Advanced Life Support Systems,” NASA CETDP Research Grant, 10/1/99 – 9/30/04, \$1,035,000.
- Principal Investigator, “A Suite of Visualization Tools for Distributed Autonomous Systems,” NASA Small Business Innovation Research Grant, 12/1/98 – 11/30/01, \$669,679 with Dr. Reid Simmons, Carnegie Mellon University.
- Principal Investigator, “A Distributed Architecture for Multi-Robot Coordination,” NASA CETDP Research Grant, 10/1/98 – 9/30/00, \$250,000 with Dr. Reid Simmons, Carnegie Mellon University.

- Co-Principal Investigator, “Human-Centered Autonomous Agents,” NASA CETDP Research Grant, \$150,000, 10/1/99 – 9/30/00, Dr. Greg Dorais, NASA Ames, co-PI.
- Principal Investigator, “An Intelligent Software Architecture for Semi-Autonomous Robot Control,” NASA Small Business Innovation Research Grant, \$664,581, 1/1/97 – 4/31/99.
- Principal Investigator, “Three-dimensional Path Planning and Execution for Free-flying Robots,” NASA Small Business Technology Transfer Grant, 9/1/97 – 8/31/98, \$99,939 (with Dr. Howie Choset, Carnegie Mellon University).
- Principal Investigator, “Stereo-based Pursuit and Obstacle Avoidance for Mobile Robots,” National Science Foundation, 1/1/97 – 6/31/97, \$74,928.
- Principal Investigator, “Integrating Intelligent Planning, Scheduling and Control for Robotic and Life Support Systems,” NASA Small Business Technology Transfer Grant, 7/1/96 – 6/31/97, \$99,995 (with Dr. Jorge Leon, Texas A&M University).

PROFESSIONAL ACTIVITIES

2008

- Associate Editor, MIT Press series on *Intelligent Robotics and Autonomous Agents*
- National Conference on Artificial Intelligence (AAAI-08) Program Committee Member for special track on Integrated Intelligent Capabilities

2007

- Chair, External Review Panel for Naval Research Laboratory’s Information Technology Program
- PhD thesis committee member for Joseph Modayil, University of Texas Austin, Computer Science Department. Ben Kuipers committee chair.
- Senior Program Committee Member, International Conference on Intelligent Robots and Systems (IROS), 2007
- National Conference on Artificial Intelligence (AAAI-07) Program Committee Member for special track on Integrated Intelligent Capabilities
- Special Awards Judge, 2007 Intel International Science and Engineering Fair

2006

- Co-chair (with Ari Jonsson of NASA Ames Research Center) of the AAAI Fall Symposium on *Spacecraft Autonomy: Using AI to Expand Human Space Exploration*
- National Conference on Artificial Intelligence (AAAI-06) Program Committee Member for special track on Integrated Intelligent Capabilities
- Senior Program Committee Member, Human-Robot Interaction Conference 2006
- Special Awards Judge, 2006 Intel International Science and Engineering Fair
- Reviewer, IEEE Transactions on Robotics

2005

- Invited Panelist, AIAA Space 2005 Panel on *New Frontiers in Human and Robotic Exploration*. Talk title: “Implications of Robotic Capabilities for Human Space Exploration”

- Invited Presentation on “Advances in Robotics” at the Orientation Program for the Office of the Secretary of Defense Corporate Fellows Program
- National Conference on Artificial Intelligence (AAAI-05) Program Committee Member
- Co-chair, International Conference on Environmental Systems (ICES) 2005 session on *Advanced Life Support Systems Control*
- Special Awards Judge, 2005 Intel International Science and Engineering Fair
- Reviewer, *International Journal on Advanced Robotics Systems Special Issue* on “Software Development and Integration in Robotics”
- Reviewer, *Instrumentation, Systems and Automation Transactions*
- Member, NASA Systems Integration Modeling and Analysis (SIMA) Robust Systems Working Group

2004

- Chair, External Review Panel for Naval Research Laboratory’s Information Technology Program
- Invited talk at the Vanderbilt University Spring 2004 EECS Lecture Series
- National Conference on Artificial Intelligence (AAAI-04) Program Committee Member
- Reviewer, *Autonomous Robots Journal*
- Special Awards Judge, 2004 Intel International Science and Engineering Fair
- Master’s degree thesis committee member, Theresa Klein, Rice University (Dr. Devika Subramanian, committee chair)
- Ph.D. thesis committee member, Joseph Modayil, University of Texas (Dr. Benjamin Kuipers, committee chair)

2003

- Participant, IEEE Intelligent Systems Magazine panel on “Robots for the Real World” at Comdex 2003
- Co-chair, 2003 AAAI Spring Symposium on “Human Interaction with Autonomous Systems in Complex Environments”
- Co-chair, 2003 NASA Workshop on “Advanced System Integration and Control for Life Support”
- Invited Participant, DARPA Sidekick Workshop
- International Joint Conference on Artificial Intelligence (IJCAI-03) Program Committee Member
- International Symposium on Artificial Intelligence and Robotics and Automation for Space (i-SAIRAS-03) Program Committee Member

2002

- Co-author, NASA Space Robotics State-of-the-art Assessment
- Member, NASA Exploration Team (NExT) Human-Robotic Working Group
- Invited speaker and panelist, NATO Multi-Robot Systems Workshop, Naval Research Laboratory, Washington DC

- Tutorial presenter (with Liam Pedersen) at International Conference on Intelligent Robots and Systems (IROS) 2002. Title: “Worlds to Explore: An Introduction to Current Capabilities and Key Challenges in Space Robotics”
- Chair, organizing committee, 2002 International NASA Workshop on Planning and Scheduling for Space
- Special Awards Judge, 2002 Intel International Science and Engineering Fair
- Innovative Applications of Artificial Intelligence (IAAI-02) Program Committee Member
- National Conference on Artificial Intelligence (AAAI-2002) Program Committee Member
- Reviewer, Journal of Artificial Intelligence Research (JAIR)

2001

- Invited participant, *DARPA/NSF Study on Human-Robot Interaction*, September 2001
- Invited participant, DARPA ISAT study group on *Mixed-Initiative Control and Monitoring within Human-Bot Systems*
- Field Reviewer, American Society for Engineering Education post doctoral applications
- External reviewer, Naval Research Laboratory research option on “Coordinated Teams of Autonomous Systems”
- Ph.D. thesis committee member, Paul Scerri, “Designing Agents for Systems with Adjustable Autonomy,” Linkoping University, Linkoping Sweden
- International Symposium on Artificial Intelligence and Robotics and Automation for Space (i-SAIRAS 2001) Program Committee Member
- NASA New Millenium Program proposal reviewer
- NASA Mars Technology Program proposal reviewer
- Air Force Office of Scientific Research proposal reviewer
- Autonomous Robots journal reviewer

2000

- Invited speaker, National Conference on Artificial Intelligence (AAAI-2000). Title: “Artificial Intelligence and Mobile Robots: Successes and Challenges”
- Chair, External Review Panel for Naval Research Laboratory’s Information Technology Program
- Tutorial presenter, Pacific Rim International Conference on Artificial Intelligence (PRICAI-2000), with Greg Dorais entitled “Designing Human-Centered Autonomous Agents”
- National Conference on Artificial Intelligence (AAAI- 2000) Program Committee member
- International Conference on Autonomous Agents 2000 Program Committee member
- NASA New Millenium Program proposal reviewer
- Second NASA Conference on Planning and Scheduling Program Committee member
- Guest editor, with Henry Hexmoor, of a special issue of the *Journal of Experimental and Theoretical Artificial Intelligence* on Autonomous Control Systems

1999

- Chair, IJCAI-99 workshop on *Adjustable Autonomy Systems*, August, 1999
- Organizing committee member, IJCAI-99 Workshop on *Robot Action Planning*, August 1999
- Organizing committee member, AAAI 1999 Spring Symposium on *Agents with Adjustable Autonomy*, March 1999
- Guest editor, with Alan Schultz, of a special issue of the journal *Autonomous Robots* on Integrating Robotics Research
- AAAI-99 Program Committee member
- Agents '99 Program Committee member
- IEEE 1999 International Conference on Robotics and Automation Program Committee member
- International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS '99) Program Committee member
- IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA '99) Program Committee Member
- PhD thesis committee member for Glenn Wasson, University of Virginia Computer Science Department

1998

- Editor with R. Peter Bonasso and Robin Murphy, *Artificial Intelligence and Mobile Robots*, AAAI/MIT Press, March 1998. Sold over 2000 copies as of March 2001
- Co-chair with Robin Murphy and Gregory Dudek, AAAI-98 workshop on *Merging Traditional AI with Robotics: Lessons Learned from the 1998 AAAI Competition*, July 1998. Funded by an NSF grant
- Co-chair with Alan Schultz, AAAI 1998 Spring Symposium on Integrating Robotic Research: Taking the Next Leap, March 1998
- Program committee member, International Conference on Vision Systems
- AAAI-98 Program Committee member
- Reviewer for *IEEE Transactions on Robotics and Automation*, *Artificial Intelligence Journal*, and *Autonomous Robots Journal*
- Supervised Gabe Ferrer, Ph. D. candidate at the University of Virginia, and Bert Peterson, Ph. D. candidate at the University of Texas at Arlington, during their summer research projects

1997

- Guest editor, with Ian Horswill and Henry Hexmoor, of a special issue of the *Journal of Experimental and Theoretical Artificial Intelligence* (Volume 9, Number 1-2) dedicated to software architectures for intelligent, autonomous agents
- Editorial board of *Autonomous Robots Journal*/ *Machine Learning Journal* joint special issue on Robot Learning in Autonomous Robots edited by Henry Hexmoor and Maja Mataric
- External review panel member for Naval Research Lab Research Option on Integrated Autonomous Systems
- AAAI-97 Program Committee
- Reviewer for *IEEE Transactions on Robotics and Automation*

- Supervised Glenn Wasson, Ph. D. candidate at the University of Virginia, and Kim Shilcutt graduate student at Carnegie Mellon University, during their summer research projects

1996

- Organizer of the 1996 AAI Mobile Robot Competition and Exhibition
- AAI-96 Program Committee

1995

- Co-chair of the AAI 1995 Spring Symposium on *Lessons Learned from Implemented Software Architectures for Physical Agents*
- Co-organizer of the 1995 IJCAI Mobile Robot Competition
- Supervisor of two NASA cooperative education students in their semester-long research projects in the Johnson Space Center's Automation and Robotics Division. One of the students received a NASA JSC Cooperative Education Special Achievement Award in 1995

1994

- Member of the organizing committee of the 1994 AAI Mobile Robot Competition
- Organizer of the 1994 NASA Johnson Space Center Fall Workshop on Human/Robot Interaction

Other

- Organizer and leader of a team of 20 graduate and undergraduate students who placed first in the 1992 AAI Mobile Robot Competition. Our robot received one of *Popular Science's* "Best of What's New in 1992" awards
- Supervisor of one first-year graduate student, three undergraduate students and one high school student in their summer research projects at the University of Michigan during the summers of 1991 and 1992
- Organizer of reading group on architectures for mobile robots from 10/92 to 5/93 while a graduate student at Michigan
- Organizer of the University of Michigan's Artificial Intelligence Seminar, Winter Term 1991

PUBLICATIONS

2008

- **Book Chapter**
 - David Kortenkamp and Reid Simmons, "Robotic Systems Architectures and Programming," in *Springer Handbook of Robotics*, Springer-Verlag, 2008.
- **Conference**
 - David Kortenkamp, et al, "Adjustable Automation for Lunar Habitat Control", to appear in *International Conference on Environmental Systems, 2008*.
 - David Kortenkamp, et al, "A Lunar Habitat Testbed for Evaluating Mission Operations", to appear in *International Conference on Environmental Systems, 2008*.
 - David Kortenkamp, R. Peter Bonasso and Debra Schreckenghost, "A Procedure Representation Language for Human Spaceflight Operations," to appear in *The 9th International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS-08)*, 2008.

- David Kortenkamp, et al, “A Testbed for Evaluating Lunar Habitat Autonomy Architectures,” to appear in *6th Conference on Human/Robotic Technology and the Vision for Space Exploration (STAIF 2008)*, 2008.
- Luis Rodriguez, Haibei Jiang, Scott Bell and David Kortenkamp, “Self-repairing Control System for Future Exploration Missions”, to appear in *International Conference on Environmental Systems, 2008*.
- Luis Rodriguez, Haibei Jiang, Scott Bell and David Kortenkamp, “Optimal Cost and Reliability Design for Exploration Life Support Systems”, to appear in *International Conference on Environmental Systems, 2008*.
- Debra Schreckenghost, R. Peter Bonasso, David Kortenkamp, Scott Bell, Tod Milam and Carroll Thronesbery “Adjustable Autonomy with NASA Procedures,” to appear in *The 9th International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS-08)*, 2008.

2007

• Conference

- David Kortenkamp, R. Peter Bonasso and Debra Schreckenghost, “Developing and Executing Goal-Based, Adjustably Autonomous Procedures,” in *AIAA InfoTech@Aerospace Conference 2007*.
- Luis Rodriguez, Haibei Jiang, Scott Bell, Kirsten Stark and David Kortenkamp, “Validation of Heuristic Techniques for Design of Life Support Systems,” in *Conference on Systems Engineering Research 2007*.
- David Kortenkamp, R. Peter Bonasso and Debra Schreckenghost, “Managing Life Support Systems Using Procedures,” to appear in *International Conference on Environmental Systems, 2007*.
- Haibei Jiang, Kaustubh Bhalerao, Luis Rodriguez, Scott Bell, David Kortenkamp and Alfred Soboyejo, “Modeling Stochastic Performance and Random Failure,” to appear in *International Conference on Environmental Systems, 2007*.
- Luis Rodriguez, Haibei Jiang, Scott Bell, and David Kortenkamp, “Testing Heuristic Tools for Life Support System Analysis,” in *International Conference on Environmental Systems 2007*.

2006

• Journal

- Luis Rodriguez, Scott Bell and David Kortenkamp “Use of Genetic Algorithms and Transient Models for Life Support Systems Analysis,” *AIAA Journal of Spacecraft and Rockets*, Vol. 43, No. 6, pp. 1394-1403, 2006.

• Conference

- Gautam Biswas, David Kortenkamp and Luis Rodriguez, “Achieving Life Support Robustness Through Operational Methods,” in *Habitation 2006: An international conference on space habitation research and technology development*, 2006.
- Travis Fischer, Devika Subramanian, Scott Bell and David Kortenkamp, “Multi-tier Supply Chain Management for Distributed Life Support System Control,” poster at the *Habitation 2006: An international conference on space habitation research and technology development*, 2006.

• Workshop

- David Kortenkamp, R. Peter Bonasso and Debra Schreckenghost, Procedures as a Gateway to Spacecraft Autonomy, in *AAAI Fall Symposium on Spacecraft Autonomy*, 2006.

2005

• Conference

- David Kortenkamp, Gautam Biswas and Eric-Jan Manders, “Issues in Integrated Health Management of Life Support Systems,” in *Proceedings 1st First International Forum on Integrated System Health Engineering and Management for Aerospace (ISHEM’05)*, 2005.
- David Kortenkamp, Scott Bell and Luis Rodriguez, “Simulating Lunar Habitats and Activities to Derive System Requirements,” in *Proceedings 1st AIAA Space Exploration Conference 2005*.
- Scott Bell, David Kortenkamp and Luis Rodriguez, “Using dynamic simulations and automated decision tools to design lunar habitats,” in *Proceedings of the International Conference on Environmental Systems (ICES)*, 2005.
- Sherif Abdelwahed, Jian Wu, Gautam Biswas, Eric Manders, Scott Bell and David Kortenkamp, “Requirements for an Autonomous Control Architecture for Advanced Life Support Systems,” in *Proceedings of the International Conference on Environmental Systems (ICES)*, 2005.
- Eric Manders, Gautam Biswas, Scott Bell and David Kortenkamp, “Multi-scale modeling of advanced life support systems,” in *Proceedings of the International Conference on Environmental Systems (ICES)*, 2005.
- David Kortenkamp and Scott Bell, “Using AI and simulations to design and control space habitats,” poster paper in *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2005.

• Workshop

- David Kortenkamp and Scott Bell, “BioSim: Simulating Space Habitats for Artificial Intelligence Research,” in , *International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS)*, 2005.

2004

• Journal

- David Kortenkamp, Reid Simmons, Tod Milam and Joaquin Lopez Fernandez, “Tools for Debugging Distributed Autonomous Systems,” in *Formal Methods and Systems Design Journal*, 24, 157-188, 2004.

• Conference

- Theresa Klein, Devika Subramanian, David Kortenkamp and Scott Bell, “Using Reinforcement Learning to Control Life Support Systems,” in *Proceedings of the International Conference on Environmental Systems*, 2004.

2003

• Magazine

- David Kortenkamp, “A Day in an Astronauts Life: Reflections on Advanced Planning and Scheduling Technology,” in *IEEE Intelligent Systems*, March/April, 2003.
- Pete Bonasso, David Kortenkamp and Carroll Thronesbery, “Intelligent Control of a Water Recovery System: Three Years in the Trenches,” in *AI Magazine*, Vol. 24, No. 1, Spring 2003.
- Reid Simmons, Dani Goldberg, Adam Goode, Michael Montemerlo, Nicholas Roy, Brennan Sellner, Chris Urmson, Alan Schultz, Myriam Abramson, William Adams, Amin Atrash, Magda Bugajska, Michael Coblenz, Matt MacMahon, Dennis Perzanowski, Ian Horswill, Robert Zubek, David Kortenkamp, Bryn Wolfe, Tod Milam and Bruce Maxwell, “GRACE: An Autonomous Robot for the AAAI Robot Challenge,” *AI Magazine*, Vol 24, No. 2, Summer 2003, pp. 51 – 72.

- **Conference**

- David Kortenkamp and Scott Bell, “Simulating advanced life support systems for integrated controls research,” in *Proceedings 33rd International Conference on Environmental Systems (ICES)*, July 2003.
- Chris Culbert, Jen Rochlis, Fred Rehnmark, David Kortenkamp, Kevin Watson, Rob Ambrose, Ron Diftler, Brenda Ward, Liam Pedersen, Chuck Weisbin, Guillermo Rodriguez, Bob Easter and Mary DiJoseph, “Activities of the NASA Exploration Team Human-Robotics Working Group,” in *Proceedings of the AIAA Space Conference 2003*, 2003.

- **Workshop**

- David Kortenkamp and Scott Bell, “BioSim: An Integrated Simulation of an Advanced Life Support System for Intelligent Control Research,” in *The 7th International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS-03)*, 2003.
- Liam Pedersen, David Kortenkamp, David Wettergreen and Illah Nourbakshk, “A Survey of Space Robotics,” in *The 7th International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS-03)*, 2003.
- Robert Burrige, Jeff Graham, Kim Shillcutt, Robert Hirsh and David Kortenkamp, “Experiments with an EVA Assistant Robot,” in *The 7th International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS-03)*, 2003.
- C. Martin, D. Schreckenghost, P. Bonasso, D. Kortenkamp, T. Milam and C. Thronesbery, “Helping Humans: Agents for Distributed Space Operations,” *The 7th International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS-03)*, 2003.
- C. Martin, D. Schreckenghost, P. Bonasso, D. Kortenkamp, T. Milam and C. Thronesbery, “Aiding Collaboration Among Humans and Complex Software Agents,” *Working Notes, AAAI Spring Symposium on Human Interaction with Autonomous Systems in Complex Environments*, 2003.

2002

- **Journal**

- D. Schreckenghost, C. Martin, P. Bonasso, D. Kortenkamp, T. Milam, and C. Thronesbery, “Supporting group interactions among humans and autonomous agents” *Connection Science*, Vol. 14, Number 4, 2002, pages 361 – 369.

- **Magazine**

- D. Schreckenghost, C. Thronesbery, P. Bonasso, D. Kortenkamp and C. Martin, “Intelligent Control of Life Support for Space Missions,” *IEEE Intelligent Systems Magazine*, Vol. 17, Number 5, September/October 2002, pages 24 – 31.

- **Conference**

- David Kortenkamp, Tod Milam, Reid Simmons and Joaquin Lopez Fernandez “A Suite of Tools for Debugging Distributed Autonomous Systems” in *Proceedings of the IEEE International Conference on Robotics and Automation*, 2002.
- Anthony Gross, Geoffrey Briggs, Brian Glass, Liam Pedersen, David Kortenkamp, David Wettergreen, Illah Nourbaksh and Daniel Clancy, “Advances in Robotic, Human, and Autonomous Systems for Missions of Space Exploration,” *World Space Congress*, Houston Texas, 2002.

- **Book Chapter**

- David Kortenkamp, Debra Schreckenghost and Cheryl Martin, “User Interaction with Multi-Robot Systems” in *Multi-Robot Systems: From Swarms to Intelligent Automata*, eds. Alan C. Schultz and Lynne E. Parker, Kluwer Academic, Boston, 2002 [16 citations according to Google Scholar].

- **Workshop**

- D. Schreckenghost, C. Martin, P. Bonasso, D. Kortenkamp, T. Milam and C. Thronesbery, “Supporting Group Interaction among Humans and Autonomous Agents,” *AAAI Workshop on Autonomy, Delegation, and Control: From Inter-Agent to Groups*, 2002.

2001

- **Book Chapter**

- David Kortenkamp, “Designing an Architecture for Adjustably Autonomous Robot Teams,” in *Advances in Artificial Intelligence: PRICAI Workshop Reader, LNAI 2112*, eds. R. Kowalczyk, S. W. Lake, N. Reed, and G. Williams, Springer-Verlag, New York, 2001.
- Greg Dorais and David Kortenkamp, “Designing Human-Centered Autonomous Agents,” in *Advances in Artificial Intelligence: PRICAI Workshop Reader, LNAI 2112*, eds. R. Kowalczyk, S. W. Lake, N. Reed, and G. Williams, Springer-Verlag, New York, 2001.

- **Conference**

- David Kortenkamp, R. Peter Bonasso and Devika Subramanian, “Distributed, Autonomous Control of Space Habitats,” in *IEEE Aerospace Conference*, 2001.

- **Workshop**

- David Kortenkamp, Tod Milam, Reid Simmons and Joaquin Lopez Fernandez “Collecting and Analyzing Data from Distributed Control Programs,” in *Workshop on Run-time Verification (also in Electronic Notes in Theoretical Computer Science Vol. 55, no. 2)*, 2001.
- David Kortenkamp, “The Roles of Machine Learning in Robust Autonomous Systems,” in *AAAI Spring Symposium on Robust Autonomy*, 2001.

2000

- **Conference**

- David Hershberger, Robert Burrige, David Kortenkamp and Reid Simmons, “Distributed Visual Servoing with a Roving Eye,” in *Intelligent Robotics and Systems (IROS) 2000*.
- David Kortenkamp, “Designing visualization tools for a distributed control architecture,” *Intelligent Autonomous Systems Conference (IAS-6)*, 2000.
- David Kortenkamp, Debra Keirn-Schreckenghost and R. Peter Bonasso, “Adjustable Control Autonomy for Manned Space Flight,” *IEEE Aerospace Conference*, 2000 [20 citations according to Google Scholar].

- **Workshop**

- David Kortenkamp, Debra Schreckenghost and R. Peter Bonasso, “Real-time autonomous control of space habitats”, *AAAI 2000 Spring Symposium on Real-Time Autonomous Control*.
- Debra Schreckenghost, R. Peter Bonasso, Mary Beth Hudson and David Kortenkamp, “Activity Planning for Long Duration Space Missions,” *AAAI-2000 Workshop on Representational Issues for Real-World Planning Systems*.

1999

- **Journal**

- Glenn Wasson, David Kortenkamp and Eric Huber, “Integrating Active Perception with an Autonomous Robot Architecture,” in *Robotics and Autonomous Systems*, Vol. 29, pp. 175-186, 1999.

- Howie Choset and David Kortenkamp, “Path Planning and Control for AERCam, a Free-flying Inspection Robot in Space,” in *ASCE Journal of Aerospace Engineering*, 1999.

- **Book Chapter**

- David Kortenkamp, Eric Huber and Glenn Wasson, “Integrating a Behavior-based Approach to Active Stereo Vision with an Intelligent Control Architecture for Mobile Robots,” *Hybrid Information Processing in Adaptive Autonomous Vehicles*, ed. Gerhard K. Kraetzschmar and Gunther Palm, Springer-Verlag, 1999.

- **Conference**

- Howie Choset, David Kortenkamp, Robert Burrigge, Andrew Alford, Jaime Fernandez, Joleen Flasher, Dean Jackson, Ross Knepper and Sean Walker, “Path Planning and Control for AERCam, a Free-flying Inspection Robot in Space,” in *IEEE International Conference on Robotics and Automation*, 1999.

- **Workshop**

- David Kortenkamp, Robert Burrigge, R. Peter Bonasso, Debra Schreckenghost and Mary Beth Hudson, “An Intelligent Software Architecture for Semi-autonomous Robot Control,” International Conference on Autonomous Agents (Agents ’99) Workshop on Autonomous Control Software, 1999.
- David Kortenkamp, Robert Burrigge, R. Peter Bonasso, Debra Schreckenghost and Mary Beth Hudson, “Adjustable Autonomy Issues for Control of Robots,” *IJCAI-99 Workshop on Adjustable Autonomy Systems*, August, 1999.
- G. Dorais, R. P. Bonasso, David Kortenkamp, B. Pell and D. Schreckenghost, “Adjustable Autonomy for Human-Centered Autonomous Systems,” *IJCAI-99 Workshop on Adjustable Autonomy Systems*, August, 1999.

1998

- **Journal**

- Eric Huber and David Kortenkamp, “A Behavior-based Approach to Active Stereo Vision,” in *Experimental Applications of Artificial Intelligence*, Vol. 11, pp. 229-243, 1998.

- **Book**

- *Mobile Robots and Artificial Intelligence*, edited by David Kortenkamp, R. Peter Bonasso and Robin Murphy, AAAI/MIT Press, Cambridge MA, 1998 [176 citations according to Google Scholar].

- **Book Chapters**

- David Kortenkamp, Marcus Huber, Charles Cohen, Ulrich Raschke, Frank Koss and Clare Congdon, “Integrating High Speed Obstacle Avoidance, Global Path Planning and Vision Sensing on a Mobile Robot,” to appear in *Mobile Robots and Artificial Intelligence*, ed. David Kortenkamp, R. Peter Bonasso, and Robin Murphy, AAAI Press, 1998.
- R. Peter Bonasso, David Kortenkamp, and Robin Murphy, “Mobile Robots: A Proving Ground for Artificial Intelligence” to appear in *Mobile Robots and Artificial Intelligence*, ed. David Kortenkamp, R. Peter Bonasso, and Robin Murphy, AAAI Press, 1998.

- **Conference**

- Glenn Wasson, David Kortenkamp and Eric Huber, “Integrating Active Perception with an Autonomous Robot Architecture,” in *International Conference on Autonomous Agents*, 1998.

- G. Dorais, R. P. Bonasso, David Kortenkamp, B. Pell and D. Schreckenghost, “Adjustable Autonomy for Human-Centered Autonomous Systems on Mars,” *Mars Society Conference*, August, 1998 [90 citations according to Google Scholar].

- **Workshop**

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- **Workshop**

- David J. Musliner and David Kortenkamp, “MICE and the Science of Vacuuming,” *Working Notes: AAI Fall Symposium on Instantiating Real-World Agents*, 1993.

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- David Kortenkamp, L. D. Baker, and T. Weymouth, “Using Gateways to Build a Route Map,” *Proceedings IEEE/RSJ International Conference on Intelligent Robots and Systems*, 1992.
- David Kortenkamp, M. Huber, C. B. Congdon, S. Huffman, C. Bidlack, C. Cohen, F. Koss, U. Raschke and T. Weymouth, “Integrating High-Speed Obstacle Avoidance, Global Path Planning, Visual Cue Detection and Landmark Triangulation in a Mobile Robot,” *Proceedings SPIE Mobile Robots VII*, 1992.
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- **Workshop**

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- **Technical Report**

- C. Congdon, M. Huber, D. Kortenkamp, et al., “CARMEL vs. Flakey: A comparison of two robots” American Association for Artificial Intelligence Technical Report RC-92-01, 1992.

UNPUBLISHED PRESENTATIONS

2005

- “Worlds to Explore: Autonomy Challenges for Human Space Flight,” invited talk, Montana State University, March 2006.

2005

- “Implications of Robotic Capabilities for Human Space Exploration” AIAA Space 2005 Panel on *New Frontiers in Human and Robotic Exploration*.
- “Reconfigurable, Flexible and Adaptable Mission Support Tools for Highly Autonomous Mission Operations,” AIAA Space Operations 2005.
- “Reconfigurable Procedures to Support Mission Operations,” IEEE Technical Meeting, 2005.

2004

- “Using Simulations of Advanced Life Support Systems to Develop Integrated Control Algorithms,” Habitation 2004 Conference, Orlando Florida, 2004.
- “Simulating Advanced Life Support Systems to Test Integrated Control Approaches,” Congress on Space Research 2004, Paris, France, 2004.

2003

- “Layered Architectures for Controlling Real-World Agents,” invited talk, Texas Tech University, Lubbock Texas, October 2003.
- “Integrated, Autonomous Control of Advanced Life Support Systems,” invited talk, Massachusetts Institute of Technology, September, 2003.
- “Worlds to Explore: Autonomy Challenges for Human Space Flight,” invited talk, Bowdoin College, September, 2003.
- “Advantages of Hierarchical, Centralized Architectures for Controlling Real-World Systems,” invited talk NASA Advanced System Integration and Control Workshop, Monterey CA, August 2003.
- “An Advanced Life Support Simulation for Integrated Controls Research,” invited talk NASA Advanced System Integration and Control Workshop, Monterey CA, August 2003.

2002

- “Space Robotics Capabilities”, (with Liam Pedersen), Workshop on In-Space Construction and Maintenance of Complex Science Facilities, College Park MD, May 2002.
- “Using Machine Learning to Control Coupled Dynamical Life Support Systems,” invited talk, Texas Tech University, Lubbock Texas, May 2002.

2001

- “Space Robotics Capabilities,” invited talk, AI Seminar, Linkoping University, Linkoping Sweden, December 2001.

- “Space Robotics Capabilities,” (with Liam Pedersen), ICASE/USRA/LaRC Workshop on Revolutionary Aerospace Systems Concepts for Human/Robotic Exploration of the Solar System, Langley VA, November 2001.

2000

- “Distributed Adaptive Control of Advanced Life Support Systems,” invited talk, RIACS Workshop on Validation and Verification of Autonomous and Adaptive Systems, Pacific Grove CA, December 2000.
- “Evaluating Machine Learning Approaches to Control of Advanced Life Support Systems,” NASA Ames Research Center, Moffett Field CA, December 2000.
- “Robots Around the World and in Space,” invited talk, University of Texas, Pan-American, McAllen TX, November 2000.
- “Intelligent Robots for Space Applications,” invited talk, 9th International Seminar on Informatics, Tampico Mexico, October, 2000.

1999

- “Integrating Active Perception with an Autonomous Robot Architecture,” invited talk, University of Virginia Computer Science Department, May, 1999.
- “Adjustable Autonomy Issues in Intelligent Robot Control,” The Robotics Institute Seminar Series, Carnegie Mellon University, Pittsburgh, PA, January, 1999.

1998

- “An Architecture for Autonomous Space Robots,” invited talk, University of Texas at Arlington Computer Science Department, Arlington, TX, January, 1998.

1997

- “Integrating Active Perception with an Autonomous Robot Architecture,” invited talk, Rice University Computer Science Department, Houston TX, November, 1997.
- “Recognizing and Interpreting Gestures on a Mobile Robot,” invited talk, Daimler-Benz Research Center, Ulm, Germany, July, 1997.
- “Integrating a Behavior-based Approach to Active Stereo Vision with an Intelligent Control Architecture for Mobile Robots,” invited talk, SFB-527 Symposium on Hybrid Information Processing in Adaptive Autonomous Vehicles, Reisingburg, Germany, July, 1997.
- “Integrating Stereo-based Active Vision and Intelligent Control on a Mobile Robot,” invited seminar, Naval Center for Applied Research in Artificial Intelligence, Naval Research Laboratory, Washington D.C., April, 1997.
- “An Autonomous Flying Camera for Inspection and EVA Assistance,” invited talk, NASA Highly Autonomous Systems Workshop, Pasadena, California, April 1997.
- “Experiences with a Architecture for Intelligent, Reactive Robots,” invited talk, ProTem-CC/NSF Joint Workshop on Intelligent Robotic Agents, Porto Allegre, Brazil, March 1997.

1996

- “Using Active Vision Techniques and Intelligent Control Architectures to Create Human/Robot Teams,” invited talk, Carnegie Mellon University Artificial Intelligence Seminar, October 1996.
- “Integrating Planning and Robot Control,” invited talk, AAAI-96 Workshop on Theories of Action, Planning and Robot Control: Bridging the Gap, August 1996.

- “Experiences with a Hierarchical Software Architecture for Combining Reactivity and Deliberation in Autonomous Robots,” invited talk, IEEE International Conference on Robotics and Automation Workshop on Robotic Planning and Execution, April, 1996.
- “Perceptual and Architectural Considerations for Human/Robot Teams,” invited talk, The University of Chicago Artificial Intelligence Seminar, January, 1996.

1995

- “An Intelligent Software Architecture for Autonomous Robots,” invited talk, The University of Texas–Austin, January, 1995.

1994

- “Intelligent System Architectures,” NASA Johnson Space Center Fall Workshop on Human/Robot Interaction, December, 1994.
- “An Intelligent Software Architecture for Autonomous Agents,” The MITRE Corporation–Bedford, MA, May, 1994.

1993

- “RPLAN: A Cognitive Mapping System,” NASA Workshop on Selective Perception in Robotics, November, 1993.
- “An Overview of Department of Energy Supported Mobile Robotics Research at the University of Michigan,” Los Alamos National Laboratory, January, 1993.
- “Integrating High-Speed Obstacle Avoidance, Long-Range Sensing and Landmark Triangulation to Accomplish a Find and Visit Task,” Second DOE/NE Robotics for Advanced Reactors Program Student Conference, January 1993.
- “Giving Mobile Robots Cognitive Maps,” Second DOE/NE Robotics for Advanced Reactors Program Student Conference, Gainesville, FL, January 1993.

1992

- “Integrating High-Speed Obstacle Avoidance and Long-Range Sensing to Accomplish a Find and Visit Task,” SPIE Workshop on Intelligent Robotic Systems, Boston, November 1992.
- “Integrating Topological, Locational and Directional Navigation,” First DOE/NE Robotics for Advanced Reactors Program Student Conference, January 1992.

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