C. Hwa Chang

Tenured Associate Professor, Electrical and Computer Engineering Department, Tufts University, Ma
Program Director of Computer Engineering Program, 1993 - present

Education

Institution	Date of Degree	Degree
Drexel University	1987	Ph. D. in Electrical and Computer Engineering
Montana State University	1983	M.S. in Computer Science
National Cheng Kung University	1977	B.S. in Engineering Science (two years in Architecture)

Title of doctoral dissertation

"On Generation of Simulators for PASM Type Architectures using Meta-Simulator"

Research interests:

Research areas include Wireless Communications, Parallel Processing, Computer Networking, Distributed
Computing, Multimedia Networks, Simulation, Programmable Logic Design, and Engineering Education.

Courses taught:

Logic Circuit Design, Circuit Theory, Microprocessor Arch. and Applications, Multiprocessor Simulation,
Senior Design Project, Computer Engineering, Computer Communication Networks, Computer
Architecture, Advanced Computer Architecture, Wireless Communications, Wireless Sensor Networks

Experiences:

Tufts University: Faculty member since 1987
Phillips Electronics: Engineer, 1979-1981

Current Ph. D. students:

Na Wang
Clint Epperson
Almir Davis
Francine Laloose
Brad Gaynor

Ph. D. graduates:

Hammad Azzam, Dissertation: "Optimization of the Ranking Process in Very Large Textbase Retrieval,"
May 1994
Han Zhou, Dissertation: "Dynamic Bandwidth Allocation and Performance Sensitivity Estimator for ATM
Networks," May 1996
Abdullah Alqaed, Dissertation: "Resource Allocation for Congestion Control in ATM Networks," May
1997.

Master students and senior design projects:

Graduated about 100 master students
Supervised about 100 senior design projects

Journal papers:

Han Zhou, C. Hwa Chang and Datong Han, "Dynamic bandwidth allocation scheme for multimedia data over asynchronous transfer mode networks," Optical Engineering, Jan.
 1996, vol. 35 no. 1.
C. Hwa Chang and H. Azzam "Minimization of Trickle-down Complexity in the Heap Data Structure." IEE Electronics Letters, June 1993.
C. Hwa Chang and Carol Nowacki, "Performance of a Prototype Cluster Array Processor for Signal Processing Applications" the International Journal of Modelling and Simulation, Vol. 13, No. 3, 1993.
C. Hwa Chang, H. Azzam and H. Dediu, "Bit Decision Table for Hypercube Decomposition," the Institute of Electrical Engineers Electronics Letters, April, 1992, Vol. 28, No. 8.
C. Hwa Chang and Carol Nowacki, "An Uninterrupted Behavioral Simulation of a Cluster Array Processor for Signal Processing Application," submitted to Journal of Computer and Software Engineering, January, 1992.
C. Hwa Chang "An O(n) Matrix Multiplication Algorithm for Hypercube Machines", the Institute of Electrical Engineers Electronics Letters, December, 1991, Vol. 27, No. 25.
S. DasGupta and C. Hwa Chang, "Retargetable modeling of parallel processing computers", International Association of Science and Technology for Development (IASTED) International Journal of Modelling and Simulation, Canada, June 1985.

Other publications:

Na Wang and C. Hwa Chang, "Probabilistic-Based Energy Aware Routing for Network Lifetime and Source Level Fairness in Wireless Sensor Networks," ICSNC 2006, France, October 29 – November 3, 2006
Jason Waterman and C. Hwa Chang, "Real-time Traffic Monitoring and Reporting " Open Source Software Foundry, Third place winner in the competition, Jan. 10, 2006.
C. Hwa Chang, Na Wang, "Implementation of Long-Life Sensor Networks for Environment Monitoring for Bio-Chemical Defense," Working Together: Research & Development Partnerships in Homeland Security, Boston, April 2005.
Bor-rong Chen and C. Hwa Chang, Mobility Impact on Energy Conservation of Ad Hoc Routing Protocols, SSGRR 2003, Italy, Jul. 28-Aug. 2, 2003
Clint Epperson and C. Hwa Chang, An Effective Query Control Scheme for Dynamic Source Routing , SSGRR 2003, Italy, Jul. 28-Aug. 2, 2003
Lee W. McKnight, Mark Gaynor, Junseok Hwang, James Howison, Hwa Chang , Bor-rong Chen, Amar Gupta, and Bernhard Plattner, Wireless GRID Networks and Virtual Markets Sharing Resources in Dynamic Ad-hoc Environments, Grid High Performance Networking Research Group (GHPN-RG), Global Grid Forum 8, Seattle, Washington, USA, June 24-27, 2003
Josh Jabs, C. Hwa Chang, Robert Tingley, "Performance of a Very Low Power Wireless Protocol," IEEE Globecom 2001, San Antonio, TX, Nov. 25-29, 2001.
Hasan Alam, C. Hwa Chang, Zhongwen Shi, Scott Tupaj, "Extracting Tables from Printed Documents" SDIUT 95, Oct. 1995, Washington D.C.
Han Zhou, C. Hwa Chang and Datong Han "A New Bandwidth Allocation Scheme for ATM Networks," in proceedings of IC3N 1995 Conference, Las Vegas.
Han Zhou, C. Hwa Chang and Datong Han, "A Dynamic Bandwidth Allocation Scheme by Hierarchical Control of ATM Traffic," in proceedings of SICON/ICIE 1995 Conference, Singapore.
Han Zhou, C. Hwa Chang and Datong Han, "A Dynamic Bandwidth Allocation Scheme for ATM Networks," in proceedings of GLOBECOM 1995 Conference.
Abdullah M. Alqaed and C. Hwa Chang, "Optimal Buffer Allocation for Typical ATM Traffic Using Fluid Flow Approximations of Equivalent Capacity" to be published in the Proceedings of Symposium on Intelligent Systems in Communications and Power, Puerto Rico, Feb. 21-23, 1994.
Abdullah M. Alqaed and C. Hwa Chang, "A Hybrid Equivalent Capacity Admission Control Algorithm for ATM Congestion Control," to be published in the Proceedings of First IEEE Internation Symposium on Global Data Networking, Egypt, December 13-15, 1993
C. Hwa Chang, Han Zhou, Moshe Kam and Qiru Zhou, "A class of multisensor distributed processing systems," the Proceedings of the Institute of Electrical and Electronics Engineerings (IEEE) Ocean 92

Conference, Newport, RI, October, 1992.

C. Hwa Chang, H. Azzam and H. Dediu, "Width Minimization of Field Encoded Output," the Proceedings of EURO ASIC 92 Conference, France, June 1-3, 1992.

H. Dediu, C. Hwa Chang and H. Azzam, "Heavyweight Process Migration," the Proceedings of the IEEE Third Workshop on Future Trend of Distributed Computing Systems, Taiwan, April, 1992.

C. Hwa Chang "Maximal Connectivity Allocation (MCA) in Hypercube Machines," COST 229 WG4 Workshop on Massively Parallel Computing, March 1992, Switzerland, March 9-11, 1992.

C. Hwa Chang and H. Azzam, "A weighted Technique for Programmable Logic Device Minimization," Proceedings of the IEEE Micro23, Florida, Nov. 1990.

C. Hwa Chang and Carol Nowacki, "Performance Evaluation of a Cluster Array Processor for Signal Processing Appplications," the 19th International Conference on Parallel Processing, Chicago, August, 1990.

C. Hwa Chang and Carol Nowacki, "An Uninterpreted Adaptive Simulation Model of a Real- Time Cluster Array Processor, the 21st Pittsburg Conference on Modeling and Simulation, Pittsburg, PA, May. 1990.

C. Hwa Chang "On Simulation of a RISC machine Using ISPS," International Association of Science and Technology for Development (IASTED) International Conference on Applied Simulation and Modelling, Santa Barbara, California, Nov. 1989.

S. DasGupta and C. Hwa Chang, "An adaptive simulator for partitionable networks", presented in the 22nd Annual Simulation Symposium, Tampa FL, March 1989.

S. DasGupta and C. Hwa Chang, "Simulation of a computer with variable hardware and variable instruction set", Proceedings of the 20th Annual Simulation Symposium, Tampa FL, March 1987.

S. DasGupta and C. Hwa Chang, "A Pre-Design Tool for a Class of Parallel Processing Systems", EUROMICRO 86, Proceedings of the Twelfth Symposium on Micro-Processing and Microprogramming, Venice, ITALY, September 1986.

C. Hwa Chang, "Effectiveness of multi-processor system using PASM (PArtitionable SIMD/MIMD Machine) and ATMAC-II", Technical report submitted to RCA on August 12, 1984.

Fellowship, grants, awards, honors, or other prizes:

$600,000.00 PFI grant on "Virtual Markets in Wireless Communication and Computational Grid" 2002-2004, which was a collaborative effort among Tufts University, MIT, Boston University, Northeastern University and Syracuse University from NSF as a senior member.

$2,000.00 to support Undergraduate Woman Computer Engineers' research from the Computer Research Association's Committee on the Status of Women in Computing Research, 2001.

$2,000.00 University Grant from International Engineering Consortium to attend WCA2001, June 2001, Boston, MA.

$18,000.00 "Micro-electronic Project", Kingsem Technology, 1999-2000

Fellowship which covers all expenses to attend a conference in Taiwan from March 22-25, 1999, Ministry of Youth Mission, Taiwan.

Meet the President of Taiwan, Mr. Shu-Ben Chen, March 2003
Meet the first popularly elected President of Taiwan, Dr. Teng-Huei Lee, March 1999.

Received donation of FPGA (Field Programmable Gate Array) chips, circuit boards, design automation software and hardware and maintenance agreement to Xilinx. The cost is $10.000. Jan. 1999

$182,921.00, "The Tufts Prototyping Shop", SME (Society of Manufacturring Engineers) Sep. 1998 - Sep. 2000, Co-PI.

$33,600.00, "Table Understanding", BCL Computers, Sep. 1996- August 1997.

$170,195.00, "Semantics for Complex Table Recognition", BCL Computers, June 1994- August 1996.

$1,000.00 Grant to attend the Worldwide Personal Communications, National Engineering Consortium, Chicago June 1992.

$700.00 Grant to attend the Cellular Technologies, National Engineering Consortium, Chicago, June 1992.

$1,000.00 Grant to attend the TechNeeds 2000, National Engineering Consortium, Chicago, June 1992.

$33,800.00 "Research on Defense Data Network (DDN) and Open Systems", Futura Systems, Inc. 1992.

$1,200.00 Grant to attend the Eastern Communication Forum in Washington, D.C., April 29-May 1, 1991, National Engineering Consortium.

VHDL (VHSIC Hardware Description Language) Package for UNIX ($18,000.00), Air Force, 1990.

$1,600.00 Grant to attend the Eastern Communication Forum in Boston, May 7-9, 1990, National Engineering Consortium.

VHDL (VHSIC Hardware Description Language) Package for VMS ($18,000.00), Air Force, 1989.

$1,200.00 Grant to attend TMS380 Local Area Network Design Workshop, Texas Instruments, June 1988.

Member of Eta Kappa Nu, National Honor Society in Electrical Engineering.

Member of Tau Beta Pi, National Honor Society in Engineering.

Member of Epsilon Delta Pi, National Honor Society in Computer Science, elected in 1982

Consulting

MKN, Inc., Wakefield, MA, May 1992-1997, consulting on distributed computing and verification of VHDL (VHSIC Hardware Description Language) models.

Futura Systems, Inc., North Andover, MA, 1991-1994, consulting on computer networking and communications.

Reshet, Inc, Philadelphia, PA, 1990-1993, consulting on parallel processing and distributed computing.

MutiPac, Inc., Acton, MA, 1989-1991, consulting on parallel processing and networking.

Membership, offices in professional or scholarly societies and other relevant professional activities:

Director of Monte Jade Science and Technology Association, New England Chapter, (June 1999 - Present)
Director of the Board, New England Association of Chinese Professionals (Nov. 2001 - Present)
Life member of New England Association of Chinese Professionals
Member of the Institute of Electrical and Electronics Engineers (IEEE)
Member of the IEEE Computer Society (1983 – Present)
Member of the IEEE Communication Society
Member of the Technical Committee on Multimedia Computing, IEEE Computer Society
Member of the Technical Committee on Parallel Processing, IEEE Computer Society
Reviewer for Computing Reviews
Reviewer for Wireless Networking Symposium
Reviewer for American Control Conference
Advisor to Tau Beat Pi National Engineering Honor Society

Reviewer for Tufts University Experiment College courses
Global Monte Jade Science and Technology Association
IEEE Communications Society, Boston Chapter, volunteer
Advisor to ROC (Taiwan) Youth Club in the greater Boston area, severing about 1000 Taiwanese students and scholars, raising fund (about $5,000.00 per year) to host a welcome party and other events, 1999-present

Past professional and community services:

Editor-in-chief of the Proceedings of MJNE 12th Annual Conference, 2005
Editor-in-chief of the Proceedings of MJNE 12th Annual Conference, 2004
Editor-in-chief of the Proceedings of MJNE 11th Annual Conference, June 28, 2003
Editor-in-chief of the Proceedings of MJNE 10th Annual Conference, 2002
Editor-in-chief of the Proceedings of NEACP 27th Annual Conference, November, 2005
Editor-in-chief of the Proceedings of NEACP 27th Annual Conference, October 10, 2004
Chairman of the Board, Mount Jade Science and Technology Association (June 2001 - May 2002).
Vice Chairman of the Board, Mount Jade Science and Technology Association (June 2000 - May 2001).
Vice President of New England Association of Chinese Professionals (Nov. 1997 - Nov. 1999),(Nov. 1999 - Nov. 2001)
"New England Association of Chinese Professionals Conference," November 12-13, 1999, Treasurer, Vice President, Session Chair of Information Technology, invited two Ministers of State, Dr. Shi-Chien Yang and Dr. Jen-Tai Huang from Taiwan.
"Conference of New England Chinese Professional Association", September 12-13, 1998, Harvard University, Cambridge, Ma, Organizer.
Chairman of the Computer Technology Track in the Annual Conference of New England Chinese Professional Association, September 12-13, 1997, Swissotel, Boston, Ma.
Member of the International Association of Science and Technology for Development (IASTED), 1987-1994
Member of the Technical Committee for IASTED, 1990-1994
President of Montana State University Chinese Student Association (including all Chinese students and scholars from Taiwan, China, Singapore, Malaysia, and Indonesia), 1982-1983.
Second Lieutenant, Taiwanese Army, 1977-1979
Class Head in National Cheng Kung University, 1975-1976.
Class Head in Taichung First Senior High School, 1970-1973.