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 (Nobel Price Winner)
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

World-class Expert Reviewer for European Commission 2010-2013
USC Rose Hills Foundation Summer Science and Engineering Fellowship (for advisors) 2010
Best Robotics Paper Award at the 26th Army Science Conference 2008
Championship at the first ICRA planetary contingency robotic competition 2008
Phi Kappa Phi Faculty Recognition Award, University of Southern California 2003
The Best Paper Award, *On the Use of Sensors in Self-Reconfigurable Robots*, 2002
(International Conference on Simulation of Adaptive Behaviors SAB-2002)
Robotic-Soccer RoboCup World Champion Award, RoboCup, Nagoya, Japan 1997
(Featured on CNN, ABC, Discovery, SCIENCE, and other international newspapers and magazines)
Meritorious Service Award, Information Sciences Institute, University of Southern California 1997
Second Place Award in AAAI Robotics Competition, Portland, Oregon (featured on PBS and CNN) 1996
National Scholarship Award for Education Abroad, The Chinese Ministry of Education 1983
Award for First Place Student in national entrance examination, Chinese Academy of Sciences 1983
Award for University Outstanding Graduate (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, CS561	2013
Advisor for PhD Students, University of Southern California, USA	1997----
University of Southern California, Department of Chemical Engineering and Material Science	2007-09
Lectures on Autonomous Robots for PTE587	
University of Southern California, Department of Computer Science	2007-09
Lectures for CSCI 597 PhD Seminar Series	
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

A Multifunctional Device for Assisting Human Transfer, Mobility, and Rehabilitation, US Patent Pending	2013
A Genderless and Single-Side-Operational Connector Mechanism for Self-Reconfigurable, Self-Assembly and Self-Healing Systems, US Patent #8,234,950	2012
Extremely Flexible Thruster System for Underwater Vehicles, US Patent #8,082,870	2011
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

Grants and Contracts

DARPA, RoboSat, $1.0M	2013-2015
NASA, STTR with EpiSciences Inc., $500K	2013-2014
DARPA, PHOENIX, (Co-PI with AMD-USA), $1.0M	2012-2014
DARPA, Mind's Eye, (Co-PI for Ram Nevatia), $1.2M	2010-2013
DARPA, CommEX, (Co-PI for Preston Marshall), $170K	2010-2012
AFOSR, Reconfigurable robots for security, (PI), $60K	2010-2011
ARO, micro-reconfigurable robots, (PI), $50K	2010-2011
DARPA, LANDroids mobile robotic networks, (PI), $550K	2008-2009
AFOSR, Surprise-Based Learning (PI), $600K	2006-2009
NASA, Modular, Self-Reconfigurable and Multifunctional *SuperBot*, (PI) $4.23M	2005-2008
DARPA, Cognitive Architecture COGENT, (key contributor) $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 for Joe Banister)	2005-2007
CiSoft, Robotics and AI for Intelligent Oil Field, Chevron-Texaco (PI), $150K	2005-2007

NSF, Space Self-Assembly via Self-Reconfigurable Robots, (PI), $600K	2002-2004
NSF, Meta-pattern Based Data Mining Systems, (PI), $300K	1996-1999
AFOSR, Cooperative Control Program, (PI), $284K	2001-2003
AFOSR, Self-Organizing and Autonomous Learning Agents, (PI), $950K	2000-2004
AFOSR, Adaptive Agent Organizations, (PI), $700K	1997-2000
DARPA, Self-Reconfigurable Robots, (Co-PI for Peter Will), $3.0M	1998-2002
DARPA, Robust and Flexible Agent TeamCore, (Co-PI for Milind Tembe), $2.0M	1998-2002
EASTMAN CHEMICAL, Data Mining for Chemical Compound Design, (PI), $120K	1993-1994
MOTOROLA INC. Data Mining for VLSI Manufacturing Process Control, (PI), $100K	1992-1993

PhD Student Supervision

University of Southern California (Current PhD students)

PhD Advisor for:

Barrios, Luenin, Computer Science, 2010-present (expected graduation in 2017)
Collins, Thomas, Computer Science, 2012-present (expected graduation in 2017)
Chen, Chi-An, Computer Science, 2012-present (expected graduation in 2017)

University of Southern California (Former PhD students)

PhD Advisor for:

Jacob Everist, Computer Science, 2004-present (thesis defensed on 2/2/2015)
Nadeesha Ranasinghe, Computer Science, 2006-2013 (thesis defensed on August 14, 2012)
Feili Hou, Computer Science, 2004-2010, Computer Science, Thesis topic: Optimal self-reconfiguration.
Mike Rubenstein, 2004-2009, Computer Science, Thesis topic: Self-Assembly and Self-Healing for Robotic Collectives. Current Position: Post Doc Fellow at Harvard University.
Jay Modi, 1998-2003, Thesis topic: Distributed Constraint Optimization for Multi-Agent Systems. Current position: Assistant Professor in Computer Science, Drexel University. (Deceased)
Kasper Stoy, 2001-2002, Thesis Topic: Control of Self-Reconfigurable Robots. Current position: Associate 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, Hughes Research Center, Malibu, CA.
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:

Furqan Khan, 2013, Main Advisor: Professor Ram Nevatia, Thesis title: Analyzing human activities in videos using component based models.
Anna Li, 2008, Main Advisor: Professor Steven Lu, Thesis topic: Massive User Enabled Evolving Web.
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 Brussels, Belgium (September 2010)

Invited committee member for PhD defense by Rehan O'Grady on self-assembly of swarm robots
Supervisor: Dr. Marco Dorigo

University of South Denmark (September 2008)
Invited committee member for PhD defense by *David Christensen* on self-reconfigurable robots
Supervisor: Dr. Henrik Hautop Lund

University of Hong Kong (2007)
Invited committee member for PhD defense by *Scott Howe* on self-reconfigurable architecture/structures
Supervisor: Dr. H.Y.K. Lau

Politechnical University of Catalonia, Barcelona, Spain (December 2003)
Invited committee member for PhD defense by *Jesus Cerquides* on Bayesian Network Classifiers
Supervisor: Dr. Ramon López de Mántaras

University of New South Wales, Sydney, Australia (1998)
Invited committee member for PhD defense by *Rex Kwok* on Computational Scientific Discovery
Supervisor: Dr. Norman Foo

University of Texas at Austin, USA (1992 – 1994)
Rwo-Hsi Wang, 1994, Supervisor: Dr. Al Mok. Thesis topic: Data analysis for electronic devices.
Tsing-Hwa Chi, 1992, Supervisor: Dr. 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

Grace Lo, Computer Science, Supervised control of SuperBot robots	2013
Teawon Han, Computer Science, Adaptive locomotion for self-reconfigurable rolling track	2012
Chi-An Chen, Computer Science, Power sharing for self-reconfigurable robots	2012
Yujie Hao, Computer Science, distributed control of self-reconfigurable manipulation	2010
Jens Windau, Computer Science, inertia-based surface identification for robot locomotion	2009-2010
David Yao, Computer Science, control of self-reconfigurable robots	2009
Rizwan Khan, Computer Science, self-reconfigurable robots	2008
Nisha Ganeriwal, 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
Lim Harold, Underwater autonomous vehicles	2006
Kenneth Payne, Autonomous docking for self-reconfigurable robots	2005
Harris Chiu, Self-reconfigurable robot locomotion in complex environment	2005
Jagadesh Venkendesh, Self-reconfigurable robot locomotion in complex environment	2005
James Han, Self-reconfigurable robots for climbing behaviors	2005
Harshit Suri, The design and control of self-assembly FIMER robots	2004
Kasra Mogharei, The design and control of self-reconfigurable robots	2004
Nadeesha Ranasinghe, Simulation of self-reconfiguration in complex environment	2003
Yusuf Ateskan, Control of self-assembly modules in space	2003
Aseem Mohanty, Autonomous learning of object models from the environment	2001
Yimin Lu, Distributed Control of Self-Reconfigurable Robots	2000
XueJun Wang, Data mining and model discovery from legacy databases	2000

Other Student Supervision

University of Southern California 2006-2010
I am a recipient of Rose Hills Foundation Summer Science and Engineering Fellowship Grant 2010
Undergraduate students:

Reese Mozer, Noah Olsman, Steven Spinn, Justin Lei, Michele Kawate, James Lee. 2010
Noah Olsman is a recipient of NSF Research Experience for Undergraduates (REU)

High School students:

Mane Williams, Harvard-Westlake High. 2013
Josh Lappen, Harvard-Westlake, (admitted to Stanford in 2013) 2012
Sebastian Boberg, Lucas Shen 2009

PhD students under my supervision but departed before graduation

Maxim Krivokon (USC Scholarship) departed for a personal reason 2003-2005
Yimin Liu departed for an attractive position in Oracle 1998-2000
Xuejun Wang departed for an industry position for data mining 1996-1998

Consulting Experience

Episys Sciences Inc., San Diego, CA, USA. 2012-2013
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. 1997-1998
The company also licensed a data mining software package developed by my DataCrystal project.

Special Scientific Review Committee Invitations

EU Flagship Review Committee 2012-2013
EU Cognitive Systems and Robotics Proposal Review Committee 2010-2012
EU Large Integrated Project Review Committee 2009-2012
US National Science Foundation, Panel Review for Robotics 2010
US Army Research Office, Five-Year Strategic Planning for Robotics in Mechanical Sciences 2009
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

Invited Speaker at Institution of Automation, Science Academy, Shen-Yang, China 2013
Invited Speaker at Institution of Automation, Science Academy, Beijing, China 2008
Invited Plenary Talk at ANTS International Conference on Swarm Intelligence, Brussels, Belgium 9/10/2010
Invited Keynote Speaker at Barcelona Science Museum, Celebration of 50th Anniversary of AI. 10/27/2006
Invited Plenary Talk at the International Conference on Complex Systems, Boston, USA. 5/8/2004
Invited Keynote Speaker at the TTI Vanguard 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

IEEE Robotics and Automation Chapter at California Lutheran University, Buenaventura Section 12/03/2014
The 7th Robotics Workshop, US Army RDECOM/TARDEC Joint Center for Robotics 12/11/2009
Robotics Institute, Carnegie Mellon University, RI Seminar 09/18/2009
iRobot Corporation, topic: Self-Reconfigurable Robots 05/20/2009
Institution of Automation, Academy of Sciences, Beijing, China 10/17/2007

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 Pennsylvanian, 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
Spanish Council for Scientific Research	12/2003
Spanish Artificial Intelligence Research Institute	12/2003
Institute de Robòtica i Informàtica Industrial, Barcelona, Spain	12/2003
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 NSF-Workshop, Porto Alegre, 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

StarCell: Modular and reconfigurable spacecraft and robots in space	2013-2015
Modular Reconfigurable Robots for Self-Assembly	2012-2013
Visual Intelligence and Activity Recognition by Learned, Structured Models	2010-2012
Surprise-Based Learning	2006-Present
SuperBot: Modular, reconfigurable and multifunctional robots	2005-Present
CATALINA: Autonomous underwater robots	2004-Present
Self-configuring, self-optimizing, self-healing, and tethering robotic network	2008-2009
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. Hou, Feili, and W.-M. Shen, Graph-Based Optimal Reconfiguration Planning for Self-Reconfigurable Robots, *Robotic and Autonomous Systems*, In Press, 2013.
2. Hou, Feili, and W.-M. Shen, MorphLine: a Distributed and Autobomous Self-Reconfiguration Planning Method for Modular Robots, *IEEE Transaction on Robotics*, Under Review, 2013.
3. 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*, 53:869-881, 2009.
4. 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.
5. Colombano, S.P., and Wei-Min Shen. Self-Sustaining Robotic Systems, Guest Editorial, *Autonomous Robots*, 20(2):83-84, 2006.
6. 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.
7. 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.

8. 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.
9. 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.
10. 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.
11. Stoy, K., W-M. Shen, P.M. Will, A Simple Approach to the Control of Locomotion in Self-Reconfigurable Robots, Robotics and Autonomous Systems, 44(3-4), 191-199, 2003.
12. Shen, W.-M., Self-Organization through Digital Hormones, *IEEE Intelligent Systems*, 81-83, 8/2003.
13. Stoy, K., W.-M. Shen, P. Will, Global Locomotion from Local Interaction in Self-Reconfigurable Robots, *Robotics and Autonomous Systems*, (in press) 2003.
14. Shen, W.-M., P. Will, B. Khoshnevis, Autonomous Docking in Self-Reconfigurable Robots, *IEEE Transactions on Mechatronics*, (accepted) 2003.
15. 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.
16. 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.
17. Shen, W.-M. and Mark Yim, Self-Reconfigurable Robots. Guest Editoral, *IEEE Transactions on Mechatronics*, 7(4), 401-402, Dec. 2002.
18. Shen, W.-M., P. Will, and A. Castano. CONRO: Towards Deployable Robots with Inter-Robots Metamorphic Capabilities, *Autonomous Robots*, 8 (3): 309-324, 2000.
19. Shen W.-M., Adibi J, Adobbati R, et al. Integrated reactive soccer agents, *Lecture Notes on Artificial Intelligence*, 1604: 286-298, 1999.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. Patil, R. and W. Zhang and W.-M. Shen. An Information Mediator Network for Tasks in Dynamic Environments. *IMIA Yearbook of Medical Informatics*, 1996.
26. Y. Arens, C. Knoblock, and W.-M. Shen. Query Reformulation for Dynamic Information Integration. *Journal of Intelligent Information Systems,* 6, 99-130, 1996.
27. Shen, W.-M. The Process of Discovery. *Foundations of Science*, 1(2), 1995.
28. Shen, W.-M. Discovery as Autonomous Learning from the Environment, *Machine Learning*, 12, 143-156, 1993.
29. 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.
30. Shen, W.-M. Discovering regularities from knowledge bases. *International Journal of Intelligent Systems*, 7(7) 623--636, 1992.
31. 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.
32. 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.
33. Shen, W.-M. Functional Transformation in AI Discovery Systems. *Artificial Intelligence,* 41(3), 257-272, 1989.

Book Chapters

1. Harris Chiu and Wei-Min Shen, Distributed Reconfigurable Software System for Collective Robots, Invited

chapter in *Handbook of Collective Robotics*, appear 2010.
2. Feili Hou and Wei-Min Shen, Collective Reconfiguration Planning of Modular Robots, Invited chapter in *Handbook of Collective Robotics*, appear 2010.
3. Maks Krivokon, Peter Will, Wei-Min Shen, Hormone-Inspired Distributed Language for Self-Reconfigurable Robots, *Unifying Themes in Complex Systems, Volume 5*, 2008.
4. Behnam Salemi, Peter Will, Wei-Min Shen, Autonomous Discovery and functional response to topological change in self-reconfigurable robots, in *Complex Engineering Systems*, 2006.
5. 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.
6. 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.
7. Shen, W.-M., B. Mitbander, 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.
8. Woelk, D., M. Huhns, N. Jacobs, T. Ksiezyk, 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.
9. 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. Luenin Barrios and Wei-Min Shen, "Phase Space Planning and Optimization of Foot Placements in Rough Planar Terrains", to appear in ICRA 2015.
2. Teawon Han, Nadeesha Ranasinghe, Luenin Barrios, and W.-M. Shen. An Online Gait Adaptation with SuperBot in Sloped Terrains. In *IEEE International Conference on Robotics and Biomimetics (ROBIO 2012)*, Guangzhou, China, December 2012.
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Co-Chair, Workshop on self-reconfigurable robots, ICRA	2010-2012
Program Committee, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)	2006-2011
Chair, Workshop on self-reconfigurable robots, IROS	2008
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Co-Chair, Workshop on self-reconfigurable robots, Robotic Science-System Conference	2006
Scientific Committee, Workshop on self-replication machines, ALIFE X Intl Conference.	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
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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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