

## ***CURRICULUM VITA (Executive Summary) of Carl K. Chang – March 1, 2015***

***Highlights of Administrative Contributions:*** Chang served as department chair for eleven years from 2002-2013 in the department of computer science at Iowa State University. During his terms as the chair he promoted two full professors, twelve associate professors, four senior lecturers, and cultivated six NSF CAREER awardees. He led the faculty and weathered several rounds of budget cuts and reversions since having arrived at ISU. The department continued to grow in faculty size and strength, and heavily engaged in interdisciplinary research. Today, Computer Science at ISU has visibly moved up in its national ranking and significantly improved its academic reputation with a globally recognized faculty.

***Undergraduate Education:*** Chang spearheaded the joint task force on Computing Curricula 2001 (CC2001) for education renovation in a global setting, an effort of the IEEE Computer Society (IEEE-CS) and the Association for Computing Machinery (ACM). CC2001 has had a major impact on undergraduate computing education worldwide. He is highly experienced with accreditation, articulation, and certification matters in higher education and the computing profession. Since he joined Iowa State, Chang led the Computer Science Department to have developed a joint software engineering undergraduate degree program with computer engineering faculty. He led the department in several rounds to have earned or renewed accreditations of both computer science and software engineering programs by ABET. He also contributed to education renovation through initiating the interdisciplinary Gerontechnology Program at ISU, partially funded by the National Science Foundation, to train technologists in support of the national agenda on successful aging.

***Graduate Education:*** Chang is a popular academic advisor and has attracted many graduate students to work in his research group to study the latest software technologies and engage in hands-on projects. Since he began his academic career at the University of Illinois in 1984, he advised 29 Ph.D. dissertations, 27 M.S. theses, and more than 200 M.S. projects. At ISU, he has led the department to expand the Ph.D. program with about 100 Ph.D. students at peak. Under his chairmanship, the department supported and congregated 8 NSF CAREER awardees and one endowed chair in the past decade.

***Research and Grants:*** His current research interests include software architecture, requirements engineering, services computing and successful aging. He has published extensively in these areas in journals and refereed conferences, and various column articles and editor's messages. In the past 20 years, he has attracted numerous external grants from federal funding agencies and industry sources to support his research. To date, sixteen visiting scholars from foreign countries have been hosted for joint research in Chang's labs.

***Professional Services:*** Chang has been an active volunteer leader in the IEEE Computer Society for almost three decades, the largest and oldest computer association in the world. He was elected 2004 President of the society. Before that, he served as the First Vice President (2001) to lead the Educational Activities Board. He served as Editor-in-Chief (EIC) of *IEEE Software* for two terms (1991-92; 1993-94) and in that capacity established a legendary Industrial Advisory Board. He organized the 1997 President's Roundtable to develop a technology roadmap for IEEE-CS. As a recognized scholar in software engineering, he co-founded the IEEE International Conference on Requirements Engineering (ICRE), and the Symposium on Applications and the Internet (SAINT) co-sponsored by the IEEE-CS and Information Processing Society of Japan. He is now chairing the standing committee of the IEEE International Computer Software and Applications Conference (COMPSAC), the IEEE signature conference on computer software technology for computer and software professionals. In January 2007 he was appointed Editor-in-Chief of *IEEE Computer*, the flagship publication for the IEEE Computer Society. In that capacity, he spearheaded a Society-wide initiative and successfully invited founding members of the IEEE-CS Industrial Advisory Board, which is a premier industrial forum with global expertise and networks. Chang is now Editor-in-Chief Emeritus of IEEE Computer after having served as EIC for two terms (2007-08; 2009-10).

***Awards, Medals, and Honors:*** As an IEEE Fellow, he received the Computer Society's Outstanding Contribution Award, Meritorious Service Award, and the Golden Core Award, in addition to the IEEE Third Millennium Medal. He finished a 3-year term (2000-02) as a Distinguished Visitor for IEEE-CS. In 2004 he was elected Fellow of the American Association for the Advancement of Science (AAAS). In 2006, he received the prestigious Marin Drinov Medal from the Bulgarian Academy of Sciences. Through a globally competitive selection program, he received prestigious IBM Faculty Awards in 2006, 2007, and 2009. He is the recipient of the 2012 IEEE Richard E. Merwin Medal for his contributions and leadership in the computing profession. In 2014, he was selected as the 2014 Distinguished Alumnus for his alma mater, National Central University in Taiwan, and recipient of the 2014 Overseas Outstanding Contributions Award by the China Computer Federation (CCF), the largest professional association in China, from the pool of internationally recognized computer scientists of Chinese origin outside China.

**Carl K. Chang**  
 Professor  
 Department of Computer Science  
 Iowa State University

### A. Contact Information

Department of Computer Science  
 226 Atanasoff Hall  
 Iowa State University  
 (515) 294-4377 (main office) (515) 294-0258 (fax) (515) 294-9393 (Direct)  
 E-Mail: [chang@iastate.edu](mailto:chang@iastate.edu) or [c.chang@computer.org](mailto:c.chang@computer.org)  
 URL: [www.cs.iastate.edu/~chang](http://www.cs.iastate.edu/~chang)

### B. Education and Experience

Ph.D. in Computer Science	Northwestern University	1982
M.S. in Computer Science	Northern Illinois University	1978
B.S. in Mathematics	National Central University	1974

Professor, Department of Computer Science, Iowa State University (July 1, 2013-present)  
 Professor, Human Computer Interaction (August 2004-present)  
 Director, Software Engineering Laboratory (August 2002-present)  
 Professor and Chair, Department of Computer Science, Iowa State University (July 1, 2002-June 30, 2013)  
 Professor and Director, Center for IMPACT, Auburn University (August 2001-May 2002)  
 Associate Professor, University of Illinois at Chicago, (August 1990-August 2001)  
 Assistant Professor, University of Illinois at Chicago, (August 1984-August 1990)  
 Member of Technical Staff – Bell Laboratories (June 1982-June 1984)  
 Research Assistant – Northwestern University (June 1980-May 1982)  
 Teaching Assistant – Northwestern University (September 1979-May 1980)  
 Systems Programmer – GTE Automatic Electric (June 1978-May 1979)  
 Teaching Assistant – Northern Illinois University (August 1977-May 1978)

### C. Honorary Society Membership and Awards

2014 Overseas Outstanding Contributions Award, China Computer Federation (CCF), October 24, 2014.

Outstanding Alumnus Award, National Central University, Taiwan, May 24, 2014.

Advisory (Honorary) Professorship, Huazhong University, China, March 28, 2014.

IEEE Richard E. Merwin Medal, "for outstanding contributions and exemplary leadership and service to the IEEE Computer Society and the computing profession", 2012.

IBM Faculty Award, "...recognizes the quality of Chang's program and its importance to the computer industry." 2006, 2007, 2009.

Marin Drinov Medal, "for his great scientific achievements in the field of software technologies and for his contributions to the scientific cooperation between American and Bulgarian scientists in the field of computer technologies." Bulgarian Academy of Sciences, Sofia, Bulgaria, 2006.

Best Paper Award, "An Empirical Performance Study for Validating a Performance Analysis Approach: PSIM", 2005 IEEE Computer Software and Applications Conference (COMPSAC 2005), 25-28 July 2005, Edinburgh, Scotland, UK.

AAAS Fellow, "For excellence in computer science and software engineering research, for distinguished contributions to the development of modern computer science curricula, and for exemplifying leadership in serving professional societies in the world of computing", American Association for the Advancement of Science, 2004.

Best Research Paper. "Automating speculative queries through event-based requirements traceability", 2002 IEEE Joint Int'l Conference on Requirements Engineering (RE'02), 9-13th September 2002, Essen, Germany.

Member, European Academy of Sciences <http://www.eurasc.org> 2002.

Meritorious Service Award, "For strong Leadership and unswerving dedication to the Society above and beyond the normal call of duty in the year 2000", IEEE Computer Society, November 1, 2001.

IEEE Fellow, "For seamless integration of Petri-net oriented techniques to support project management", 2001.

Distinguished Visitor, IEEE Computer Society, 2000-2002.

IEEE Third Millennium Medal, "In recognition of his research contributions in the areas of software and software development", 2000.

Golden Core Award, IEEE Computer Society, 1996.

Outstanding Contribution Award, "For outstanding accomplishments to re-vitalize IEEE Software magazine by establishing an active Industrial Advisory Board and an invigorating Editorial Board to cooperate amicably and effectively", IEEE Computer Society, September 22, 1995.

Outstanding Leadership Award, "In recognition of his outstanding leadership as the President of CAPAMA 1993-94 and the Conference Chair at ICAST 94", Chinese Academic and Professional Association in Mid-America, June 24, 1995.

Certificate of Appreciation, "For outstanding service and exemplary performance as IEEE Software Editor-in-Chief (1991-94)", IEEE Software Editorial Board and IEEE Software Industrial Advisory Board.

(Also received numerous times the IEEE Computer Society Certificate of Appreciation in the past two decades.)

Member, Sigma Xi.

Member Upsilon Pi Epsilon.

#### **D. Contribution to Teaching and Curriculum Development**

Developed video course EECS 570 (Advanced Topics in Software Engineering); also video

Developed video course EECS 571 (Software Engineering Environments); also video

Represented UIC on the Computer Science Panel of the Illinois Articulation Initiative, IBHE.

Co-chaired the Computing Curricula 2001 Joint Task Force, IEEE-CS and ACM.  
Initiated online course Com S 103 [Computer Literacy and Applications]

Engaged ISU Continuing Education to offer Com S 103 to off-campus students

Initiated the course Com S 409/509 [Requirements Engineering]

Led the department to have developed a joint software engineering degree program between College of Liberal Arts and Sciences and College of Engineering, and a joint BCBio degree program with bioscience faculty.

Initiated the Gerontechnology Program at ISU, in cooperation with the Gerontology faculty; funded by the NSF CPATH I program, 2009-2012

Initiated the Multimedia Interactive Computing (MIC) Certificate program at ISU, in cooperation with the College of Design faculty.

Initiated the Computer Software Certificate Program at ISU, in cooperation with College of Engineering, College of Business and College of Design. (Approval expected soon)

See Appendix D-1 for teaching record.

### **E. Graduate Students Supervised and Supported**

See Appendix E-1 for details.

At UIC, I produced 19 PhD theses, 17 MS theses, and 200+ MS projects.

At ISU, I produced 10 PhD dissertations and 10 MS theses.

### **F. Visiting Scholars and Postdocs**

1. Keijiro Araki, Associate Professor, Department of Computer Science and Communication Engineering, Kyushu University, Fukuoka, JAPAN. Dr. Araki studied programming tools and environments during his one-month visit in May-June, 1985. (now Chair Professor at KU)
2. Tao Xu, Teacher for Advanced Programming Languages, Economic Information Department, Hubei Institute of Finance and Economics, Wuhan, PRC. Ms. Xu studied incremental programming environments. She stayed in this laboratory from September 86-June 87.
3. Mikio Aoyama, Senior Engineer, Telecommunications Software Division, Fujitsu Limited, Japan. Dr. Aoyama studied distributed software testing and knowledge engineering. He stayed with this laboratory from October 1986 for two years. (now Professor at Niigata Institute of Technology)
4. Tsuneki Haizuka, Senior Engineer, Telecommunications Software Division, Fujitsu Limited, Japan. He succeeded Mr. Aoyama to be the second visiting scholar sent from Fujitsu. He stayed with UIC for one month in December 1988 and studied Distributed Software Diagnosis.
5. Takashi Arano, Senior Engineer, Software Laboratories, NTT, Japan. Mr. Arano studied Object-Oriented Software Paradigm for one year from October 1991 to September 1992.

6. Kazuoki Osada, Professor, Dept. of Electrical Engineering, Kinki University, Japan. Professor Osada studied Object-Oriented Software Design for one year from Aug. 1993 to Sept. 1994.
7. Yiming Chen, Associate Professor, Department of Information Management, National Central University, Taiwan. Professor Chen studied E-Commerce and its security issues. From September 1998 to August 1999.
8. Qingsheng Zhu, Dean of College of Computing, Chongqing University, Professor Zhu studied multimedia data compression and transmission in the Internetworking environment from September 2001 to March 2002.
9. Meihua Pan, Research Fellow, China Aero-Polytechnology Establishment. Ms. Pan arrived at ISU in August 2007 and studied risk management. Dr. Robyn Lutz was a co-host.
10. Katsunori Oyama, Research Scientist, Nihon University. Dr. Oyama arrived at ISU in October 2007 and is studying mind networks and sensor networks. He plans to stay at ISU for three years.
11. Dong Li, Visiting Scholar, Research Division, Ministry of Public Safety, China. Mr. Li arrived at ISU in October 2008 for one-year stay, and studied software product line engineering.
12. Fred Cheng, Visiting Scholar, studied data communication security; as a result of this study Fred published a paper on "A Novel Rubbing Encryption Algorithm and The Implementation of a Web Based OTP Token", in the IEEE COMPSAC conference which only accepted 20% regular papers from the 193 submissions in 2010.
13. Heung-Seok Chae, Visiting Scholar, Pusan National University, Korea. Dr. Chae arrived at ISU in July 2010 for a one-year stay and studied software testing and software metrics.
14. Bin Xu, Visiting Scholar, Zhejiang Gong-Shang University, China. Dr. Xu arrived at ISU in September 2010 for a half-year stay and studied collaborative software evolution and smart home technologies.
15. Yanping Chen, Visiting Scholar, Xian University of Post and Telecommunications, China. Dr. Chen arrived at ISU on 8/19/2013 a one-year stay. She has studied semantic web, software evolution and page ranking techniques.
16. Yan Gao, Visiting Scholar, Northeastern University, China. Dr. Gao arrived at ISU on 8/18/2013 for a one-year stay, and has studied software evolution under Professor Chang's *Situ* framework.
16. Chunlai Chai, Visiting Scholar, Zhejiang Gongshang University, China. Dr. Chai arrived at ISU on 9/15/2013 for a one-year stay, and has study location-based services under Professor Chang's *Situ* framework.
17. Zhiyong Zhang, Visiting Scholar, Henan University of Science and Technology, China. Dr. Zhang will arrive at ISU in early April, 2015. He will study multimedia social networks and services computing.

## **G. Grant Activities**

In the past 20 years, I have attracted significant external funding to support my research, in addition to equipment donations from AT&T, etc. See Appendix G-1 for grant history.

## **H. Publications**

H-1. Refereed Journal Papers, Invited Keynote Papers, Books and Book Chapters, Editorial of Proceedings

1. C. K. Chang and T. M. Jiang, "A Binary Single-Key-Lock System for Access Control", IEEE Transactions on Computers, Oct. 1989, pp.1462-1466.
2. C. K. Chang and M. Aoyama, "Software in the Far East", IEEE Software, March 1989, pp.10-12.
3. C. K. Chang, Y. F. Chang, Y. Lin, C. R. Chou and J. J. Chen, "Modeling a Real-Time Multitasking System in a Timed PQ Net", IEEE Software, March 1989, pp. 46-51.
4. C. K. Chang and L. F. Wong, "Design of Monitoring System for Distributed Applications", Information and Software Technology, July 1989, pp. 295-304.
5. C. K. Chang, M. Aoyama and Y. F. Chang, "A Real-time Distributed Simulation of PBX with Software Reuse", Simulation, Feb. 1990, pp. 71-79.
6. C. K. Chang, C. C. Song, Y. F. Chang and M. Aoyama, "INTEGRAL - A Petri Net Approach to Distributed Software Development", Information and Software Technology, December 1989, pp. 535-545.
7. C. K. Chang and G. Trubow, "Joint Software Research Between Industry and Academia", IEEE Software, Nov. 1990, pp. 71-77.
8. C. K. Chang and Yahya Al-Salqan, "Performance Study of CSMA/CD with Connected Direct Data Link - Simulation Study", Int'l Journal in Computer Simulation, Vol. 4, No. 3, 1994, pp. 343-371.
9. Mikio Aoyama and C. K. Chang, "A Petri Net Based Platform for Developing Communications Software Systems", IEICE (The Institute of Electronics, Information and Communication Engineers) Trans. on Fundamentals, Vol. E75-A, No. 10, Oct. 1992, pp. 1384-1359.
10. Yahya Al-Salqan and Carl K. Chang, "MediaWare: A Distributed Multimedia Environment with Interoperability." Computers in Industry, Vol. 29, No. 1-2, July 1996, pp. 71-78, Elsevier Science B.V., Netherlands, 1995.
11. Yahya Al-Salqan and Carl K. Chang, "MediaWare : On Distributed Multimedia Temporal Relations and Synchronization Agents." IEEE Multimedia, June 1996, pp. 30-39.
12. Carl K. Chang and Chiao-Chuan Shih, "Challenges and Trends of Multimedia Services", 1994-1995 Annual Review of Communications, National Engineering Consortium, 1995, pp. 683-686.
13. Takashi Arano, Carl K. Chang, Hiroshi Aono and Tomohiro Fujisaki, "An Object-Oriented Simulation Technique in Software Prototyping", to be published in Society of Computer Simulation.
14. Mark Christensen, Carl Chang, "Blueprint for the Ideal Requirements Engineer", IEEE Computer, March 1996, pp. 12.
15. Luqi, Carl K. Chang and Hong Zhu, "Specifications in Software Prototyping", The Journal of Systems and Software, Vol. 42, 1998, pp. 125-140.
16. Carl K. Chang and Chiao-Chuan Shih, "A Circular Skip-Cluster Scheme to Support Video-on-Demand Services", ACM Multimedia Systems, Springer-Verlag, Vol. 7, No. 2, 1999, pp. 107-118.
17. Carl K. Chang, Gerald Engel, Willis King, Eric Roberts, Russ Shackelford, Robert H. Sloan, and Pradip K. Srimani, "Curricula 2001: Bringing the Future to the Classroom", IEEE Computer, Vol. 32, No. 9, September 1999, pp. 85-88.
18. Carl K. Chang and Mark Christensen, "Net Practice in Software Project Management", IEEE Software, Vol. 16, No. 6, Nov/Dec 1999, pp. 80-88.
19. Carl K. Chang, Yong Liu, Thribhuvana Murthy, James Kenevan and Pattanasak Mongkolwat, "Simulation of UICCELL II", SIMULATION, The Society for Computer Simulation International, Sept. 2000, Vol. 75, No. 3, pp. 128-140.
20. Carl K. Chang, Jane Cleland-Huang, Shiyuan Hua and Annie Combelles, "On Function-Class Decomposition", IEEE Computer, Dec. 2001, pp. 87-93.

21. Carl K. Chang, Tao Zhang and Mark Christensen, "Genetic Algorithms for Project Management", *Annals of Software Engineering*, Kluwer Academic Publishers, Vol. 11, 2001, pp. 107-139.
22. Jane Huang-Cleland, Carl K. Chang, and Mark Christensen, "Event-Based Traceability for Managing Evolutionary Change", *IEEE Trans. Software Engineering*, Vol. 29, No. 9, Sep. 2003, pp. 796-810.
23. Jane Cleland-Huang, Carl K. Chang and Jeff Wise, "Integrating Performance Related Impact Analysis into the Requirements Management Process", *Requirements Engineering Journal*, Springer-Verlag, Vol. 8, No. 3, Sept. 2003, pp. 171-182.
24. Carl K. Chang and Yujia Ge, "Genetic algorithm techniques and applications in management systems", book chapter in *Intelligent Knowledge-Based Systems*, Vol. 5, Kluwer Academic Press, 2004.
25. Dingding Lu, Robyn R Lutz, and Carl K Chang, "Deriving Safety-related Scenarios to Support Architectural Evaluation ", book chapter in *Software Evolution with UML and XML*, Idea Group Inc, Hershey, PA, USA, 2004, pp. 31-54.
26. C.K. Chang, J. Zhang, and K.H. Chang, "Survey of Computer Supported Business Collaboration in Support of Business Processes", *International Journal of Business Process Integration and Management (IJBPIIM)*, 1(2), 2006, pp. 76-100.
27. J. Xia, C.K. Chang, J. Wise, and Y. Ge, "An Empirical Performance Study on PSIM", *The Computer Journal*, Oxford University Press. Vol. 49. No. 5. 2006, pp. 509-526.
28. R. Babbitt, J. Wong, S. Mitra, and C.K. Chang, "Privacy Management in Smart Homes: Design and Analysis", book chapter in *Promoting Independence for Older Persons with Disabilities (Assistive Technology Research Series, Volume 18)*, William C. Mann and Abdelsalam Helal, Eds. IOS Press, 2006, pp. 55-64.
29. J. Zhang, C.K. Chang, and S.W. Kim, "A Petri Net-Based Specification Model towards Verifiable Services Computing", book chapter of "Enterprise Service Computing: From Concept to Deployment", Idea Group Inc, Hershey, PA, USA, 2007, pp. 285-321.
30. J. Zhang, C.K. Chang, P.C.K. Hung, and L.-J. Zhang, "Phased Transformation toward Services-Oriented Architecture", *IEEE Transactions on Systems, Man, and Cybernetics, Part A*, 37(6), 2007, pp. 955-969.
31. Abdelsalam Helal, Simanta Mitra, Johnny Wong, Carl K. Chang and Mounir Mokhtari (Eds.). *Smart Homes and Health Telematics. LNCS 5120*, Springer, 2008.
32. Carl K. Chang, Hsin-yi Jiang, Yu Di, Dan Zhu and Yujia Ge, "Time-line Based Model for Software Project Scheduling with Genetic Algorithms," *Information and Software Technology*, Elsevier, Vol. 50, 2008, pp. 1142-1154.
33. H. Yang, R. Bose, A. Helal, J. Xia, and C. Chang, "Fault-resilient Pervasive Service Composition", Book Chapter in "Advanced Intelligent Environments," Minker, W.; Weber, M.; Hagraas, H.; Callagan, V.; Kameas, A.D. (Eds.), Springer Verlag, XXII, 2009, pp. 195 – 224.
34. Carl K. Chang, et al. (Eds.), "Harmonizing Humans, Computers, and Software in Services Environments", *IEEE COMPSAC 2009 Proceedings*, 20-24 July, Seattle, Washington, USA.

35. José M. Reyes Álamo, Hen-I Yang, Ryan Babbitt, Johnny Wong, Carl K. Chang, "Support for Medication Safety and Compliance in Smart Home Environments", *International Journal of Advanced Pervasive and Ubiquitous Computing*, IGI Publishing, Vol. 1 No. 3, July-Sept. 2009, pp. 42-60.
36. Carl K. Chang, Hsin-yi Jiang, Hua Ming and Katsunori Oyama, "Situ: A Situation-theoretic Approach to Context-Aware Service Evolution," *IEEE Trans. on Services Computing*, Vol. 2, Issue 3, July-Sept. 2009, pp. 261-275.
37. Carl K. Chang, et al. (Eds.), "Computationally Smart Environments", *IEEE COMPSAC 2010 Proceedings*, 19-23 July, Seoul, Korea.
38. Tae-Hyung Kim, Carl K. Chang and Simanta Mitra, "Design of Service-Oriented Systems using SODA," *IEEE Trans. on Services Computing*, Vol. 3, No. 3, July-Sept. 2010, pp. 236-249.
39. José M. Reyes Álamo, Ryan Babbitt, Hen-I Yang, Tanmoy Sarkar, Johnny Wong and Carl K. Chang, "A Service-Oriented Privacy-Aware System for Medication Safety and Prescription Compliance in Smart Home Environments."; appeared as a book chapter in the book "Emerging Pervasive and Ubiquitous Aspects of Information Systems: Cross-Disciplinary Advancements," Ed. Judith Symonds. Publisher: IGI Global, 2011, pp. 198-225.
40. Liang-Jie Zhang, Shuxing Cheng, Carl K. Chang and Qun Zhou, "A Pattern-Recognition-Based Algorithm and Case Study for Clustering and Selecting Business Services", *IEEE Trans. on Systems, Man, and Cybernetics-Part A: Systems and Humans*, 2011, pp. 102-114.
41. Katsunori Oyama, Carl K. Chang and Simanta Mitra, "Inference of Human Intentions in Context Aware Systems", book chapter, *Handbook of Research on Ambient Intelligence and Smart Environments* Trends and Perspectives, Nak-Young Chong and Fulvio Mastrogiovanni (Eds.), IGI Global, 2011, pp. 376-391.
42. Carl K. Chang, et al. (Eds.), "Trustworthy Software Systems for the Digital Society", *IEEE COMPSAC 2012 Proceedings*, 16-20 July, Izmir, Turkey.
43. Carl K. Chang, Vladimir Getov and Kelvin Sung, "Computing in Asia: A Sampling of Recent Success Stories", *IEEE Computer*, June 2012, pp. 23-25.
43. Melinda Heinz, Peter Martin, Jennifer Margrett, Mary Yearns, Warren Franke, Hen-I Yang, Johnny Wong and Carl K. Chang, "Perceptions of Technology Among Older Adults", *The Journal of Gerontological Nursing*, Vol. 39, 2013, pp. 42-51.
44. Heyong Wang, Carl K. Chang, Hen-I Yang and Yanping Chen, "Estimating the Relative Importance of Nodes in Social Networks", *Journal of Information Processing, IPSJ*, Vol. 21 (2013), No. 3, July, 2013, pp. 414-422.
45. Jung Ho Bae, Heung-Seok Chae and Carl K. Chang, "A Metric toward Evaluating Understandability of State Diagram: An Empirical Study", *Information and Software Technology*, Elsevier, Vol. 55, Issue 12, December 2013, pp. 2172-2190.
46. Katsunori Oyama, Carl K. Chang and Simanta Mitra. "Inference of Human Intentions in Smart Home Environments". *International Journal of Robotics Applications and Technologies*, IGI Global, 1(2), 26-42, July-December 2013, pp. 26-42, 2013.
47. Carl K. Chang. "Computer Education, from CC 2001 to CS 2013, and Beyond". (Extended Keynote-Speech Paper – translated into Chinese: <http://www.ccf.org.cn/resources/1190201776262/2015/02/12/7.pdf> ; complete English

version available upon request.) Communications of The China Computer Federation (CCCF), Vol. 11, No. 2, Feb. 2015, pp. 50-60.

## H-2. Refereed Conference Papers

1. S. S. Yau, C. K. Chang et al, ``A Methodology for Software Maintenance'', Proc. International Computer Symposium, Taipei, Taiwan, Dec. 1982, pp. 447-458.
2. S. S. Yau, C. K. Chang and R. A. Nicholl, ``An Approach to Incremental Program Modification'', Proc. IEEE COMPSAC 83, Chicago, Illinois, Nov. 1983, pp. 588-597.
3. C. K. Chang, ``On the Translation from C to Higher Level Programming Languages'', Proc. International Computer Symposium, Taichung, Taiwan, Dec. 1984, pp. 1049-1055.
4. K. Y. Fang and C. K. Chang, ``Noninterference Software Debugging and Testing for Real-Time Systems'', Proc. IEEE COMPSAC 85, Chicago, Illinois, Oct. 1985, pp. 326-332.
5. C. K. Chang, K. Y. Fang and J. Yang, ``Applying Software Reliability Models to Decision Support'', Proc. AFIPS National Computer Conference, Las Vegas, Nevada, June 1986, pp. 229-236.
6. C. K. Chang and H. Wang, ``A Slicing Algorithm of Concurrency Modeling Based on Petri Nets'', Proc. IEEE International Conference on Parallel Processing, St. Charles, Illinois, August 1986, pp. 789-792.
7. C. K. Chang and T. M. Jiang, ``A Design Method for Recoverable Distributed Communication Systems'', Proc. IEEE COMPSAC 86, Chicago, Illinois, October, 1986, pp. 427-431.
8. X. H. Liu, C. K. Chang and J. P. Tsai, ``Fuzzy Reasoning Based on (\*I-LH-Resolution, " Proc. IEEE COMPSAC 86, Chicago, Illinois, October, 1986, pp. 154-157.
9. C. K. Chang, M. Aoyama and T. M. Jiang, ``Design Methods for Distributed Software Systems'', Proc. AFIPS National Computer Conference, Chicago, Illinois, June 1987, pp. 477-483.
10. M. Rao, T. S. Jiang, J. P. Tsai and C. K. Chang, ``An Intelligent Simulation Environment for Optimal Control Systems'', Proc. 1987 SCS Summer Simulation Conference, July 1987, pp. 842-844.
11. C. K. Chang, M. Aoyama, T. M. Jiang, W. Shi and Y. F. Chang, ``A New Design Approach of Real-Time Distributed Software System'', Proc. IEEE COMPSAC 87, Tokyo, October 1987, pp. 474-479.
12. W. F. Bruno, G. Narayanaswami, M. Aoyama, and C. K. Chang, ``A Knowledge-Based System Approach to The Development of A System Functional Requirement Specification Processor'', Proc. IEEE COMPSAC 88, Chicago, Illinois, October 1988, pp. 387-394.
13. C. K. Chang, T. M. Jiang and M. Aoyama, ``A Specification Language for Real-Time Distributed Systems" Proc. IEEE ICCL 88, New Orleans, Louisiana, October 1988, pp. 258-265.
14. C. K. Chang, M. Aoyama and Y. F. Chang, ``UICPBX: A Distributed Simulator of Switching Systems'', Proc. of 1988 SCS Summer Computer Simulation Conf. pp. 352-357.
15. C. K. Chang, ``INTEGRAL: A Validation and Verification System for Real-Time Distributed Software'', Proc. of IEEE Int'l Workshop ``Distributed Computing in the 1990's'', HongKong, pp. 301-310.
16. C. K. Chang, H. Huang, and C. C. Song, ``An Approach to Verifying the Real-Time Concurrency Behavior Based On Time Petri Net and Temporal Logic," IPSJ 90, InfoJapan, Tokyo, Oct. 1990, pp. 307-314.
17. C. K. Chang and H. Huang, ``On Transforming Petri Net to Moore Machine'', Proc. IEEE COMPASC 90, Chicago, Illinois, Nov. 1990, pp. 267-272.
18. C. K. Chang, C. C. Song and R. F. Wang ``Testing Distributed Software Systems'', Proc. IEEE COMPASC 90, Chicago, Illinois, Nov. 1990, pp. 112-117.

19. C. K. Chang and Yahya Al-salqan, "Scientific Visualization - A Performance Study of CSMA/CD with Connected Data Links - (Hybrid-Ethernet)", IEEE Third Workshop on Future Trends of Distributed Computing in 1990's, Taipei, Taiwan, Apr. 1992, pp.389-394.
20. Mikio Aoyama and C. K. Chang, "Simulating Communication Services on A Distributed Computing Environment", IEICE 5th Workshop on Network Theory and Mobile Communication Systems", No. NMC91-1, Jan. 1992, pp. 1-6 (in Japanese).
21. Carl K. Chang and Xin Shu, "An Object-Oriented Real-Time Distributed Simulation of Cellular Phone Switching System with Software Reuse", Proc. of 9th International Conference on Advanced Science and Technology, Chicago, Illinois, Mar. 1993, pp. 77-82.
22. Carl K. Chang, Kit-Hoi Choy and Peter Chin, "An Object-Oriented Paradigm for Service Creation Technology", Proc. of 9th International Conference on Advanced Science and Technology, Chicago, Illinois, Mar. 1993, pp. 110-115.
23. Shiyan Hua and Carl K. Chang, "An Approach to Class-Function Decomposition for Object-Oriented Design", Proc. of 9th International Advanced Science and Technology, Chicago, Illinois, Mar. 1993, pp. 241-246.
24. Chikuang Chao, Jeffery Komada, Qing Liu, Mohit Muteja, Yahya Alsalqan and Carl Chang, "An Application of Genetic Algorithms to Software Project Management", Proc. of 9th International Advanced Science and Technology, Chicago, Illinois, Mar. 1993, pp. 247-252.
25. Yahya Y. Al-Salqan, Carl K. Chang and David Chao, "Visual Software Engineering", Proc. of 9th International Advanced Science and Technology, Chicago, Illinois, Mar. 1993, pp. 253-258.
26. Carl K. Chang, Xin Shu, Gene Chan and Mikio Aoyama, "An Object-Oriented Real-Time Distributed Simulation of Cellular Phone Switching System", Proc. of 1993 IEEE International Symposium on Circuits and Systems, Chicago, Illinois, May 1993, pp. 2232-2235.
27. Yahya Al-Salqan and Carl K. Chang, "Multimedia Telecommunication and Visual Software Engineering", Proceedings of the First International Conference on Mathematical Sciences, Birzeit University, West Bank, June 1993.
28. Takashi Arano, Carl K. Chang, Pattanasak Mongkolwat, Yong Liu and Shu Xin, "An Object-Oriented Prototyping Approach to System Development", Proc. of IEEE COMPSAC 93, 1993, pp. 56-62.
29. Su-Yin Hsieh, Carl K. Chang, Pattansak Mongkolwat, Walter W. Pilch and Chiao-Chuan Shih, "Capturing the Object-Oriented Database Model in Relational Form", Proc. of IEEE COMPSAC 93, 1993, pp. 202-208.
30. T. Arano, C. K. Chang, H. Aono, and T. Fujisaki, "A New Simulation Technique for Software Prototyping", Proc. of 1993 Summer Computer Simulation Conference, 1995, pp. 990-995.
31. Yahya Y. Al-Salqan, Carl K. Chang, and Chikuang Chao, "Distributed Multimedia Based Cooperative-Visual Software Engineering", Proc. of ICAST 94, March 1994, Chicago, Illinois, April 1994, pp. 120-127.
32. Mohit Muteja, Carl K. Chang, Chikuang Chao and Yahya Al-Salqan, "Usability Testing and Cognitive Walkthrough Methodology in the CUI Design of a software Project management Tool", Proc. of ICAST 94, Chicago, Illinois, April 1994, pp. 144-151.
33. Carl K. Chang, Chikuang Chao, Su-yin Hsieh and Yahya Al-Salqan, "SPMNet: A Formal Methodology for Software Management", Proc. of IEEE COMPSAC 94, Taipei, Taiwan, Nov. 1994, p. 57.
34. Carl K. Chang and Shiyan Hua, "A New Approach to Module-Oriented Design of OO Software", Proc. of IEEE COMPSAC 94, Taipei, Taiwan, Nov. 1994, pp. 29-34.
35. Carl K. Chang, Yong Liu and Thribhuvana Murthy, "Study of Performance Engineering with Emphasis on Simulation of UICCELL II", Proc. of IASTED International Conference: MODELLING AND SIMULATION, Pittsburgh, Pennsylvania. April 27-29, 1995, pp. 403-406.

36. Carl K. Chang, Jamsheed Bugwadia and Pattanasak Mongkolwat, "An Message-Oriented Discrete Event Simulation Model of the Cellular Telephone System", Proc. of 1995 Summer Computer Simulation Conference, Ottawa, Ontario, Canada, 1995, pp. 858-862.
37. Carl K. Chang, Pattanasak Mongkolwat and Bashir Haswarey, "Creating a distributed Environment Using Object-Oriented Technology", Proc. of IEEE COMPSAC'95, Pheonix, Arizona, August 1995, pp. 262-267.
38. Yahya Al-Salqan and Carl K. Chang, "MediaWare: A Distributed Multimedia Environment with Interoperability", Proc. of The fourth IEEE International Workshop on Enabling Technology: Infrastructure for Collaborative Environment, Berkely Springs, WV, April 1995, pp. 128-137.
39. Yahya Al-Salqan and Carl K. Chang, "MediaWare: On Distributed Multimedi a Synchronization", Proc. of The second IEEE International conference on Multimedia Computing and Systems, Washington, DC, May 1995, pp. 150-158.
40. Yi-Te Tseng, Carl K. Chang and Ugo Buy, "A Model for Real-Time Systems Using Timed Process Algebra", Proc. of ICAST '96, Chicago, Illinois, June 1996, pp. 276-285.
41. Carl K. Chang and Chiao-Chuan Shih, "Reducing the System Response Time of a Large-scale VOD Server by Disk Grouping", Proc. of IEEE ICCASS '96 (International Conference on Circuits and Systems Symposium), Shanghai, China, June 1996.
42. Yimin Zhou, Carl K. Chang, and Chiao-Chuan Shih, "A Better Use of Cluster Placement Scheme for VOD Servers", IEEE Proc. of ICAST 96, Chicago, Illinois, April 1996, pp. 319-326.
43. Carl K. Chang, Chiao-Chuan Shih, Thinh T. Nguyen and Pattanasak Mongkolwat, "A Popularity-based Data Allocation Scheme for a Cluster-based VOD Server", Proc. of IEEE COMPSAC'96, Seoul, Korea, August 1996, pp. 62-67.
44. Carl K. Chang, Yi-Te Tseng, and Ugo Buy, "Compiling Process Algebraic Specifications Into Timed Automata", Proc. of IEEE COMPSAC'97, Washington, DC, August 1997, pp. 338-343.
45. Carl K. Chang, Francis Quek, Lie Cai, Seongwoon Kim and Annie Kunzmann-Combelles, "A Research on Collaboration Net", Proc. of 1997 IEEE Workshop on Future Trends of Distributed Computing Systems, Tunis, Tunisia, October 1997, pp. 228-233.
46. Carl K. Chang, Lie Cai and Francis Quek, "On Formal Meetings for Net-centric Web-based Computing", Proc. of The International Symposium on Internet Technology, Taipei, April 29-May 1, 1998, pp. 35-40.
47. Carl Chang, Gerald Engel, Willis King, Eric Roberts, Russ Shackelford, Robert H. Sloan, Pradip K. Srimani, "Curriculum 2001: Bringing The Future To The Classroom", Annual Joint Conference Integrating Technology into Computer Science Education, June, 1999, Cracow, Poland, pp. 70-73.
48. Carl K. Chang and Seongwoon Kim, "I3:A Petri-net based Specification Method for Architectural Component", Proc. of IEEE COMPSAC'99, Oct. 27-29, Phoenix, Arizona, pp. 396-402.
49. Carl K. Chang, Alexei Vorontsov, Jia Zhang and Francis Quek, "Rule-Mitigated Collaboration Technology", Proc. of 1999 IEEE Workshop on Future Trends of Distributed Computing Systems, Dec. 20-22, Cape Town, South Africa, pp. 137-142.
50. C. Fay Cover, Gerald Engel, Carl Chang, James H. Cross, II, Russ Shackelford, "Evaluating The Strawman Report Representatives Of The ACM/IEEE-CS Task Force", Proc. 31st SIGCSE technical symposium on Computer Science Education, March 8-12, 2000, Texas, USA, pp. 411-412.
51. Jane L. Huang and Carl K. Chang, "Supporting the Partitioning of Distributed Systems with Function Class Decomposition", Proc. of IEEE COMPSAC 2000, Taipei, Taiwan, Oct. 25-27, 2000, pp. 351-356

52. Carl K. Chang and Lie Cai, "Agent Based Requirements Evolution Over the Internet," Proc. of IEEE Workshop on Software Engineering on the Internet, The IEEE-CS/IPSJ 2001 Symposium on Applications and the Internet (SAINT 2001), Jan. 8-12, 2001, pp. 83-88.
53. Eric Roberts, Gerald Engel, C. Fay Cover, Andrew McGettrick, Carl Chang, Ursula Wolz, "Computing Curricula 2001 How Will It Work For You?", Proc. 32nd SIGCSE technical symposium on Computer Science Education, 2001, North Carolina, USA, pp. 433-434.
54. Jane Cleland-Huang, Carl K. Chang, Hosung Kim and Arun Balakrishnan, "Requirements-Based Dynamic Metrics on Object-Oriented Systems", Proc. of IEEE International Symposium on Requirements Engineering, Toronto, Canada, August, 2001, pp. 212-219.
55. Chia-Song Ma, Carl K. Chang, Jane Cleland-Huang, "Measuring the Intensity of Object Coupling in C++ Programs", Proc. of IEEE COMPSAC 2001, Lisle, Illinois, October 8-12, 2001, pp. 538-543.
56. Carl K. Chang, Jia Zhang, and Tsang Ming Jiang, "Formalization of Computer Supported Cooperative Work Applications", Prof. of 2001 IEEE Workshop on Future Trends of Distributed Computing Systems, Bologna, Italy, October 31-November 2, 2001, pp. 185-191.
57. Jane Huang-Cleland, Carl K. Chang, and Yujia Ge, "Supporting Event Based Traceability through High-Level Recognition of Change Events", Proc. of IEEE COMPSAC 2002, Oxford, UK, August 26-29, 2002, pp. 595-600.
58. J. Cleland-Huang, C.K. Chang, K. Javvaji, G. Sethi, H. Hu, J. Xia, "Automating speculative queries through event-based requirements traceability", Proc. IEEE Joint Int'l Conf. Requirements Eng. (RE'02), 9-13th September 2002, Essen, Germany, pp. 289 – 296, Best Paper Award.
59. Jia Zhang, Carl K. Chang, and Kai H. Chang, "Enhanced Architecture for Control Management in Computer Supported Cooperative Work", ACM Southeast Conference (ACMSE 2003), pp.441-446.
60. Lie Cai, Carl K. Chang, and Jane Cleland-Huang, "Supporting Agent-based Distributed Software Development through Modeling and Simulation", Proc. of 2003 IEEE Workshop on Future Trends of Distributed Computing Systems, San Juan, Puerto Rico, May 28-30, 2003, pp. 56-62.
61. J. Zhang, C.K. Chang, F.K.H. Quek, and Z. Gong, "Formal Collaborative Production Environment", Proceedings of the 2003 International Conference on Software Engineering Research and Practice (SERP 2003), Jun. 23-26, 2003, Las Vegas, USA, pp. 305-311.
62. J. Zhang, C.K. Chang, K.H. Chang, and Z. Gong, "Computer Supported Cooperative Work Oriented Architecture", Proceedings of the 2003 International Conference on Software Engineering Research and Practice (SERP 2003), Jun. 23-26, 2003, Las Vegas, USA, pp. 358-363.
63. J. Zhang, C.K. Chang, K.H. Chang, and F. Quek, "Rule-mitigated Collaboration Framework", Proceedings of the 8th IEEE Symposium on Computers and Communications (ISCC 2003), Jun.30-Jul.3, Kemer-Antalya, Turkey, pp. 614-619.
64. J. Zhang, C.K. Chang, and Z.-G. Gong, "Analysis of Recent CSCW Work", Proceedings of the 7th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2003), Jul.27-30, 2003, Orlando, FL, USA.
65. Jia Zhang, Carl K. Chang, and Jen-Yao Chung, "Mediating Electronic Meetings", Proc. of IEEE COMPSAC 2003, 3-6th November 2003, Dallas, Texas, pp. 216-221.

66. Jia Zhang, Carl K. Chang, and Jen-Yao Chung, "Mockup-driven Fast Prototyping Methodology for Web Requirements Engineering", Proc. of IEEE COMPSAC 2003, November 3-6, 2003, Dallas, Texas, pp. 263-271.
67. Jia Zhang, Jen-Yao Chung, and Carl K. Chang, "Towards Increasing Web Application Productivity", Proceedings of ACM Symposium on Applied Computing (SAC 2004), March 14-17, 2004, Nicosia, Cyprus, pp. 1677-1681.
68. Jia Zhang, Jen-Yao Chung, and Carl K. Chang, "Migration to Web Services Oriented Architecture - a Case Study", Proceedings of ACM Symposium on Applied Computing (SAC 2004), March 14-17, 2004, Nicosia, Cyprus, pp. 1624-1628.
69. J. Zhang, C.K. Chang, J.-Y. Chung, and S.W. Kim, "WS-Net: A Petri-net Based Specification Model for Web Services", Proceedings of IEEE International Conference on Web Services (ICWS 2004), San Diego, July 6-9, 2004, pp. 420-427. (acceptance rate: 28.7%)
70. Carl K. Chang and Tae-hyung Kim, "Distributed Systems Design using Function-Class Decomposition with Aspects," Proceedings of the 10th IEEE International Workshop on Future Trends of Distributed Computing Systems (FTDCS2004), Suzhou, China, 26-28 May 2004, pp. 148-153.
71. Jia Zhang, Carl K. Chang, and Jeff Voas, "A Uniform Meta-Model for Mediating Formal Electronic Conferences", Proc. of 28th Annual International Computer Software and Applications Conference (COMPSAC 2004), Hong Kong, September 28-30, 2004, pp. 376-381.
72. Tae-hyung Kim, Carl K. Chang, "Service-Oriented Design with Aspects (SODA)", Proc. of IEEE Int'l Conf. Services Computing (SCC 2005), July 11-15, 2005, Orlando, FL, USA. pp. 319-324.
73. Jinchun Xia, Yujia Ge, Carl K. Chang, "An Empirical Performance Study for Validating a Performance Analysis Approach: PSIM", Proc. of 29th Annual International Computer Software and Applications Conference (COMPSAC 2005), July 26-28, 2005, Edinburgh, Scotland, UK, pp. 307-312.
74. R. Babbitt, J. Wong, C. Chang and S. Mitra. "Privacy Management in Smart Homes: Design And Analysis", Proc. International Conference on Aging, Disability and Independence, St. Petersburg, Florida. February 2-4, 2006, pp. 55-64.
75. Tae-Hyung Kim and Carl K. Chang, "An Aspect-Oriented Approach to Resource Composition in Petri net-based Software Architectural Models," Proc. of 30th Annual International Computer Software and Applications Conference (COMPSAC 2006), September 18-21, 2006, Chicago, pp. 87-94.
76. Jinchun Xia and Carl K. Chang, "Performance-driven Service Selection Using Stochastic CPN", IEEE 2006 John Vincent Atanasoff International Symposium on Modern Computing (JVA 2006), Sofia, Bulgaria, Oct 3-6, 2006, pp. 99-104.
77. Yujia Ge, Carl K. Chang, "Capability-based Project Scheduling with Genetic Algorithms," Proc. 2006 Int'l Conf. Computational Intelligence for Modeling Control and Automation (CIMCA 2006), p. 161.
78. Shuxing Cheng, Carl K. Chang, Liang-Jie Zhang and Tae-Hyung Kim. "Towards Competitive Web Service Market," Proc. of 11th IEEE International Workshop on Future Trends of Distributed Computing Systems (FTDCS), Sedona, Arizona, 2007, pp. 213-219
79. Shuxing Cheng, Carl K. Chang, Liang-Jie Zhang, "Stochastic Modeling Study for Competitive Web Services Market," Proc. of IEEE ICWS 2007, pp. 960-967. (acceptance rate: 18%)

80. Shuxing Cheng, Carl K. Chang, Liang-Jie Zhang, "Modeling and Analysis of Performance Oriented and Revenue Based Admission Control Framework for Service Providers," Proc. of IEEE SCC 2007, pp. 9-16.
81. Hsin-yi Jiang, Tien N. Nguyen, Carl K. Chang, Fei Dong, "Traceability Link Evolution Management with Incremental Latent Semantic Indexing," Proc. of IEEE COMPSAC 2007, Beijing, China, pp. 309-316. (acceptance rate: 18%)
82. Hsin-yi Jiang, Carl K. Chang, Jinchun Xia, Shuxing Cheng, "A History-Based Automatic Scheduling Model for Personnel Risk Management". Proc. of IEEE COMPSAC 2007, pp. 361-366.
83. Jinchun Xia, Carl K. Chang, T.H. Kim, Hen-I Yang, Raja Bose and Sumi Helal, "Fault-resilient Ubiquitous Service Composition", Proc. of the third IET International Conference on Intelligent Environments (IE'07), Ulm, Germany, September 24-25, 2007, pp. 108-115.
84. Hsin-yi Jiang, Carl K. Chang, Dan Zhu, Shuxing Cheng. A Foundational Study on the Applicability of Genetic Algorithm to Software Engineering Problems. Proc. of IEEE Congress on Evolutionary Computation (CEC), Singapore, September 25-28, 2007, pp. 2210-2219.
85. José M. Reyes Álamo, Johnny Wong, Ryan Babbitt and Carl Chang. MISS: Medicine Information Support System in The Smart Home Environment. Proc. of 6<sup>th</sup> International Conference on Smart Homes and Health Telematics (ICOST), Ames, IOWA, Springer. 2008, pp. 185-199.
86. Hojun Jaygarl, Katsunori Oyama, Jinchun Xia and Carl K. Chang. HESA: A Human-Centric Evolvable Situation-Awareness Model in Smart Homes. Proc. of 6<sup>th</sup> International Conference on Smart Homes and Health Telematics (ICOST), Ames, IOWA, Springer. 2008, pp. 153-160.
87. Liang-Jie Zhang and Carl K. Chang. Towards Services Computing Curriculum. Proc. of IEEE Congress on Services 2008, Honolulu, HAWAII, IEEE Computer Society Press. 2008, pp. 23-32.
88. Hsin-yi Jiang and Carl K. Chang. Deriving Evaluation Metrics for Applicability of Genetic Algorithms to Optimization Problems. Proc. of 2008 ACM Genetic and Evolutionary Computation Conference, Atlanta, Georgia, ACM Press, Jul 12, 2008.
89. Katsunori Oyama, Carl K. Chang, Hojun Jaygarl, Atsushi Takeuchi, Jinchun Xia and Hiroshi Fujimoto. Requirements Analysis Using Feedback from Context Awareness Systems. Proc. of 2nd IEEE International Workshop on Requirements Engineering (REFS'08), co-located and published with IEEE COMPSAC 2008, Turku, FINLAND, IEEE Computer Society Press. 2008, pp. 625-630.
90. Katsunori Oyama, Carl K. Chang, Hojun Jaygarl, Atsushi Takeuchi, Jinchun Xia and Hiroshi Fujimoto. A Human-machine Dimensional Inference Ontology that Weaves Human Intentions and Requirements of Context Awareness Systems. Proc. of 32nd IEEE Annual International Computer Software and Applications Conference (COMPSAC 2008), Turku, FINLAND, IEEE Computer Society Press. 2008, pp. 287-294. (acceptance rate: 19%)
91. Hsin-yi Jiang, Katsunori Oyama and Carl K. Chang. An Input Adjustable Tree Algorithm for Evolutionary Testing. Proc. of 32nd IEEE Annual International Computer Software and Applications Conference (COMPSAC 2008), Turku, FINLAND, IEEE Computer Society Press. 2008, pp. 124-127. (acceptance rate: 19%)
92. Hsin-yi Jiang, Tien Nguyen, Ing-xiang Chen, Hojun Jaygarl, and Carl K. Chang. Incremental Latent Semantic Indexing for Effective, Automatic Traceability Link Evolution Management. Proc. of 2008 IEEE/ACM International Conference on Automated Software Engineering (ASE), L'AQUILA, ITALY, 2008, pp. 59-68. (acceptance rate: 12%)

93. Hua Ming, Katsunori Oyama and Carl K. Chang. Human-Intention Driven Self Adaptive Software Evolvability in Distributed Service Environments. Proc. of 2008 IEEE International Workshop on Future Trends of Distributed Computing Systems, Kunming, CHINA, Computer Society Press, 2008, pp. 51-57.
94. Carl K. Chang, Katsunori Oyama, Hojun Jaygarl and Hua Ming. On Distributed Runtime Software Evolution Driven by Stakeholders of Smart Home Development. Proc. of 2<sup>nd</sup> International Symposium on Universal Communication, Kyoto, Japan, 2008, pp. 59-66.
95. H. Yang, R. Bose, A. Helal, J. Xia and C. Chang, "Fault-resilient Pervasive Service Composition", Advanced Intelligent Environments, EDS: W. Minker, M. Weber, H. Hagrais, V. Callagan, A. Kameas, Springer, pp. 195—224, 2009
96. J. M. Reyes Álamo, H. Yang, R. Babbitt, J. Wong and C. K. Chang, " Support for Medication Safety and Compliance in Smart Home Environments", International Journal of Pervasive and Ubiquitous Computing (JAPUC), 1(3), IGI, pp. 42—60, July-Sept. 2009
97. K. Oyama, J. Dong, K. Lu, H. Jiang, H. Ming and C.K. Chang, "Situation-Theoretic Analysis of Human Intentions in a Smart Home Environment," Proc. of 7<sup>th</sup> ICOST, Tours, France, Springer. Vol. LNCS 5597. 2009, pp.125-132.
98. R. Babbitt, H. Yang, J. Wong and C. Chang, "Environmental Objects: A Novel Approach for Modeling Privacy in Pervasive Computing," Proc. of 7<sup>th</sup> ICOST, Tours, France, Springer. Vol. LNCS 5597. 2009, pp. 166-173.
99. J. Alamo, J. Wong, R. Babbitt, H. Yang and C. Chang, "Using Web Services for Medication Management in a Smart Home Environment," Proc. of 7<sup>th</sup> ICOST, Tours, France, Springer. Vol. LNCS5597. 2009, pp. 265-268.
100. Shuxing Cheng, Carl K. Chang, Liang-Jie Zhang, "An Efficient Service Discovery Algorithm for Counting Bloom Filter-Based Service Registry", Proc. of 7<sup>th</sup> IEEE International Conference on Web Services (ICWS), Los Angeles, 2009, pp. 157-164. (acceptance rate: 15.6%)
101. Dong Li and Carl K. Chang, "Initiating and Institutionalizing Software Product Line Engineering: from Bottom-up Approach to Top-down Practice," Proc. of IEEE COMPSAC 2009, Vol. I, Seattle, July 20-24, 2009, pp. 53-60. (acceptance rate: 20.3%)
102. Hojun Jaygarl, Carl K. Chang and Sunghun Kim, "Practical Extensions of a Randomized Testing Tool," Proc. of IEEE COMPSAC 2009, Vol. I, Seattle, July 20-24, 2009, pp. 148-153.
103. C. K. Chang, H. Yang, R. Babbitt, J. M. Reyes Álamo, F. Zhou and J. Wong, "A Holistic Approach to Seniors' Health Monitoring and Management Using Domotics," Gerontechnology 9(2), presented at the 7th World Conference of the International Society for Gerontechnology (ISG 2010), Vancouver, Canada, May 2010, pp. 108-109.
104. José M. Reyes Álamo, Hen-I Yang, Johnny Wong and Carl K. Chang, "Automatic Service Composition with Heterogeneous Service-Oriented Architectures", Proc. of 8th ICOST, Seoul, Korea, June 22-24, 2010, pp. 9-16.
105. Fuchao Zhou, Hen-I Yang, José M. Reyes Álamo, Johnny Wong and Carl K. Chang, "Mobile Personal Health Care System for Patients with Diabetes", Proc. of 8<sup>th</sup> ICOST, Seoul, Korea, June 22-24, 2010, pp. 94-101.
106. Hojun Jaygarl, Sunghun Kim, Tao Xie and Carl K. Chang, "OCAT: Object Capture-based Automated Testing", Proc. of ACM International Symposium on Software Testing and Analysis (ISSTA) 2010, Trento, Italy, July 12-16, 2010, pp. 159-170. (acceptance rate: 23%)

107. Hojun Jaygarl, Kai-Shin Lu and Carl Chang, "GenRed: A Tool for Generating and Reducing Object-Oriented Tests", Proc. of IEEE COMPSAC 2010, Seoul, Korea, July 19-23, 2010, pp. 127-136. (acceptance rate: 20.2%)
108. Wei Zhang, Carl K. Chang, Taiming Feng and Hsin-yi Jiang, "QoS-based Dynamic Web Service Composition with Ant Colony Optimization", Proc. of IEEE COMPSAC 2010, Seoul, Korea, July 19-23, 2010, 493-502. (acceptance rate: 20.2%)
109. Hua Ming, Carl K. Chang, Katsunori Oyama and Hen-I Yang, "Reasoning about Human Intention Change for Individualized Runtime Software Service Evolution", Proc. of IEEE COMPSAC 2010, Seoul, Korea, July 19-23, 2010, pp. 289-296.
110. Jeyoun Dong, Hen-I Yang, Katsunori Oyama and Carl K. Chang, "Human Desire Inference Based on Affective States," in Proc. of IEEE COMPSAC 2010, Seoul, Korea, July 19-23, 2010, pp. 347-350.
111. Wei Zhang, Carl K. Chang, Hen-I Yang and Hsin-yi Jiang, "A Hybrid Approach to Data Clustering Analysis with K-means and Enhanced Ant-based Template Mechanism," in Proc. of the 2010 IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology (WI-IAT 2010), Toronto, Canada, Aug. 2010, pp. 390-397.
112. Carl K. Chang, Hen-I Yang, I. Svec and Johnny Wong, "REACH platform -- Remote Access to Smart Home Facility Based Computer Science Laboratory," in Proc. of Frontiers in Education (FIE 2010), Washington D.C., Oct. 2010, pp. F3F-1 – F3F-7.
113. Sugam Sharma, Hen-I. Yang, Johnny Wong and Carl K. Chang, "Wrenching: Transient Migration from Commonality to Variability in Product Line Engineering of Smart Homes", in Proc. of the 9th International Conference on Smart Homes and Health Telematics (ICOST 2011), Montreal, Canada, 2011, pp. 230-235.
114. Jung Ho Bae, Yeon Ji Jeong, Heung Seok Chae and Carl K. Chang, "Semantics based Cohesion and Coupling Metrics for Evaluating Understandability of State Diagrams", Proc. of IEEE COMPSAC 2011, Munich, Germany, July 18-21, 2011, Vol. 1, pp. 383-392. (acceptance rate: 20.6%)
115. Seon Yeol Lee, Hyun Jae Choi, Yeon Ji Jeong, Tae Ho Kim, Heung Seok Chae and Carl K. Chang, "An Improved Technique of Fitness Evaluation for Evolutionary Testing", Proc. of IEEE COMPSAC 2011, Munich, Germany, July 18-21, 2011, Vol. 2, pp. 190-193.
116. Kai-Shin Lu and Carl K. Chang, "Using Web Search Results and Genetic Algorithm to Improve the Accuracy of Chinese Spam Email Filters", Proc. of IEEE COMPSAC 2011, Munich, Germany, July 18-21, 2011, Vol. 2, pp. 286-291.
117. Hen-I Yang, Peter Martin, Debra Satterfield, Ryan Babbitt, Johnny Wong, Mack Shelley and Carl K Chang, "A Novel Interdisciplinary Course in Gerontechnology for Disseminating Computational Thinking", in Proc. of Frontiers in Education (FIE 2011), October 12-15, 2011, Rapid City, SD, pp. T3H-1 – T3H-6.
118. Hen-I Yang, Ryan Babbitt, Johnny Wong and Carl K. Chang, "A Framework for Service Morphing and Heterogeneous Service Discovery in Smart Environments", in Proc. of the 10th International Conference on Smart Homes and Health Telematics (ICOST 2012), Artimino, Italy, 2012, pp. 9-17.
119. Hongyu Chen, Hen-I Yang, Heather Hooks, Joongsup Lee, Debra Satterfield, Johnny Wong, and Carl K. Chang, "Medbuddy: A Mobile Medicinal Management System for Children with ADD/ADHD", in Proc. of the 10th International Conference on Smart Homes and Health Telematics (ICOST 2012), Artimino, Italy, 2012, pp. 286-290.

120. Hen-I Yang, Peter Martin, Debra Satterfield, Johnny Wong, Mack Shelley and Carl K. Chang, "Interdisciplinary undergraduate learning modules in gerontechnology", Proc. of the 8<sup>th</sup> World Conference of the International Society for Gerontechnology (ISG\*ISARC 2012), Eindhoven, Netherlands, 2012, p. 209.
121. Kai-Shin Lu and Carl K. Chang, "ALTA: Automatic Load-time Adaption Technique for Refactoring-based Software Component Evolution", Proc. of IEEE COMPSAC, Izmir, Turkey, July 16-20, 2012, pp. 203-212. (acceptance rate: 17.3%)
122. Wei Zhang, Carl K. Chang, Hen-I Yang and Hsin-yi Jiang, "Automatic Data Clustering Analysis of Arbitrary Shape with K-means and Enhanced Ant-based Template Mechanism", Proc. of IEEE COMPSAC, Izmir, Turkey, July 16-20, 2012, pp. 452-460. (acceptance rate: 17.3%)
123. Liyuan Xiao, Carl K. Chang, Hen-I Yang, Kai-Shin Lu and Hsin-yi Jiang, "Automated Web Service Composition using Genetic Programming", 5<sup>th</sup> IEEE International Workshop on Service Science and Systems, Proc. of IEEE COMPSAC, Izmir, Turkey, July 16-20, 2012, Vol. 2, pp. 7-12.
124. Haihua Xie, Carl K. Chang, Ming Hua and Kai-shin Lu, "The Concepts and Ontology of SiSL: A Situation-Centric Specification Language", 6<sup>th</sup> IEEE International Workshop on Requirements Engineering Services, Proc. of IEEE COMPSAC, Izmir, Turkey, July 16-20, 2012, Vol. 2, pp. 385-391.
125. Katsunori Oyama, Atsushi Takeuchi and Carl K. Chang, "Brain Lattice: Concept Lattice Based Causal Analysis of Changes in Mental Workload", Proceedings of 2013 IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), San Diego, Feb. 26-28, 2013, pp. 62-69.
126. Jeyoun Dong, Carl K. Chang and Hen-I Yang, "Identifying Factors for Human Desire Inference in Smart Home Environments", Proceedings of 2013 International Conference on Smart Homes and Health Telematics, Singapore, June 19-21, 2013, pp. 230-237.
127. Hai Yu, Celine Maria Amrita Anthony Sunderraj, Carl K Chang and Johnny Wong. Emotion Aware System for the Elderly. *ICOST 2014, Denver, USA*; in Pre-print Proceedings, pp. 189-194; Full Paper to be included in the Post-Print Proceedings to be published by Springer, 2014.
128. Liyuan Xiao, Yetian Chen and Carl K. Chang, "Bayesian Model Averaging of Bayesian Network Classifiers for Intrusion Detection", accepted by 9<sup>th</sup> IEEE International Workshop on Security, Trust, and Privacy for Software Applications", Proceedings of IEEE COMPSACW 2014, Vasteras, Sweden, July 21-15, 2014, pp. 128-133.
129. Ali Davish and Carl K. Chang, "GUIDiVa: Automated Discovery and Validation of State-based GUI Invariants", Proc. of IEEE COMPSAC 2014, Vasteras, Sweden, July 21-15, 2014, pp. 65-74. (acceptance rate: 22%)
130. Ali Darvish and Carl K. Chang, "Black-box Test Data Generation for GUI Testing", accepted for the 14<sup>th</sup> International Conference on Quality Software (QSIC), Dallas, October 2-3, 2014, pp. 133-138.

### H-3. Invited Papers

A dozen invited papers were published in the past.

1. "From CC2001 to CS 2013, and Beyond", invited full paper for the Keynote speech at 2014 CNCC. Published in Chinese .

### H-4. Department or Technical Reports

Technical Reports (over 150 reports)

#### H-5. Papers Presented, Seminar Talks given, and other International and National Activities

1. Seminar on "Software Factory: U.S. and JAPAN", Institute for Information Industry, Taipei, Taiwan, July, 1986.
2. Seminar on "Software Engineering in United States: Its trends and Educational Issues", Fujitsu Limited at Kawasaki Factory, Japan, May 1987.
3. Seminar on "The Validation and Verification of Distributed Software Systems", Kyushu University at Fukuoka, Japan, Oct. 1987.
4. Seminar on "Verification and Validation for Distributed Software", Fujitsu Limited at Nakahara Building, Kawasaki, Japan, October 1988.
5. Seminar on "Software Engineering Research in UIC", National Computer Board, Singapore, October 1988.
6. Seminar on "Software Engineering Technology - Concepts & Practices", given to software professionals in the public, sponsored by the Institute for Information Industry, Taiwan, December 1988.
7. Speech on "Software Engineering Issues on Productivity & Quality", 1988 Modern Engineering Technology Seminar (METS), Taiwan, December 1988.
8. Seminar on "Software Quality Assurance", a SEED kick-off seminar given to software professionals in the public, sponsored by the Institute for Information Industry, Taiwan, December 1988.
9. Seminar on "Integral: An Integrated Verification and Validation Framework for Distributed Software", Academia Sinica, Taiwan, December 1988.
10. Seminar on "A Specification Based Testing Technique for Distributed Software", National Chiao-Tung Univ. Taiwan, December 1988.
11. Seminar on "From CASE to Software Productivity and Quality", FUJITSU Corporate Seminar, Kawasaki, Japan, July 1989.
12. Seminar on "A DISCOL based V&V Environment", Kyushu University, Fukuoka, Japan, July 1989.
13. Seminar on "INTEGRAL - An Integrated CASE", NEC C&C Software Division, Tokyo, Japan, July 1989.
14. Seminar on "A Vertical CASE - INTEGRAL", AT&T Bell Labs, Naperville, Illinois, Nov. 1989.
15. Seminar on "INTEGRAL - An Integrated CASE Tool Set", Boston University, Feb, 1990.
16. Seminar on "INTEGRAL - An Integrated CASE Tool Set", University of Texas at Arlington, March 1990.
17. Seminar on "INTEGRAL - a CASE Study", University of SW Louisiana, March 1990.
18. Seminar on "INTEGRAL - a case of CASE", University of California-Riverside, March 1990.
19. Seminar on "INTEGRAL - An Integrated CASE Tool Set", Texas A & M University, April 1990.
20. Seminar on "Challenges in the 1990s", FUJITSU Corporate Seminar, Kawasaki, Japan, October 1990.
21. Seminar on "Challenges in the 1990s", NEC C&C Software Division, Tokyo, Japan, October, 1990.
22. Seminar on "An Integrated CASE Environment", NTT R&D Headquarter, Tokyo, Japan, October, 1990.
23. Seminar on "Object-Oriented Software Development Methodology", NTT R&D Headquarter, Tokyo, Japan, October, 1991.
24. Seminar on "Are We Ready for New Software Technology?", Fujitsu Workshop, Kawasaki, Japan, October, 1991.
25. Seminar on "The DISCOL Specification System", Tohoku University, Sendai, Japan, Oct. 1991.
26. Seminar on "Is New Technology Ready for US?", Toshiba, Kawasaki, Japan, October, 1991.
27. Seminar on "Software Engineering Management", Hitachi Software, Yokohama, Japan, Oct, 1991.

28. Seminar on "Integrated Project Support Environment", ROC-USA Bitateral Seminar on Core Software Technology, co-sponsored by US Academy of Sciences and ROC Academia Sinica, Taipei, Taiwan, June 9, 1992.
29. Seminar on "The State of Visual Software Engineering", Niigata University, Japan, March, 1993.
30. Seminar on "The State of Visual Software Engineering", Fujitsu Limited, Kawasaki, Japan, March, 1993.
31. Seminar on "The State of Visual Software Engineering", University of Alaska at Fairbanks, April, 1994.
32. Seminar on "The State of Visual Software Engineering", ROC-USA Bilateral Seminar on Multimedia Distributed Systems, co-sponsored by US Academy of Sciences and ROC Academia Sinica, Taipei, Taiwan, April 28, 1993.
33. Seminar on "US Software Engineering Obsolete?", presented at the Editorial Board and Industry Advisory Board of IEEE Software in the 1993 joint EB/IAB meeting at Paris, June 29, 1993.
34. Seminar on "Software Engineering Obsolete", CAPAMA-IA Annual Conference, University of Iowa, Iowa City, Oct. 23, 1993.
35. Seminar on "UICCELL II Experience", Fujitsu Limited, Kawasaki, Japan, June 24, 1994.
36. Seminar on "Modern Software Engineering", Academia Sinica, Taipei, Taiwan, June 30, 1994.
37. Seminar on "Recent Trends in Software Engineering", presented at Pan Asian Association of Motorola (PAAM), Schaumburg, Illinois, Aug. 18, 95.
38. Seminar on "Visual Software Engineering", NTT, Tokyo Japan, Feb 6, 1996. (AM)
39. Seminar on "Visual Software Engineering", NEC, Tokyo, Japan, Feb 6, 1996. (PM)
40. Seminar on "Visual Software Engineering", Institute for Social Information Science, Fujitsu Laboratories Ltd., Numazu, Japan, Feb 7, 1996.
41. Seminar on "Visual Software Engineering", Fujitsu Telecom, Kawasaki, Japan, Feb 8, 1996.
42. Seminar on "Software Architecture Based Requirements Engineering", Fujitsu Telecom, Kawasaki, Japan, July 25, 1997.
43. Seminar on "Software Architecture Based Requirements Engineering", Hiroshima University, Hiroshima, Japan, July 31, 1997.
44. Seminar on "Software Architecture Based Requirements Engineering", Tianjin University, Tianjin, China, August 4, 1997.
45. Seminar on "Software Architecture Based Requirements Engineering", Tsinghua University, Beijing, China, August 6, 1997.
46. Seminar on "Software Architecture Based Requirements Engineering", Peking University, Beijing, China, August 8, 1997.
47. Seminar on "SABRE Research at UIC", Lucent Technologies – Bell Labs, Naperville, Illinois, December 10, 1998.
48. Keynote Speech on "Computing Curricula in the New Century", Symposium on Future Computing Curricula in China, Ministry of Education, China, October 7-9, 2000, Chongqing, China.
49. Keynote Speech on "Evolving the World of Computing and Networking - a 2020 Vision", Japan Gigabit Network Symposium, January 26, 2004, in conjunction with the IEEE/IPSJ International Symposium on Applications and the Internet, Tokyo, Japan.
50. Keynote Speech on "Evolving the World of Computing with New Curriculum and Professional Certification", Annual National General Assembly, Information Processing Society of Japan, March 9, 2004, Japan.

51. Keynote Speech on “From Silk Road to Silicon Road: Old Educators Never Die”, Computer Innovation 6016, November 30, 2005, Beijing, China, delivered by Professor Robert Sloan because of schedule conflict.
52. TV Interview by CSDN China on “Who Invented the First Electronic Digital Computer?”; October 16, 2007, Beijing, China. CSDN.COM.CN was then the most popular Cyber media and attracted over one-million hits per day.
53. Keynote Speech on “Advancing the Computer Profession – Cross the Technological and Cultural Gaps”, Beijing, China, April 20, 2008, Annual Conference of the Chinese Computer Federation.
54. Plenary Panel Chair, “Towards Omnificent Multimodal Situation-Aware Services”, Washington DC, July 8, 2011, IEEE International Services Computing Conference.
55. Distinguished Lecture, “Cutting-edge *in-situ* Software Engineering Technologies”, to be given to the School of Electrical Engineering and Computer Science, Peking University (ranked number 1 in China), Beijing, October 9, 2012.
56. Keynote Speech on “From Silk Road to Smart City: A Story on Singularity”, APEC Smart City Industrial Technology Cooperation Forum, Asia-Pacific Economic Cooperation, December 17-20, 2012, Changzhou, China.
57. Plenary Speech on “From ABC to Soft Software Engineering (tentative title)”, invited talk by the President of Bulgaria in celebration of John Vincent Atanasoff’s 110<sup>th</sup> Birthday, Sofia, Bulgaria, October 4<sup>th</sup>, 2013.
58. Keynote Speech on “Situational Software Engineering”, IEEE CIS International Conference on Active Media Technology, Maebashi, Japan, October 29-31, 2013.
59. Seminar on “ Breaking the Glass Ceiling – Why and How of Academic Professional Service”, National Chiao-Tung University, Taiwan, March 6, 2014.
60. Distinguished Lecture on “Situational Software Engineering”, National Central University, Taiwan, March 7, 2014.
61. Distinguished Lecture on “Situational Software Engineering”, Huazhong University of Science and Technology, China, March 31,
62. Seminar on “Break the Glass Ceiling”, Huazhong University of Science and Technology, China, April 4, 2014.
63. Distinguished Lecture on “Situational Software Engineering”, Nanjing University, China, April 8, 2014.
64. Keynote Speech on “Computing Education - From CC2001 to CS 2013, and Beyond”, China National Computer Congress (CNCC), China Computer Federation (CCF), Zhengzhou, China, October 24, 2014.
65. Keynote Speech on “Software Defined Situations”, 2014 Asia-Pacific Services Computing Conference (APSCC), Fuzhou, China, December 5, 2014.

#### H-6. Editor's Messages and President's Messages

1. Carl K. Chang, “Let's stop the bipolar drift”, IEEE Software, May 1990, p. 4.
2. Carl K. Chang, “Working together to build software's future”, IEEE Software, Jan. 1991, p. 6.
3. Carl K. Chang, “Continuing to build our editorial board”, IEEE Software, March 1991, p. 6.

4. Carl K. Chang and Angela Burgess, "Global issues, trends in software practice", IEEE Software, Sept. 1991, pp. 4,8.
5. Carl K. Chang, "Volunteers who serve their profession", IEEE Software, Jan. 1992, p. 8.
6. Carl K. Chang, "Team-building takes more than slogans", IEEE Software, May 1992, pp. 10-11.
7. Carl K. Chang, "Building a consensus and editorial calendar" IEEE Software, Sept. 1992, p. 6.
8. Carl K. Chang, "Experimentalists who transfer technology", IEEE Software, Jan. 1993, pp. 6,9.
9. Carl K. Chang, "Combining vision and action produces results", IEEE Software, July 1993, pp. 4,6.
10. Carl K. Chang, "Is existing software engineering obsolete?", IEEE Software, Sept. 1993, pp. 4-5.
11. Carl K. Chang, "Planning ahead requires looking back", IEEE Software, Nov. 1993, p. 5.
12. Carl K. Chang, "Changing face of software engineering", IEEE Software, Jan. 1994, pp. 4-5.
13. Carl K. Chang, "Logging off: lessons learned as editor", IEEE Software, Nov. 1994, p. 4.
14. Carl K. Chang, "President's Message: Evolving the World with the World's Computer Society", IEEE Computer, Jan. 2004, pp. 10-12.
15. Carl K. Chang, "President's Message: Transforming the World's Computer Society", IEEE Computer, Dec. 2004, pp. 14-15.
16. Carl K. Chang, "My Vision for Computer", IEEE Computer, Jan. 2007, pp. 7-8.
17. Rangachar Kasturi and Carl K. Chang, "Build a Global Industrial Forum", IEEE Computer, May 2008, pp. 67-69.
18. Carl K. Chang, "Reversing the Bipolar Drift - Introducing the IAB," IEEE Computer, July 2009, pp. 20-24.
19. Oliver Bimber and Carl K. Chang, "Computational Archaeology – Reviving the Past with Present-Day Tools", IEEE Computer, July 2011, pp. 30-31.
20. Carl K. Chang, David Weiss and Mike Hinchey, "Where Software Engineering Meets...", IEEE Computer, November 2011, pp. 17-18.
21. Carl K. Chang, Vladimir Getov and Kelvin Sung, "Computing in Asia: A Sampling of Recent Success Stories", IEEE Computer, June 2012, pp. 21-23.
22. Carl K. Chang and Bill Schilit, "Aware Computing", IEEE Computer, April 2014, pp. 20-21.

#### H-7. Column Articles

1. Robert L. Martin and Carl K. Chang, Point - Counterpoint "How to Solve the Management Crisis?" IEEE Software, Nov. 1994, pp. 14-15.
2. Mark Christensen and Carl K. Chang, Insider "Blueprint for the Ideal Requirements Engineer," IEEE Software, March 1996, p. 12.

#### **I. Committee and Administrative Work**

##### I-1. Department Committees at UIC

- 1984-85: Computer Instructional Lab Committee
- 1985-86: Advisory Committee, Graduate Committee, Colloquium & Research Committee and Student Scholarship Committee
- 1986-87: Graduate Committee, Computer Committee

- 1987-88: Computer Committee, Student Scholarship Committee, and Colloquium & Research Committee
- Computer Committee, Student Scholarship Committee
- 1989-90: Computer Committee, Student Scholarship Committee
- 1990-91: Graduate Committee, Undergraduate Committee, Graduate Admission Committee, Computer Committee
- 1991-92: Graduate Committee, Undergraduate Committee, Graduate Admission Committee, Computer Committee
- 1992-93: Graduate Committee, Undergraduate Committee, Computer Committee
- 1993-94: Graduate Committee, Undergraduate Committee, Computer Committee
- 1994-1995: Sabbatical Leave
- 1995-1996: Graduate Committee, Undergraduate Committee, Computer Committee,
- 1996-1997: Undergraduate Committee, Chairing the Ph.D. Qualifier Subcommittee on Software Engineering and Programming Languages, Chairing the Subcommittee of the Undergraduate Committee on "Progressing Intensive Courses with LAB/TA."
- 1997-1998: Undergraduate Committee, Computer Committee, Chairing the Ph.D. Qualifier Subcommittee on Software Engineering and Programming Languages, Chairing the Task Force on "Developing Formal Labs for EECS 371"
- 1998-1999: Undergraduate Committee, Graduate Committee, Computer Committee,
- 1999-2000: Undergraduate Committee, Computer Committee
- 2000-2001: Director of Graduate Studies, Chair – Web Design Committee for the new Computer Science Department

#### I-2. University Committees at UIC

- 1993-94: University Senate
- 1994-95: University Senate
- 1995-96: University Senate
- 1996-present: UIC Representative to the IBHE Articulation Panel on Computer Science
- 1998-2000: IEEE Student Chapter Faculty Advisor

#### I-3. Department Committees at ISU

- Outreach Committee Chair (2013-14)
- Faculty and Staff Recognition and Award Committee (member, 2013-14; Chair, 2014-)
- Industry Partnership Committee (Chair, 2014-)
- Advisory Committee, Gerontology Program (member, 2014-)

#### I-4. University Committees at ISU

- Dr. John Vincent Atanasoff's 100<sup>th</sup> Birthday Celebration Planning Committee; General Chair of the JVA-2003 International Symposium on Modern Computing (<http://www.iastate.edu/JVA-2003>)
- Member, CIO Search Committee, 2004
- Member, Senate Committee on Information Technology, 2004-2008
- Member, Steering Committee, JVA Initiative, 2005-present
- Advisory Committee Member, Gerontology Program, 2014-present

## J. Professional and Public Service Committees

### J-1. Editorial Services

- Editor-in-Chief Emeritus for IEEE Computer, 2011-present.
- Edited a theme issue on "Computing in Asia", IEEE Computer, June 2012.
- Edited a theme issue on "Software Engineering Meets...", IEEE Computer, October 2011.
- Edited a theme issue on "Computational Archaeology", IEEE Computer, July 2011.
- Editor-in-Chief, IEEE Computer, starting January 1, 2007-2010.
- Guest Editor (with Frank Liu and T. Ming Jiang) for a special issue on "Computer Software and Applications", The Journal of Systems and Software, Volume 83, Issue 2, February 2010.
- Guest Editor for a special issue on "Yau", The Journal of Systems and Software, Volume 82, Issue 10, October 2009.
- Editor, Requirements Engineering Journal, Springer-Verlag, 2002-2006
- Member, Advisory Board, Information Technologies and Control, Bulgarian Union of Automatics and Informatics (UAI), 2005-present.
- Editor-in-Chief Emeritus for IEEE Software, 1997-2000.
- Editor-in-Chief for IEEE Software, 1991 - 1994.
- Editor for a special volume on "Software Management", Annals of Software Engineering, Baltzer Science Publishers, The Netherlands, to be published in the first quarter, 2001
- Guest Editor for a special issue on "Setting the Standards", IEEE Software, Nov/Dec 1998
- Editor, IEEE Computer Society Press, 1993 - 1999.
- Guest Editor for a special issue on "Software in the Far East", IEEE Software, March 1989
- Panelist on the Review Panel for Republic of China's Software Engineering Standards.
- Referee for IEEE Transactions on Software Engineering.
- Referee for IEEE Transactions on Computers.
- Referee for IEEE Computer Society's COMPUTER
- Referee for IEEE Computer Society's SOFTWARE
- Referee for the IEEE Computer Society's COMPSAC Conference since 1980

- Referee for the IEEE International Conference on Programming Languages since 1986
- Referee for National Computer Conference, 1986.
- Referee for 1987 International Conference on Parallel Processing.
- Referee for the 1987 International Conference on Data Engineering
- Referee for the 1992 International Conference on Computer and Information.
- Referee for the 1992 International Conference on Software Engineering and Knowledge Engineering.
- Referee for many other IEEE or non-IEEE international conferences.

#### J-2. Services and Leadership Roles in the Professional Societies

- Executive Committee Member for IEEE/CS Technical Committee on Computer Languages (TCCL) for 1986-88.
- Governor, Board of Governors of IEEE Computer Society, 1995-1997.
- IEEE/CS Audit Committee Member ,1995-97
- IEEE/CS YUFORIC Task Force ExCom Member ,1995 - present
- IEEE/CS Publications Board Member ,1996 - present
- IEEE/CS Awards Committee Member ,1996 - present
- IEEE/CS Technical Council on Software Engineering ExCom Member ,1996 - 1999
- Chair, EIC Search Committee for IEEE Transactions on Knowledge and Data Engineering, 1996
- Chair, EIC Search Committee for IEEE Multimedia, 1997
- IEEE/CS Magazine Operations Committee Chair 1997 - present
- Governor, Board of Governors of IEEE Computer Society, 1998-2000.
- Secretary, Board of Governors of IEEE Computer Society, 1998.
- Chair, EIC Search Committee for IEEE Software, 1998.
- Co-Chair, Joint Task Force on “Computing Curricula 2001”, IEEE Computer Society and ACM, 1998-2001
- Vice President, Press Activities, IEEE Computer Society, 1999
- Chair, EIC Search Committee for IEEE Software, 2000.
- Chair, EIC Search Committee for IEEE Transactions on Knowledge and Data Engineering, 1999
- (elected) First Vice President, Educational Activities, IEEE Computer Society, 2001.
- Vice President, Educational Activities, IEEE Computer Society, 2002.
- (elected) 2004 President, IEEE Computer Society
- (elected) 2005 Chair, IEEE Board Meetings and Services Committee

- Chair, EIC Search Committee for IEEE Trans. on Services Computing, 2010.
- Chair, EIC Search, Committee for IEEE Trans. on Services Computing, 2012.
- Appointed President Emeritus, IEEE Computer Society (2013-)
- (appointed) President Emeritus, IEEE Computer Society (2013-)

### J-3. Services and Leadership Roles in Conferences

- Member of Program Committee for the 1986 IEEE International Conference on Computer Languages (ICCL), held on Oct. 27-30, at Miami Beach, Florida; chaired paper session on "Logic Programming".
- Program Track Director on "Systems Software and Languages" for the Program Committee of 1987 AFIPS National Computer Conference, held on June 15-18, 1987 at Chicago.
- Conference Chairman for CAPAMA 85, which was jointly sponsored by CAPAMA and College of Engineering, UIC, on March 30, 1985.
- Steering Committee Co-chairman for CAPAMA 86, which was jointly sponsored by CAPAMA and Northern University, April 12, 1986.
- Program Advisor for 1987 International Conference on Advanced Science & Technology (ICAST), co-sponsored by CAPAMA and AT&T Bell Laboratories, held in RAMADA Hotel, Rosemont, Illinois, on March 30, 1987.
- Program Area Chair, 1988 IEEE ICCL, Miami, Florida, October 1988.
- Panel Session Chair on "Specification Languages - Status and Trends", 1988 IEEE ICCL.
- Member of Program Committee, 1988 International Computer Symposium (ICS) held at Taiwan, December 1988.
- Session Chair for the Panel on "Software Engineering Management - Issues on Productivity and Quality", 1988 ICS, December 1988.
- Session Chair on "Formal Semantics of Concurrency", InfoJapan'90, Tokyo, Japan, Sept. 1990.
- Session Chair on "Computer Visualization", 1991 ICAST, Argonne National Lab., March 1991.
- Chief organizer of the First International Forum on "Trends of Global Software Technologies", held in Maui, Hawaii, June 20-25, 1991.
- Stream Chair and Program Committee Member for International Conference on Computing and Information, ICCL, Toronto, Canada, May, 1992.
- Session Chair for the Panel on "Software Reuse - Practices and Outlook", 1992 ICCL, Toronto, Canada, May 1992.

- Program Committee Member for IASTED (International Association of Science and Technology for Development) International Conference on Reliability, Quality Control and Risk Assessment, Washington, D. C., November 4-6, 1992.
- Conference Co-Chairperson for 1992 Mid-American Conference on Science and Technology Applications MACSTA, Lisle, Illinois, July 1992.
- Steering Committee Chair for 9th International Conference on Advanced Science and Technology, March 27, 1993.
- Program Committee Member for 1993 IEEE International Conference on Software Engineering, Baltimore, Maryland, May 17-21, 1993.
- Program Chair for 5th International Conference on Computing and Information, Sudbury, Ontario, Canada, May 27-29, 1993.
- Steering Committee Member and Program Committee Member for 1994 IEEE International Conference on Requirements Engineering, Colorado Springs, April 18-22, 1994.
- Minitrack Coordinator for 27th Hawaii IEEE International Conference on System Sciences on Software Technology, Hawaii, January 4-7, 1994.
- Steering Committee Chair for 10th International Conference on Advanced Science and Technology, March 26, 1994.
- General Chair for the 1996 IEEE International Conference on Requirements Engineering, Colorado Springs, Colorado, USA, April 15-18, 1996.
- Steering Committee Member, ICAST/ICMIS 1997, held at Motorola University, Schaumburg, IL, March 1997.
- Program Co-Chair for the 1997 IEEE Workshop on Future Trends of Distributed Computing Systems, Tunis, Tunisia, October 29-31, 1997.
- Program Committee Member, Asian-Pacific Software Engineering Conference, Hong Kong, December 2-5, 1997.
- Steering Committee Chair for the 1998 IEEE International Conference on Requirements Engineering, Colorado Springs, Colorado, USA.
- Steering Committee member for the 1999 IEEE Workshop on Future Trends of Distributed Computing Systems, Cape Town, South Africa, December, 1999.
- Steering Committee Chair for the 2000 IEEE International Conference on Requirements Engineering, Schaumburg, Illinois, June 19-23, 2000.
- Panel Chair on “Computing Curricula 2001”, World Computer Congress 2000, IFIP, Beijing, China, August 21-25, 2000.

- Steering Committee Member for the 2000 IEEE International Computer Software and Applications Conference, Taipei, Taiwan, October 25-27, 2000.
- Steering Committee Member for the 2001 IEEE International Computer Software and Applications Conference, Naperville, Illinois, October 8-12, 2001.
- Steering Committee Member for the 2001 IEEE Symposium on Applications and the Internet (SAINT 2001), San Diego, California, January 8-12, 2001.
- Program Chair for the 2002 IPSJ/IEEE-CS Symposium on Applications and the Internet (SAINT 2002), January 28-February 1, 2002, Nara, Japan.
- General Chair for the 2003 IEEE-CS/IPSJ Symposium on Applications and the Internet (SAINT 2003), January 27-January 31, 2003, Orlando, Florida.
- General Chair for the 2003 IEEE Requirements Engineering Conference (RE'03), September 8-12, 2003, San Francisco, California.
- General Chair for the International Symposium on Modern Computing (JVA-2003).
- Steering Committee Chair for the IEEE-CS/IPSJ Symposium on Applications and the Internet (SAINT), 2004-05.
- General Chair for the 2006 IEEE Computer Software and Applications Conference (COMPSAC), September 17-21, Chicago, Illinois.
- Steering Committee Chair for the 2006 IEEE Computer Society Congress on Software Technology and Engineering Practice (CoSTEP), Chicago, September 17-22, 2006.
- General Chair for the IEEE 2006 John Vincent Atanasoff Symposium on Modern Computing (JVA 2006), October 3-6, 2006, Sofia, Bulgaria.
- Member, Steering Committee, International Conference on Mobile Wireless Middleware, Operating Systems, and Applications (ICST MOBILWARE), since 2007; Chair since 2012.
- Member, Scientific Committee, International Conference on Smart Homes and Health Telematics (ICOST), since 2007.
- General Chair, International Conference on Smart Homes and Health Telematics (ICOST), Ames, Iowa, June 28-July 2, 2008.
- General Chair, 2010 International Conference on Mobile Wireless Middleware, Operating Systems, and Applications (ICST MobilWare), Chicago, Illinois, USA, June 30-July 2, 2010.
- Chair, Standing Committee, IEEE Computer Society Signature Conference on Software Technology and Applications (IEEE COMPSAC), 2006-2015.
- Standing Chair, IEEE COMPSAC Symposium on Software Engineering Technology and Applications (SETA), 2015-present.

J-4. Sustained Services to IEEE COMPSAC (IEEE-CS Signature Conference on Software Technology and Applications)

- Member of the IEEE COMPSAC Program Committee since 1983, currently member on the Steering Committee, chaired or coordinated paper sessions and panel sessions, including:
  1. chaired panel session on "CHILL Language", COMPSAC 83.
  2. coordinated panel session on "CHILL Language Environments", COMPSAC 83.
  3. chaired paper session on "Software Tools", COMPSAC 84.
  4. coordinated panel session on "Telecommunications Software Environments", COMPSAC 84.
  5. coordinated panel session on "Switching Software Architecture", COMPSAC 84.
  6. coordinated panel session on "Software Reusability", COMPSAC 84.
  7. chaired paper session on "Software Testing", COMPSAC 85.
  8. chaired panel session on "Software Factories - U.S. and JAPAN", COMPSAC 85.
  9. panelist on "Software Engineering Management", COMPSAC 85.
  10. chaired panel session on "Impact of Knowledge Based Technology", COMPSAC 86.
  11. chaired paper session on "Requirements Specification", COMPSAC 86.
  12. chaired panel session on "Workstation Environment for Software Productivity", COMPSAC 87
  13. chaired paper session on "Software Reuse", COMPSAC 90.
  14. chaired paper session on "Testing and Debugging", COMPSAC 92.
  15. chaired paper session on "Software Testing", COMPSAC 94.
  16. Program Co-chair, COMPSAC 96.
  17. coordinated COMPSAC 98 sessions.
  18. chaired paper session on "Software Process and Management", COMPSAC 99.
  19. chaired panel session on "Virtual University", COMPSAC 2000.
  20. chaired paper session on "Requirements Engineering", COMPSAC 2001.
  21. chaired paper session on "Network Systems", COMPSAC 2003.
  22. chaired paper session on "Software Architecture", COMPSAC 2004.
  23. Served on panel session "Software Engineering Education in the New Millennium; position statement on "Software Engineering Education in the New Millennium – A View from Asia", COMPSAC 2006.
  24. Hosted "Software JVA Initiative Roundtable: 70 Years Electronic Digital Computing that Changed the World", Wednesday July 22, COMPSAC 2009.
  25. Presided over the opening session for the IEEE COMPSAC conference from 2006-2013.
  26. Led IEEE-CS Presidents Delegation to visit the Ministry of Education of The Republic of China (Taiwan) to promote COMPSAC 2015 as the Computer Society's flag ship conference. July 29, 2013.

27. Organized 2015 COMPSAC Distinguished Speakers Bureau; served as a distinguished speaker.

#### J-5. Regional and Community Services

- Vice President of Chinese Academic and Professional Association in Mid-America (CAPAMA) from 1985-1987.
- President of Naperville Chinese Association from 1985-1986.
- Secretary of Mid-America Chinese Science and Technology (MACSTA) from 1991-92.
- Executive Committee Member for IEEE/CS Technical Committee on Software Engineering (TCSE) for 1991 - now.
- President for CAPAMA, 1993-1994.

#### J-6. Other Significant Professional Services

- Served numerous times as panelist for the NSF Review Panels (CAREER, CSR, ITR, HDCCSR, etc.)
- Served several times as external reviewer for curriculum development or reform – Hong Kong, Malaysia, Taiwan.
- Served often as external reviewer for promotion & tenure cases inside and outside ISU, domestic and foreign.
- Served several times as external review for governmental research grants (Hong Kong, Austria).
- Served as reference in support of ISU faculty awards (distinguished professorship, university professorship, endowed chair professorship, etc.)
- Served as reference to support membership elevation to fellow for professional associations including IEEE, ACM, AAAS, etc.
- Invited to participate in the ABET IT Accreditation Workshop hosted by the National Academy of Engineering, January 20-22, 2003, hosted by the National Academy of Engineering.
- Served on the Advisory Board, China's National Key Basic Research and Development Program (so-called 973 Projects) on Software, hosted by Peking University.
- Served as Member of the Steering Committee, JVA Initiative, since 2006.
- Invited as Panelist for the Workshop on "Meeting Global IT Skills Needs – The Role of Professionalism" jointly sponsored by IFIP, The British Computer Society, WITSA, and OECD, October 25-27, 2002.

#### **Appendix D-1. Teaching Record**

List of UIC courses taught in each quarter/semester between 1984-2001

Quarter&Year	Course	Title of Course
Developed	EECS 481	Advanced Topics in Software Engineering (1984)

Developed	EECS 482	Software Engineering Environments (1984)
Fall 1985	EECS 373	Data Base System
Winter 1986	EECS 270	Introduction to Data Structures
Spring 1986	EECS 481	Advanced Topics in Software Engineering
Spring 1986	EECS 493	Fundamentals of Real-Time Software (at Motorola)
Fall 1986	EECS 373	Data Base System
Fall 1986	EECS 482	Software Engineering Environments (Video)
Winter 1987	EECS 487	Computer Systems Measurement and Modeling
Fall 1987	EECS 373	Data Base Systems
Fall 1987	EECS 481	Advanced Topics in Software Engineering
Spring 1988	EECS 373	Data Base Systems (at Motorola)
Spring 1987	EECS 482	Software Engineering Environments (at Motorola)
Fall 1988	EECS 302	File and Communication Systems
Fall 1988	EECS 481	Advanced Topics in Software Engineering
Winter 1989	EECS 274	Introduction to Software Engineering
Spring 1989	EECS 482	Software Engineering Environments
Fall 1989	EECS 481	Advanced Topics in Software Engineering
Fall 1989	EECS 373	Data Base Systems (at COD)
Winter 1990	EECS 483	Distributed Computing Systems (at Motorola)
Spring 1990	EECS 482	Software Engineering Environments
Fall 1990	EECS 481	Advanced Topics in Software Engineering
Winter 1991	EECS 481	Advanced Topics in Software Engineering (Video)
Winter 1991	EECS 483	Distributed Computing Systems
Spring 1991	EECS 482	Software Engineering Environments
Fall 1991	EECS 570	Advanced Topics in Software Engineering
Developed	EECS 570	Advanced Topics in Software Engineering (Video, 1992)
Spring 1992	EECS 370	Software Design
Fall 1992	EECS 570	Advanced Topics in Software Engineering
Fall 1992	EECS 370	Software Design
Spring 1993	EECS 571	Software Engineering Environments
Summer 1993	EECS 570	Advanced Topics in Software Engineering
Fall 1993	EECS 570	Advanced Topics in Software Engineering
Fall 1993	EECS 480	Database Systems
Spring 1994	EECS 571	Software Engineering Environments
Summer 1994	EECS 571	Software Engineering Environments (Motorola)
Spring 1995	EECS 573	Distributed Computing System (Motorola)
Fall 1995	EECS570	Advanced Topics in Software Engineering
Spring 1996	EECS571	Software Engineering Environments
Spring 1996	EECS375	Computer Ethics
Fall 1996	EECS371	Operating Systems
Fall 1996	EECS573	Distributed Systems
Spring 1997	EECS375	Computer Ethics
Spring 1997	EECS571	Software Engineering Environments

Fall 1997	EECS371	Operating Systems
Spring 1998	EECS375	Computer Ethics
Spring 1998	EECS571	Software Engineering Environments
Fall 1998	EECS371	Operating Systems
Fall 1998	EECS570	Advanced Topics in Software Engineering
Spring 1999	EECS571	Software Engineering Environments
Fall 1999	EECS573	Distributed Computing Systems
Fall 1999	EECS480	Database Systems
Fall 1999	EECS573	Computer Ethics
Spring 2000	EECS571	Software Engineering Environments
Spring 2000	EECS375	Computer Ethics
Fall 2000	EECS570	Advanced Topics in Software Engineering
Fall 2000	EECS375	Computer Ethics

List of Auburn courses taught in 2001-2002

Fall 2001	COMP7360	Wireless and Mobile Networks
Spring 2002	COMP7360	Wireless and Mobile Networks

List of ISU courses taught in 2002-present

Fall 2002	COMS 591	Graduate Student Orientation
Fall 2002	COMS 610	Seminar on Requirements Engineering
Fall 2003	COMS 591	Graduate Student Orientation
Fall 2004	COMS 591	Graduate Student Orientation
Fall 2004	COMS 103	Computer Literacy and Applications (as lead instructor)
Spring 2005	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2005	COMS 591	Graduate Student Orientation
Fall 2005	COMS 103	Computer Literacy and Applications (as lead instructor)
Spring 2006	COMS 103	Computer Literacy and Applications (as lead instructor)
Spring 2006	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2006	COMS 103	Computer Literacy and Applications (as lead instructor)
Spring 2007	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2007	COMS 103	Computer Literacy and Applications (as lead instructor)
Spring 2008	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2008	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2008	COMS 409/509	Requirements Engineering (as lead instructor)
Spring 2009	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2009	COMS 103	Computer Literacy and Applications (as lead instructor)
Spring 2010	COMS 103	Computer Literacy and Applications (as lead instructor)
Fall 2011	COMS 104	Introduction to Computers (as instructor's mentor)
Fall 2012	COM S 104	Introduction to Computer (as lead instructor)
Fall 2013	COM S 514	Gerontechnology in the Smart Home Environment (co-teach with Johnny

		Wong)
Spring 2014	COM S 610	Situational Software Engineering
Fall 2014	COMS 207	Fundamentals of Computer Programming
Fall 2014	COMS 415/514	Gerontechnology in the Smart Home Environment
Spring 2015	COM S 610	Situational Software Engineering

## Appendix E-1. Graduate Students Supervised

### I. M.S. Projects completed at UIC (210 in total; complete available for reference)

Addendum: MS Projects at ISU include the following:

1. Prashanth Sampath Kumar, "JAVADRAGDROP: A VISUAL PROGRAMMING EDITOR FOR JAVA", July 2014. (with Simanta Mitra)

### II. M.S. Theses completed

#### *Academic Advising at UIC:*

1. Howard Jiang, "An Approach to Program Slicing for Programming Language C", March 1986.
2. Huiyu Wang, "An Approach to Distributed Software Systems Testing", April 1986. [Motorola]
3. Daniel Yao, "An Efficient Parallelizing Allocation Algorithm for Distributed Computing System", March 1987. [Motorola]
4. Jeffrey Yang, "A New Approach to Software Reliability Modeling", March 1987. [Unisys]
5. Dejan Srdjevic, "An Approach to Distributed Software System Debugging", July 1987.
6. Rong-Lin Shen, "High-Level Petri-Net Models for Scene Analysis", Nov. 1987. [Taiwan Institute of Technology]
7. Mu-Fen Chin, "A Petri Net to Great SPN Translator for Performance Analysis of Distributed Computing Systems", Jan. 1988. [Bell Labs]
8. Naray Gopal, "A Knowledge-Based System Approach to the Development of A System Functional Requirement Specification Processor", Jan. 1988. [Bell Labs]
9. Khalil Dajani, "Distributed Debugging", Jan. 1991. [Motorola]
10. Harry Kougiyas, "Modeling of X.25 in Petri Net using GSPN", March 1991. [Rockwell International]
11. Kevin G. Andersen, "Fundamental Metrics for Object-Oriented Software Development", Dec. 1995. {Motorola}
12. Edwin Sinio Gonzales, "A Theory and Evaluation of Class-Based Complexity Metrics", March 1996. [Motorola]
13. Yi Ming Zhou, "A Better Usage of the Cluster Placement Scheme for a Large-scale Video-On-Demand (VOD) Server", May 1996.
14. Lie Cai, "Formalizing Robert's Rules of Order in Petri Nets", Aug. 1997. [Motorola]
15. Yu Di, "Timeline Based Model for Project Scheduling with Genetic Algorithms", March 2001. [[The Hull Group]
16. Yu Zhu, "Goal-Oriented Impact Estimation of Requirements Changes", October 2001. [3Com]
17. Jeffrey Wise, "Using UML for Performance Specification and Analysis of Distributed Software Systems," October 2002. [3Com]

#### *Academic Advising at ISU:*

18. Shamshul Shaikh, "Autoforms: a tool to enable rapid application development", Fall 2003. (with Simanta Mitra)
19. Yujia Ge, "Capability based Software Project Scheduling with System Dynamics and Heuristic Search," November 2004. [Zhejiang Gongshang University]

20. Dmitry Kirilov, "PANORAMA - a tool to deal with multiple decompositions of a software system," Spring 2008. (with Simanta Mitra)
21. Renish Palapetty, "An Experimental Study of the Effectiveness of PANORAMA as a Maintenance Tool", December 2009. [Cerner Corp] (with Simanta Mitra)
22. Liyuan Xiao, "Automated Web Service Composition Using Genetic Programming", December 2009. [moved on to PhD]
23. Naga Bhagvanth Ram Vattumalli, "Panorama – a software maintenance tool", December, 2010. (with Simanta Mitra)
24. Heyong Wang, "Learning Node Relationship in Social Networks", May, 2012.
25. Archit Saraf, "Design and development of a tool to analyze and extract useful parts of code from open source projects", May 2012. (with Simanta Mitra)
26. Jasmeet Singh, "Extract Class Refactoring by analyzing class variables", July 2013. (with Simanta Mitra)
27. Arvind Madhavan, "Semi Automated User Acceptance Testing using Natural Language Techniques", May, 2014. (with Simanta Mitra)

### III. M.S. Projects in progress

At UIC I advised more than 200 MS projects. At ISU I do not typically accept MS project students – however, the following student completed MS project with me:

Hajeong (Lisa) Lim, "Tracking Of Parents (TOP) Project by Location Based Service", May 2014.

### IV. M.S. Theses in progress

Open for sign-up.

### V. Ph.D. Theses completed

*Academic Advising at UIC:*

1. Tsang Ming Jiang, "Distributed Environments for the Development of Distributed Software", August 1988 - tenured at University of Alaska - Fairbanks; on leave to 3COM; now with National Chung Cheng University, Taiwan
2. Young-Fu Chang, "Analyses of Distributed Software Systems", November 1989 - now with Lucent Technologies – Bell Labs
3. Hsuan-Wei Huang, "On Modeling, Specifying, and Verifying the Real-Time Distributed Systems", November 1990 - now with National Ocean University, Taiwan
4. Cheng-Chung Song, "Stochastic Testing for Distributed Software Systems", March 1991 - now with IBM
5. Yong Liu, "A Methodology for the Design, Simulation and Performance Engineering of Distributed Systems", December 1993 – joined Motorola; moved to Lucent Technologies – Bell Labs
6. Yahya Al-Salgan, "Mediaware: A Distributed Multimedia Environment Architecture and Formalism", July 1994 - joined Sun Microsystems

7. Shiyun Hua, "Middle-Software Generator: Towards Megaprogramming Software Design", September 1994 - now with Lucent Technologies – Bell Labs
8. Chikuang Chao, "SPMNET: A New Methodology For Software Management", March 1995 - now with AT&T
9. Pattanasak Mongkolwat, "Distributed Object-Oriented Software Process Modeling With Interoperable Objects and Object-Oriented Software Metrics", finished at Illinois Institute of Technology, May 1996 – Now with Northwestern Univ.
10. Xin Shu, "Fitting Design Patterns Into Object-Oriented Methods", May 1996
11. Chiau-Chuan Shih, "A Study Of Data Allocation For A Video-On-Demand Server", December 1996 – joined Lucent Technologies – Bell Labs; now with Jasmine Networks
12. Chia-Song Ma, "Object-Oriented Software Testability via Interconnection Complexity Analysis", March 1997 - now with Lucent Technologies – Bell Labs
13. Yi-Te Tseng, "Process Algebra for Hard Real-Time Systems", August 1997 - now with AT&T (co-advised with Ugo Buy)
14. Seongwoon Kim, "A Petri Net Based Specification Method for Architectural Components", Jan 18, 2000 – was with Guidant; joined CISCO; moved to Lucent Technologies – Bell Labs; now Senior Manager at Samsung Electronics.
15. Jia Zhang, "Formalization of Computer Supported Cooperative Work Applications", December 2000, now with Northern Illinois University. Associate Editor of IEEE Trans. On Services Computing; Associate Editor of International Journal of Web Services Research; Editorial Board Member of IEEE IT Professional; Program Vice Chair of IEEE Int'l Conference on Web Services.
16. Jane Huang, "Robust Requirements Traceability for Handling Evolutionary and Speculative Change", May 2002 – now with DePaul University. Editorial Board Member of Requirements Engineering Journal.; Director of NSF funded Center for Applied Requirements Engineering; Program Chair for 17<sup>th</sup> (2010) International Conference on Requirements Engineering; also associate editor for IEEE Trans. on Software Engineering.
17. Lie Cai, "Agent Based Requirements Evolution over the Internet", September 2002 – joined Motorola
18. Hui Zhao, "A Fuzzy-Logic Based Enhancement on Routing in Mobile Ad-Hoc Networks", October, 2002.
19. Thiribhuvana G. Murthy, "A Quality-centric Approach to Identify and Integrate Legacy Assets Into a Platform Architecture", July 2003.

*Academic Advising at ISU:*

20. Tae-hyung Kim, "Service-oriented design in aspect-oriented and Petri net-based approach", May 2007 – joined Samsung Electronics.
21. Jinchun Xia, "WS-Pro: a Petri net based performance-driven service composition framework", May 2009 – joined San Jose State University; now with LinkedIn.
22. Hsin-yi Jiang, "A Framework for Estimating the Applicability of GAs for Real-World Optimization Problems", November 2010 – joined Acclent; now with Microsoft.
23. Jose M. Reyes Alamo, "A Framework for safe composition of heterogeneous SOA services in a pervasive computing environment with resource constraints", November 2010. (Co-advised with Johnny Wong); now with New York Polytechnic.

24. Hojun Jaygarl, "Capture-Based Automated Test Input Generation", December 2010 – joined Samsung.
25. Shuxing Cheng, "Competitive Service Market: Modeling, Storage and Management", December 2010; working for NIH.
26. Wei Zhang, "Data Clustering Analysis with Ant-based Template Mechanism", August 2011 – joined Microsoft.
27. Hua Ming, "SITU<sup>f</sup>: A Domain Specific Language and A First Step Towards the Realization of *Situ* Framework", July 2012 – will join Oakland University, fall 2014.
28. Jeyoun Dong, "Human Desire Inference Process and Analysis", May 2013 - joined Samsung, Korea.
29. Kai-shin Lu, " Automatic Refactoring History Reconstruction and Dynamic Component Adaptation Frameworks for Refactoring-based Software Component Evolution", May, 2013 - joined Peterson.

VI. Ph.D. Theses completed as major advisor per management plan with Endometric, Inc.

30. Yi Wang, "Edge Cross-Section Profile for Colonoscopic Object Detection", May 2011. (Actual Thesis Advisor: Johnny Wong)
31. Sean Stanek, "Semi-automated Parallel Programming in Heterogeneous Intelligent Reconfigurable Environment (SAPPHIRE)", May 2012. (Actual Thesis Advisor: Johnny Wong)
32. Dong Ho Hong, "3D Colon Segment and Endoscope Motion Reconstruction from Colonoscopy Video", June 2012. (Actual Thesis Advisor: Wallapak Tavanapong)

VII. Ph.D. Theses in progress

Mohammad Ali Darvish-Darab, Liyuan Xiao, Haihua Xie, Jingwei Yang, Nimanthi Atakorala, Hoda Gholami, Yunfei Feng, Hai Yu, Swagoto Roy.

VIII. Committee Member for Other Faculty's Graduate Students

PhD students served as a committee member

Name	Dept.	Major Professor	Degree/Year	Thesis Title
Shu-Hui H Chang	ABE A	Dr. Ruger Smith	PhD/Spring 2006	An Assessment of Effectiveness of Interaction in Distance Education Based on Student Satisfaction with the Learner-Centered Paradigm
Josh Jon Dehlinger	Com S	Dr. Robyn Lutz	PhD/Summer 2007	Incorporating product-line engineering techniques into agent-oriented software engineering for efficiently building safety-critical, multi-agent systems
Jing Liu	Com S	Dr. Robyn Lutz	PhD/Fall 2008	Safety analysis of software product lines using statebased modeling and

				compositional model checking
Tian Xia	E CPE	Dr. Julie Dickerson	PhD/Spring 2010	Network modeling in systems biology
Hongyu Sun	Com S	Dr. Robyn Lutz	PhD/Fall 2010	Quantifiable non-functional requirements modeling and static verification for web service compositions
Ganesh Santhanam	Com S	Dr. Vasant Honavar	PhD/Fall 2010	Representing and Reasoning with Preferences for Compositional Systems
Jia Tao	ComS	Dr. Giora Slutzki	PhD/Spring 2012	Topics in Knowledge Bases: Epistemic Ontologies and Secrecy-preserving Reasoning
Chuang Wang	ComS	Dr. Wensheng Zhang	PhD/Fall 2012	Privacy and security protection in cloud integrated sensor networks

MS students served as a committee member

Name	Dept.	Major Professor	Graduate Year	Thesis Title
Oko Swai	Com S	Dr. Robyn Lutz	Fall 2004	Two Techniques for Preventing Domain Knowledge Transfer Problems in Requirements for High-confidence Software
Qian Feng	Com S	Dr. Ying Cai	Fall 2005	
Renish Palapetty	Com S	Dr. Johnny Wong	Fall 2009	An experimental study of the effectiveness of Panorama as a maintenance tool
Naga Bhagvanth Vattumalli	Com S	Dr. Simanta Mitra	Fall 2010	Panorama - a software maintenance tool
Yang Han	Com S	Dr. Simanta Mitra	Summer 2011	CodePad plug-in for Eclipse Environment
Fuchao Zhou	Com S	Dr. Johnny Wong	Fall 2011	Mobile personal health care system for patients with diabetes
Archit Saraf	Com S	Dr. Simanta Mitra	Summer 2012	Design and development of a tool to analyze and extract useful parts of code from open source projects
Prashanth Sampath Kumar	Com S	Dr. Simanta Mitra	Summer 2014	JAVADRAGDROP – A Visual Programming Editor for Java

## Appendix G-1. Grants/Awards History

Date		Requested		Funded	
Submitted	Title of Proposal	Agency or Board	Amount Rqst'd	Amount Funded	Period From - to
3/15/85	An Approach to Software Reuse	Campus Research Board	\$10,000	\$5,000	7/1/85-6/30/86
2/5/86	A New Approach to Distributed Software	FUJITSU	\$240,000	\$240,000	8/1/86-8/31/88
2/5/86	A New Approach to Distributed Software (Equipment)	College of Engineering	\$50,000	\$50,000	8/1/86-8/31/88
4/15/87	An Advanced Workstation Environment for Design Validation and Testing	Campus Research Board	\$43,980	\$14,000	9/1/87-6/30/88
1/19/88	A Validation and Verification System for Distributed Software	FUJITSU	\$241,638	\$241,638	9/1/88-8/31/90
4/1/90	Object-Oriented Software Development Paradigm and Hard Real-Time Systems	FUJITSU	\$254,000	\$254,000	9/1/90-8/31/92
10/28/91	AT&T Equipment Donation	AT&T	\$55,000	\$55,000	10/28/91
4/1/92	Visual Software Engineering	FUJITSU	\$276,000	\$276,000	9/1/92-8/31/94
1/15/92	Intelligent Real Time Control	CORELIS Technologie	\$50,000	\$50,000	2/1/93-1/31/94
1/3/94	Gift	Infinitech	\$18,000	\$18,000	N/A
4/1/94	OO Software Engineering for Real-Time Distributed Systems	FUJITSU	\$276,000	\$276,000	8/15/94-8/14/96
1/4/96	Metrics Archaeology	Northrop	\$5,000	\$5,000	N/A
4/1/96	Visualization for Software Engineering and Video on Demand	FUJITSU	\$399,800	\$399,800	8/15/96-8/14/98
4/30/00	Computing Curricula 2001 Workshop	NSF	\$35,000	\$35,000	6/1/00-5/30/01
9/25/00	Traceability Based Dynamic Metrics as Tool Evaluating Partitioning Decisions in Object-Oriented Architecture (as PI; transferred from UIC to ISU)	NSF	\$318,249	\$200,000	6/01/01 – 05/31/03 (extended - 5/31/04)
3/17/06	<u>IBM Faculty Award</u>	IBM	\$30,000	\$30,000	continuous
3/14/07	<u>IBM Faculty Award</u>	IBM	\$20,000	\$20,000	continuous
8/14/08	Travel Grant Support for IEEE COMPSAC 2008 (as PI, with Simanta Mitra)	NSF	\$14,400	\$14,400	11/1/08-10/30/09
3/6/09	<u>IBM Faculty Award</u>	IBM	\$15,000	\$15,000	continuous
4/27/09	<u>CPATH-I: Experimenting with an Open Platform for the New Interdisciplinary Study on Gerotechnology (as PI, with Johnny Wong, Peter Martin, Mack Shelley, Simanta Mitra)</u>	NSF	\$300,000	\$300,000	9/1/09-8/31/12