

Wei-Min Shen

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Education

PhD Computer Science, Carnegie Mellon University, Pittsburgh, USA	1989
Thesis: Learning from the environment based actions and percepts	
Advisor: Professor Herbert A. Simon	
MS Computer Science, Carnegie Mellon University, Pittsburgh, USA	1986
MS Graduate Study, Institute of Automation, Academy of Sciences, China	1983
BS Electronics and Computer Engineering, Jiao-Tong University, Beijing, China	1982

Honors and Awards

Championship at the first ICRA planetary contingency robotic competition	2008
<i>Phi Kappa Phi Faculty Recognition Award</i> , University of Southern California	2003
<i>The Best Paper Award, On the Use of Sensors in Self-Reconfigurable Robots</i> , (International Conference on Simulation of Adaptive Behaviors SAB-2002)	2002
<i>Robotic-Soccer RoboCup World Champion Award</i> , RoboCup, Nagoya, Japan (Featured on CNN, ABC, Discovery, SCIENCE, and other international newspapers and magazines)	1997
<i>Meritorious Service Award</i> , Information Sciences Institute, University of Southern California	1997
<i>Second Place Award</i> in AAAI Robotics Competition, Portland, Oregon (featured on PBS and CNN)	1996
<i>National Scholarship Award for Education Abroad</i> , The Chinese Ministry of Education	1983
<i>Award for First Place Student</i> in national entrance examination, Chinese Academy of Sciences	1983
<i>Award for University Outstanding Graduate</i> (top 2%), Jiao-Tong University, Beijing, China	1982

Professional Experience

University of Southern California, Los Angeles, CA	
Director	Polymorphic Robotics Laboratory, USC/ISI 1999—
Associate Director	Center for Robotics and Embedded Systems, USC 2002—
Project Leader	Information Sciences Institute, USC 1998—
Research Associate Professor	Computer Sciences Department, USC 2005—
Research Assistant Professor	Computer Sciences Department, USC 1995—
Computer Scientist	Information Sciences Institute, USC 1994—
Microelectronics and Computer Technology Corporation (MCC), Austin TX	
Project Leader	1994
Senior Member of Technical Staff	1993-94
Member of Technical Staff	1989-93
Carnegie Mellon University, Pittsburgh, PA	
Graduate Research Assistant	Department of Computer Science 1983-89
Graduate Teaching Assistant	Department of Computer Science 1987-88
Chinese Academy of Sciences, Beijing, China	
Graduate Research Assistant	Institute of Automation 1982-83

Teaching Experience

University of Southern California, Department of Computer Science	
Autonomous Learning and Discovery Robots (CS593) (Designed this new class)	1997-98
Autonomous Learning from the Environment (CS599)	1996

Deductive Databases and Data Mining (lectures for CS589)	1995-96
University of California at Los Angeles, School of Engineering Extension (Short Course) Data Mining and Knowledge Discovery in Databases	1998-99
NASA Jet Propulsion Laboratory, Pasadena, California Short Course on Data Mining Technology and Applications (Short Course)	1999
University of Texas at Austin, Department of Management Science and Information Systems Learning from the Environment Based on Actions and Percepts (Lecture Series)	1991
Semantic Integration of Heterogeneous Databases (Lecture Series)	1994
Carnegie Mellon University, Department of Computer Science Introduction to Programming Languages (TA)	1986-87

US Patents

Distributed Control and Coordination of Autonomous Agents in a Dynamic, Reconfigurable Systems Application Serial Number: 10/155,489, USC File No. 3157A, US Patent #006636781 (Description: Hormone-inspired distributed and decentralized control for self-reconfigurable systems)	2003
A Genderless and Single-Side-Operational Connector Mechanism for Self-Reconfigurable, Self-Assembly and Self-Healing Systems, US Patent Pending	2008
Extremely Flexible Thruster System for Underwater Vehicles, US Patent Pending	2008

Grants and Contracts

DARPA, Mobile robotic networks -- LANDroids (Principal Investigator PI), \$550K	2008-2009
AFOSR, Surprise-Based Learning (PI), \$600K	2006-2009
NASA, Modular, Self-Reconfigurable and Multifunctional <i>SuperBot</i> , (PI) \$4.23M	2005-2008
DARPA, Cognitive Architecture COGENT, \$125K	2006-2007
DURIP, Self-Healing Robotic Modules, (PI) \$200K,	2005-2007
Army Research Office, Self-reconfigurable robotics systems, (PI) \$250K	2004-2007
DARPA, Applied Learning Networks, \$400K (Co-PI)	2005-2007
CiSoft, Robotics and AI for Intelligent Oil Field, Chevron-Texaco (PI), \$150K	2005-2007
National Science Foundation	
Space Self-Assembly via Self-Reconfigurable Robots, \$275K, (PI)	2002-2004
Meta-pattern Based Data Mining Systems, \$300K, (PI)	1996-1999
US Air Force Office of Scientific Research	
Cooperative Control Program, \$284K, (PI)	2001-2003
Self-Organizing and Autonomous Learning Agents, \$950K, (PI)	2000-2004
Adaptive Agent Organizations, \$700K, (PI)	1997-2000
Defense Advanced Research Program Agency	
Self-Reconfigurable Robots, \$3M, (Co-PI)	1998-2002
Robust and Flexible Agent Teams, \$2M, (Co-PI)	1998-2002
EASTMAN CHEMICAL COMPANY	
Data Mining for Chemical Compound Design, \$120K, (PI)	1995-1996
MOTOROLA INC.	
Data Mining for VLSI Manufacturing Process Control, \$100K, (PI)	1995

PhD Student Supervision

University of Southern California (Current PhD Students)
PhD Advisor for:

Mike Rubenstein, Computer Science, 2004-present.
Feili Hou, Computer Science, 2004-present.
Jacob Everist, Computer Science, 2004-present.
Harris Chiu, Computer Science, 2005-present.
Nadeesha Ranasinghe, Computer Science, 2006-present.
Maks Krivokon, Computer Science, 2003-present (on leave).

PhD Committee Member for:

Anna Li, Computer Science, Main Advisor, Professor Steven Lu, 2007-present.

University of Southern California (Past PhD students)

PhD Advisor for:

Jay Modi, 1998-2003, Thesis topic: Distributed Constraint Optimization for Multi-Agent Systems. Current position: Assistant Professor in Computer Science, Drexel University.

Kasper Stoy, 2001-2002, Thesis Topic: Control of Self-Reconfigurable Robots. Current position: Assistant Professor in Computer System Engineering, University of Southern Denmark.

Behnam Salemi, 1997-2003, Thesis topic: Distributed Control for Chain-Typed Self-Reconfigurable Robots. Current position: Computer Scientist, USC/ISI.

Jafar Adibi, 1997-2002, Thesis topic: Self-Similarity and Extended Hidden Markov Models for Data Mining. Current position: Project Leader, Price Waterhouse.

PhD Committee Member for:

Daniel Arbuckle, 2007, Main Advisor: Professor Arisitdes Requicha. Thesis Topic: Self-Assembly Systems. Current position: USC.

Ayanna Howard, 1999, Main Advisor: Professor George Bekey. Current position: Associate Professor, George Tech. Thesis topic: Manipulation of deformed objects.

Alex Guazzelli, 1999, Main Advisor: Professor Michael Arbib. Current position: Computer Scientist in Brazil. Thesis topic: Hippocampus and navigation.

James Montgomery, 1998, Main Advisor: Professor George Bekey. Current position: Robotics in JPL. Thesis topic: Fuzzy control of autonomous helicopter.

Michael McHenry, 1998, Main Advisor: Professor George Bekey. Current position: Senior member of technical staff in JPL.

Fernando Corbacho, 1997, Main Advisor: Professor Michael Arbib. Current position: Computer Scientist, Madrid, Spain. Thesis topic: Integrated Learning in Rana Computatrix.

Bonghan Cho, 1996, Main Advisor: Professor Paul Rosenbloom. Current position, Philips Electronics. Thesis topic: Fast matching in AI production systems.

University of Hong Kong

Scott Howe, 2007, I served as an external committee member for his PhD in Electrical Engineering.

University of New South Wales, Sydney, Australia

Rex Kwok, 1998, Main advisor: Norman Foo. Thesis topic: Computational Scientific Discovery.

University of Texas at Austin, USA

Rwo-Hsi Wang, 1994, Main advisor: Al Mok. Thesis topic: Data analysis for electronic devices.

Tsing-Hwa Chi, 1992, Main advisor: Andrew Whinston. Thesis topic: Learning for information management. Current position: Department Chairman and Professor, University of California at Long Beach.

Master Student Supervision

University of Southern California

Rizwan Khan, Computer Science, self-reconfigurable robots 2008

Nisha Ganerawal, Computer Science, self-reconfigurable robots 2008

Duckho Kim, Computer Science, self-reconfigurable robots 2007

Peter Shin, Computer Science, self-reconfigurable robots 2007

Nicholas Kiswanto, Underwater autonomous vehicles 2007

<i>Lim Harold</i> , Underwater autonomous vehicles	2006
<i>Kenneth Payne</i> , Autonomous docking for self-reconfigurable robots	2005
<i>Harris Chiu</i> , Self-reconfigurable robot locomotion in complex environment	2005
<i>Jagadesh Venkadesh</i> , Self-reconfigurable robot locomotion in complex environment	2005
<i>James Han</i> , Self-reconfigurable robots for climbing behaviors	2005
<i>Harshit Suri</i> , The design and control of self-assembly FIMER robots	2004
<i>Kasra Mogharei</i> , The design and control of self-reconfigurable robots	2004
<i>Nadeesha Ranasinghe</i> , Simulation of self-reconfiguration in complex environment	2003
<i>Yusuf Ateskan</i> , Control of self-assembly modules in space	2003
<i>Aseem Mohanty</i> , Autonomous learning of object models from the environment	2001
<i>Yimin Lu</i> , Distributed Control of Self-Reconfigurable Robots	2000
<i>XueJun Wang</i> , Data mining and model discovery from legacy databases	2000

Consulting Experience

Tsinghua University, Beijing, China	2001
Shanghai Grandar Electronic & Information Co., Ltd., Shanghai, China	2001-2002
G.K. Intelligent System, Houston, TX, USA. Applying Data Mining to Enterprise Integration. The company also licensed a data mining software package developed by my DataCrystal project.	1997-1998

Special Scientific Review Committee Invitations

External Proposal Reviewer for AFOSR, ARL, NASA	1999-2007
JPL, External Reviewer, NASA's Deep Space Mission System Program and Mars Technology Program.	2004-2006
Portuguese National Foundation for Science and Technology, Special Proposal Review Committee	2000
US National Science Foundation, Panel Review for Computation and Social Systems Program	1999
US National Science Foundation, Panel Review for Robotics and Intelligent Systems Program	1994-1995
US National Science Foundation, Panel Review for Database and Information Management Program	1991

Invited Plenary Talk

Barcelona Science Museum, Celebration of 50 th Anniversary of Artificial Intelligence.	10/27/2006
The International Conference on Complex Systems, Boston, USA.	5/8/2004
ITT Vaguard Convention, Los Angeles, USA.	5/5/2001

Invited Demonstrations

WIRED NextFest, LA Convention Center, http://www.wirednextfest.com/ Self-Reconfigurable Robots	09/2007
California Science Museum, Autonomous Soccer-Playing Robots	07/1999

Invited Presentations

University of Rome, Italy, Seminar on Self-Reconfigurable Robots	06/29/2007
Oxford University, Pembroke College, Natural and Artificial Cognition	06/23/2007
Google, Santa Monica, Self-Reconfigurable Robots	02/28/2007
Japan External Trade Organization, LA Office	02/27/2007
Monterey Bay Aquarium Research Institute, Self-reconfigurable robots for underwater applications.	9/9/2006
Universitat de Girona; Girona, Spain	10/25/2006
Universitat Rovira I Virgili, Tarragona, Spain	10/26/2006
Oxford University, Robotics Seminar on Self-reconfigurable robots	11/2006
University of California, Berkeley, EECS, Seminar on Self-Assembly	11/14/2005
University of Pennsylvania, GRASP Robotics Seminar	4/8/2005
University of Maryland at College Park, Robotics Seminar	06/2004
NASA Workshop on Modular and self-reconfigurable systems	4/2004
Australian Center for Field Robotics Seminar, University of Sydney, Self-Reconfigurable Robots	7/24/2003

UC San Diego, Invited AI Seminar, Self-Reconfigurable Robots and Digital Hormones	2/22/2003
NASA Ames Research Center, Invited Presentation, Self-Assembly for RoboSphere	11/2002
Stanford Research Institute, Invited Colloquium, Self-Reconfigurable Robots	11/2002
Naval Research Laboratory, Invited AI Seminar, Self-reconfigurable Robots	06/2002
UCLA, Invited CS Seminar, Self-Reconfigurable Robots and Digital Hormones	1/31/2002
NASA Langley Research Center, Workshop on Human and Robotics Space Exploration	11/2001
NASA Ames Research Center, Invited Seminar, Self-Reconfigurable Robots	8/2001
MicroSoft Research Center, Invited Seminar, Soccer and Self-Reconfigurable Robots, Beijing, China	6/2001
Tsinghua University, Self-Reconfigurable Robots, Beijing, China	6/2001
Chinese Science Academy, ShenYang Institute of Automation, Invited Seminar, On Self-Reconfiguration	4/2001
ShanHai JiaoTong University, Invited Talk, Self-Adaptive Robot Organizations, China	4/2001
American Radiology Society, Data mining techniques and their medical applications	11/1999
USC Aerospace and Mechanical Engineering Invited Seminar, On Adaptive Organizations	1999
UCLA, Invited CS Seminar, Model Construction from Databases	1999
University of British Columbia, Invited CS Seminar, Soccer Robots	1998
Simon Fraser University, Invited CS Seminar, Model Construction from Database	1998
Carnegie Mellon University, Invited CS Seminar, On Soccer Robots	1997
Brazil-US International Workshop, Porto Alegre, Brazil, On Intelligent Robotics Agents	1997
The First International Conference on Intelligent Data Analysis, Barden-Barden, Germany	1996
University of California at Irvine, Invited CS Seminar, Metapattern-Based Data Mining	1996
UCLA, Invited CS Seminar, Metapattern-Based Data Mining	1996
Italian International Conference on Abstract Intelligent Agents, Invited Talk, Autonomous Learning	1994
University of Texas at Austin, Invited MS Seminar, Integration of Heterogeneous Databases	1994
Eastman Chemical Company, TN, Invited Corporate Seminar, Data Mining for Chemical Databases	1994
Bellcore Inc., NJ, Invited Corporate Seminar, Data Mining for Telecommunication Databases	1993
University of Texas at Austin, Invited Seminar for Management Science, Autonomous Learning Agents	1991

Research Interests

I am interested in interdisciplinary research in the following areas:

Self-reconfigurable robots and systems	Self-organization theories and models
Data mining and knowledge discovery	Biologically inspired systems and theories
Computational scientific discovery	Machine learning
Multi-agent systems	Distributed constraint optimization
Distributed control of complex systems	Modeling of complex systems and Brain
Life science and technology	Autonomous Adaptive Systems

Research Projects

Self-configuring, self-optimizing, self-healing, and tethering robotic radio network (LANDroids)	2008-2009
Surprise-Based Learning	2006-2009
SuperBot: Modular, reconfigurable and multifunctional robots for Space Applications	2005-2008
CATALINA: Autonomous underwater robots	2004-2007
SERES: Self-healing robots	2005-2007
MORPHOSE: Self-reconfigurable robots	2004-2007
SOLAR: Space self-assembly via self-reconfigurable robots	2002-2004
CiSoft: Robotics application for intelligent oil field	2005-2006
HORMCOMM: Hormone-inspired adaptive communication	2001-2003
SOALA: Self-organizing and autonomous learning robots and agents	2000-2004
CONRO: Self-reconfigurable robots	1998-2002
DYNAMITE: Dynamic and real-time distributed resource allocation in multi-agent systems	1998-2002
TEAMCORE: Robust and flexible multi-robot agent teams	1998-2001
ADAPTEAM: Adaptive and self-organizing agent teams	1997-2000
Dreamteam: Soccer-playing robot teams (1997 world champion)	1997-1999
DataCrystal: Metapattern-based, integrated data mining systems	1996-2000

YODA: Indoor navigation robots	1996
SIMS: Intelligent data mediator	1995-1998
DSQTM: Distributed semantic query/transaction manager (~50,000 lines), MCC	1992-1994
CYC: Learning in very large knowledge base, MCC	1990-1992

PhD Dissertation

Shen, W.-M. *Learning from the Environment Based on Actions and Percepts* 1989
Carnegie Mellon University, under the supervision of Nobel Laureate Professor Herbert A. Simon

Books

1. Shen, W.-M., *Autonomous Learning from the Environment* (Foreword by Professor Herbert A. Simon), W. H. Freeman, Computer Science Press, 1994.
2. Shen, W.-M., (editor) *Learning Action Models: A Collection of Research Papers*, AAAI Press, 1993.
3. Gini, M., W.-M. Shen, C. Torras, H. Yuasa (editors) *Intelligent Autonomous Systems, IAS7*, IOS Press, 2002.
4. Shen, W.-M. (editors) *Handbook of Data Mining and Knowledge Discovery*, Oxford University Press, 2001.

Journal Publications

1. Rubenstein, M., W.-M. Shen, Y. Sai, and CM Chuong, Regenerative Patterning in Swarm Robots - Mutual Benefits of Research in Robotics and Stem Cell Biology, *International Journal for Developmental Biology*, to appear, 2008.
2. Mark Yim, Wei-Min Shen, Behnam Salemi, Daniela Rus, Mark Moll, Hod Lipson, Eric Klavins, and Gregory S. Chirikjian. Modular Self-Reconfigurable Robot Systems -- Challenges and Opportunities for the Future. *IEEE Robotics and Automation Magazine*, 43-53, March, 2007.
3. Colombano, S.P., and Wei-Min Shen. Self-Sustaining Robotic Systems, Guest Editorial, *Autonomous Robots*, 20(2):83-84, 2006.
4. Shen, W.-M., Maks Krivokon, Harris Chiu, Jacob Everist, Michael Rubenstein, Jagadesh Venkatesh, Multimode Locomotion for Reconfigurable Robots, *Autonomous Robots*, 20(2):165-177, 2006.
5. Modi, P. J., W.-M. Shen, M. Tambe, and M. Yokoo, ADOPT: Asynchronous Distributed Constraint Optimization with Quality Guarantees, *Artificial Intelligence Journal*, 161(1-2):180, January 2005.
6. Shen, W.-M, P. Will, A. Galstyan, C.-M. Chuong, Hormone-inspired self-organization and distributed control of robotic swarms, *Autonomous Robots*, 17:93-105, 2004.
7. Jiang, T-X., Wideltz, RB., Shen, W.-M., Will, P., Wu, DY., Lin, CM., Jung, JS., Chuong, CM., 2004. Integument pattern formation involves genetic and epigenetic controls operated at different levels: Feather arrays simulated by a digital hormone model. *International Journal on Developmental Biology*, 48, 2004.
8. Salemi, B., P. Will, and W.-M. Shen, Distributed Task Negotiation in Modular Robots, Special Issue on "Modular Robotics", *Journal of the Robotics Society of Japan (RSJ)*, 2003.
9. Shen, W.-M., Self-Organization through Digital Hormones, *IEEE Intelligent Systems*, 81-83, 8/2003.
10. Stoy, K., W.-M. Shen, P. Will, Global Locomotion from Local Interaction in Self-Reconfigurable Robots, *Robotics and Autonomous Systems*, (in press) 2003.
11. Shen, W.-M., P. Will, B. Khoshnevis, Autonomous Docking in Self-Reconfigurable Robots, *IEEE Transactions on Mechatronics*, (accepted) 2003.
12. Shen, W.-M., B. Salemi, and P. Will, Hormone-Inspired Adaptive Communication and Distributed Control for CONRO Self-Reconfigurable Robots, *IEEE Transactions on Robotics and Automation*, 18(5), October, 2002.
13. Stoy, K, W.-M. Shen, P. Will, Using Role-Based Control to Produce Locomotion in Chain-type Self-Reconfigurable Robots, *IEEE Transactions on Mechatronics*, 7(4), 410-417, Dec. 2002.
14. Shen, W.-M. and Mark Yim, Self-Reconfigurable Robots. Guest Editorial, *IEEE Transactions on Mechatronics*, 7(4), 401-402, Dec. 2002.
15. Shen, W.-M., P. Will, and A. Castano. CONRO: Towards Deployable Robots with Inter-Robots Metamorphic Capabilities, *Autonomous Robots*, 8 (3): 309-324, 2000.
16. Shen W.-M., Adibi J, Adobbati R, et al. Integrated reactive soccer agents, *Lecture Notes on Artificial Intelligence*, 1604: 286-298, 1999.

17. Shen, W.-M., J. Adibi, R. Adobbati, B. Cho, A. Erdem, H. Moradi, B. Salemi, and S. Tejada. Towards Integrated Soccer Robots, *AI Magazine*, 19(3) 79-85, 1998.
18. Tambe, M. and L. Johnson and W.-M. Shen. Adaptive Agent Tracking in Real-world Multi-Agent Domains: A Preliminary Report. *International Journal of Human-Computer Studies*, 48, 105-124, 1998.
19. Shen, W.-M., J. Adibi, B. Cho, G. Kaminka, J. Kim, B. Salemi, and S. Tejada. YODA: The Young Observant Discovery Agent, *AI Magazine*. 18(1) 37-45, 1997.
20. A. Famili, W.-M. Shen, R. Weber, and E. Simoudis. Data Preprocess for Intelligent Data Anaysis. *International Journal of Intelligent Data Analysis*, 1(1), 1997.
21. Shen, W.-M. and B. Leng. A Metapattern-Based Automated Discovery Loop for Integrated Data Mining. *IEEE Transactions on Data and Knowledge Engineering*, 8(6) 898-910, 1996.
22. Patil, R. and W. Zhang and W.-M. Shen. An Information Mediator Network for Tasks in Dynamic Environments. *IMIA Yearbook of Medical Informatics*, 1996.
23. Y. Arens, C. Knoblock, and W.-M. Shen. Query Reformulation for Dynamic Information Integration. *Journal of Intelligent Information Systems*, 6, 99-130, 1996.
24. Shen, W.-M. The Process of Discovery. *Foundations of Science*, 1(2), 1995.
25. Shen, W.-M. Discovery as Autonomous Learning from the Environment, *Machine Learning*, 12, 143-156, 1993.
26. Shen, W.-M. and H.A. Simon. Fitness Requirements for Scientific Theories Containing Recursive Theoretical Terms, *British Journal of Philosophy of Science*, 44, 641-652, 1993.
27. Shen, W.-M. Discovering regularities from knowledge bases. *International Journal of Intelligent Systems*, 7(7) 623--636, 1992.
28. Shen, W.-M. LIVE: An architecture for autonomous learning from the environment, *ACM SIGART Bulletin*, Special issue on Integrated Cognitive Architectures, 2(4), 151-155, 1992.
29. Shen, W.-M. and C. Collet and M.N. Huhns. Resource integration using a large knowledge base in Carnot. *IEEE Computer*, 24(12), 55-62, 1991.
30. Shen, W.-M. Functional Transformation in AI Discovery Systems. *Artificial Intelligence*, 41(3), 257-272, 1989.

Book Chapters

1. Maks Krivokon, Peter Will, Wei-Min Shen, Hormone-Inspired Distributed Language for Self-Reconfigurable Robots, *Unifying Themes in Complex Systems, Volume 5*, 2008.
2. Behnam Salemi, Peter Will, Wei-Min Shen, Autonomous Discovery and functional response to topological change in self-reconfigurable robots, in *Complex Engineering Systems*, 2006.
3. Shen, W.-M., P. Will, B. Khoshnevis, Self-Assembly in Space via Self-Reconfigurable Robots, in *Multi-Robot Systems: the Second NATO Workshop*, edited by A. Schultz and L. Parker , Kluwer Academic, 2003.
4. Shen, W.-M. and C.M. Chuong, Simulating self-organization with the Digital Hormone Model, in *Multi-Robot Systems: From Swarms to Intelligent Automata*, edited by A. Schultz and L. Parker , Kluwer Academic, 2002.
5. Shen, W.-M., B. Mitbender, K.L. Ong, and C. Zaniolo. Metaqueries for Data Mining. In *Advances in Knowledge Discovery and Data Mining*, editors Fayyad U., G. Piatetsky-Shapiro, P. Smyth, R. Uthurusamy. MIT Press. 1995.
6. Woelk, D., M. Huhns, N. Jacobs, T. Ksiezzyk, K. Ong, W.-M. Shen, M. Singh, and C. Tomlinson. Carnot Prototype. In *Heterogeneous Databases*, edited by Omran A. Bukhres and Ahmed Elmagarmid. MIT Press. 1995.
7. Shen, W.-M. Learning deterministic finite automata using local distinguishing experiments. In *Computational Learning Theory and Natural Learning Systems*, edited by T. Petsche and S. Judd and S. Hanson. MIT Press. 1994.

Refereed Conference Papers

1. Feili Hou and Wei-Min Shen. Distributed, Dynamic, and Autonomous Reconfiguration Planning for Chain-Type Self-Reconfigurable Robots. *Intl. Conf. on Robotics and Automation*, Pasadena, CA, May 2008.
2. Michael Rubenstein and Wei-Min Shen. A Scalable And Distributed Model for Self-organization and Self-healing. *Intl. Conf. on Autonomous Agents and Multiagent Systems*, Estoril, Portugal, May 2008.
3. Wei-Min Shen, Harris Chiu, Michael Rubenstein, and Behnam Salemi. Rolling and Climbing by the Multifunctional SuperBot Reconfigurable Robotic System. *Space Technology Intl. Forum*, Albuquerque, New

- Mexico, February 2008.
4. Harris C. H. Chiu, Michael Rubenstein, and Wei-Min Shen. Multifunctional SuperBot with Rolling Track Configuration. In Proc. 2007 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, San Diego, CA, November 2007. IROS 2007 Workshop on Self-Reconfigurable Robots, Systems & Applications.
 5. Feili Hou, Nadeesha Ranasinghe, Behnam Salemi, and Wei-Min Shen. Remotely-Controlled Autonomous TricycleBot Locomotion via SuperBot. In Proc. 2007 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, San Diego, CA, November 2007. IROS 2007 Workshop on Self-Reconfigurable Robots, Systems & Applications.
 6. Nadeesha Ranasinghe, Jacob Everist, and Wei-Min Shen. Modular Robot Climbers. In Proc. 2007 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, San Diego, CA, November 2007. IROS 2007 Workshop on Self-Reconfigurable Robots, Systems & Applications.
 7. Harris Chi Ho Chiu and Wei-Min Shen. Concurrent and Real-Time Task Management for Self-Reconfigurable Robots. In Proc. Third Intl. Conf. on Autonomous Robots and Agents, New Zealand, December 2006.
 8. Jacob Everist, Feili Hou, and Wei-Min Shen. Transformation of Control in Congruent Self-Reconfigurable Robot Topologies. In Proc. 2006 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, Beijing, China, October 2006.
 9. Mark Moll, Peter Will, Maks Krivokon, and Wei-Min Shen. Distributed Control of the Center of Mass of a Modular Robot. In Proc. 2006 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, Beijing, China, 2006.
 10. Behnam Salemi, Mark Moll, and Wei-Min Shen. SUPERBOT: A Deployable, Multi-Functional, and Modular Self-Reconfigurable Robotic System. In Proc. 2006 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, Beijing, China, October 2006.
 11. Suri, Hashit, P. Will, and W.-M. Shen, System Design of Robots for Application to In-Space Assembly, In Proc. 2006 IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, Beijing, China, October 2006.
 12. Harris Chi Ho Chiu and Wei-Min Shen. Concurrent and Real-Time Task Management for Self-Reconfigurable Robots. In Proc. Second Workshop on Self-Reconfigurable Robots, Philadelphia, USA, August 2006.
 13. Shen, W.-M., et al., On the design of multifunctional and self-reconfigurable robots for space, SPACE-2006 Conference, American Institute of Aeronautics and Astronautics, San Jose, USA, September 19-21, 2006.
 14. Shen, W.-M., Maks Krivokon, Harris Chiu, Jacob Everist, Michael Rubenstein, Jagadesh Venkatesh, Multimode Locomotion via SuperBot Reconfigurable Robots, International Conference on Robotics and Automation, May 2006, Orlando, USA.
 15. Feili Hou, Wei-Min Shen, Mathematical Foundation for Hormone-Inspired Control for Self-Reconfigurable Robotic Systems, International Conference on Robotics and Automation, May 2006, Orlando, USA.
 16. Feili Hou, Wei-Min Shen, Hormone-inspired Adaptive Distributed Synchronization of Reconfigurable Robots, The 9th International Conference on Intelligent and Autonomous Systems (IAS-9), Tokyo, Japan, March 2006.
 17. Payne, K., Everist, J., Hou, F., Shen, W.-M., Single-Sensor Probabilistic Localization on the SeReS Self-Reconfigurable Robot, The 9th International Conference on Intelligent and Autonomous Systems (IAS-9), Tokyo, Japan, March 2006.
 18. Shen, W.-M. Modular, multifunctional and self-reconfigurable SuperBot for Space Applications, Space Technology and Application International Forum (STAIF-2006), Albuquerque, NM, February, 2006.
 19. Shen W.-M., Bogdanowicz J. Chun W. Yim M. Will P. M. Sims M. Colombano S. Kortenkamp D. Vanderzyl S. Baumgartener E. Taylor J., Superbots: Modular, Multifunctional, Reconfigurable Robotic System for Space Exploration, LEAG-2005 Conference on Lunar Exploration, Houston, TX, Oct 2005.
 20. Taylor G. J. Lentz R. C. F. Lawrence S. J. Martel L. M. Shen W.-M. Will P. M. Sims M. H. Colombano S. Kortenkamp D. Damer B. Chun W., SuperBots on the Lunar Surface: Mini-Mobile Investigation System (Mini-MIS) LEAG-2005 Conference on Lunar Exploration, Houston, TX, Oct 2005.
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 22. Lentz R. C. F. Taylor G. J. Lawrence S. J. Martel L. M. Shen W.-M. Will P. M. Sims M. H. Colombano S. Kortenkamp D. Damer B. Chun W. SuperBots on the Lunar Surface: A Robotic Multi-Use Lunar Explorer (MULE) LEAG-2005 Conference on Lunar Exploration, Houston, TX, Oct 2005.
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Program Committee, IEEE International Conference on Robotics and Automation	2006
Co-Chair for the 3rd Conference on Robosphere for space exploration (NASA Ames)	2006
Program Committee, AAAI conference	2006
Chair for self-reconfigurable robot workshop at Robotic System Conference at MIT	2005
Co-Chair for the 2nd Conference on Robosphere for space exploration (NASA Ames)	2004
Co-Chair for the 7th International Conference on Intelligent and Autonomous Systems	2002
Organizing Chair, ICRA Workshop on Self-Reconfigurable Robots, Seoul, Korean.	2001
Organization Committee for International RoboCup Midsize Competition	1997-2001
Program Committee, Annual conference for American Association of Artificial Intelligence	1998, 2000
Organizing Chair, Robot Demonstration at International Conference of Autonomous Agents	1999
Program Committee, European Conference on Principles and Practice of Knowledge Discovery	1997-1999
Program Committee, International Conference on Agent Theories, Architectures, and Languages	1997-1998
Program Committee, International Conference on Knowledge Discovery and Data Mining	1996-1998
Program Committee, Workshop on Deductive and Object-Oriented Databases, Singapore	1995

Member of Penal, Intelligent Data Analysis, Baden-Baden Germany	1995
Member of Scientific Committee: The 2nd International Workshop on Abstract Intelligent Agent, Italy.	1994
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Conference Paper Reviewers:

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