

# Krishna M. Kavi

## Work

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## Education:

4. Ph.D. (Computer Science and Engineering), SMU, Dallas, Aug. 1980.
3. MS (Computer Science and Engineering), SMU, Dec. 1977.
2. BE (Electrical), Indian Institute of Science, July 1975.
1. BSc. (Physics), Andhra University, India, July 1972.

## Employment:

### **2009 – Present. Professor and Director, NSF Net-Centric Software and Systems Industry/University Cooperative Research Center (Net-Centric IUCRC)**

- The center involves five academic institutions (UNT, UTD, SMU, Arizona State, Missouri-University of Science and Technology)
- The center currently has 20 industrial members contributing \$30K per year each
- In addition to funding related to the center, I was able to secure an additional \$450K in NSF and Industrial funds.

### **2010 – Present. International Faculty Member EECS Center for Circuit Theory, Communications and Signal Processing (CTCSP), National Chiao-Tung University, Hsinchu, Taiwan** (<http://moser.cm.nctu.edu.tw/ctcsp/>)

### **January 2010-June 2010. Visiting Faculty, Department of Computer Science, National Chiao-Tung University, Hsinchu, Taiwan**

- Worked on Embedded systems, processors for handheld devices
- Presented seminars at several major universities in Taiwan and at Academia Sinica

### **2001- 2009. Professor and Chair, Computer Science and Engineering, University of North Texas**

- Hired 8 tenure-track and 3 lecturers, including 4 women, one Hispanic faculty members.
- Research expenditures of faculty research and other activities have grown from less than \$200K in 2001 to nearly \$2M in 2006-2007 and 2007-2008. Two faculty members received NSF CAREER awards and one received the Presidential Early Career Award for Scientists and Engineers (PECASE). The number of publications by faculty and graduate students (in peer reviewed journals and conference proceedings) has increased from 18 in 2001 to 100 in 2007.
- Enrollments in graduate programs and the number of graduate degrees awarded each year have increased. PhD enrollments have doubled since 2001 to 40 fulltime students. Undergraduate degree programs have shown slight increases (to 600), bucking the national trend of declining enrollments.
- The number of minority and women students enrolled in CSE degree programs has increased, with 16% women and 33% minorities.
- CSE Industrial Advisory Council to provide us feedback on our educational and research activities was created in 2002. The Council meets twice a year and has helped the department on curricular matters, internships for students and in securing equipment donations.
- In 2003, BS in CS received a full NGR accreditation from ABET/CAC, for the first time in the 30-year history of the department.

- The department started BS and MS in Computer Engineering in 2003 and graduated first BS class in Spring 2007. This program received full NGR accreditation from ABET/EAC in 2008 – a rarity for a new program.
- Established an innovative BA in Information Technology, which provides a strong CS foundation but requires students to elect a minor discipline outside of CS and apply IT solutions to the discipline during their senior capstone project. This program is in line with the recommendations for a “liberal arts of engineering” made by the Academy of Engineers.
- Established the Net Centric Software and Systems Consortium involving the University of North Texas, Southern Methodist University, the University of Texas at Arlington and the University of Texas at Dallas. The formation of an NSF IUCRC is currently being planned.
- Continued personal research with publications (more than 30 peer reviewed publications since 2001); funding (nearly \$2M as either PI or a co-PI, since 2001) and graduate student supervision (4 PhD’s and 2 MS students since 2001).
- Served as an IEEE CS Distinguished Visitor 2005-2007.

**1997- 2001 Eminent Scholar Chair Professor of Computer Engineering  
ECE Department, University of Alabama in Huntsville**

- Headed Computer Engineering degree programs; revised courses and curricula; developed assessment processes that led to a full NGR ABET/EAC accreditation for the BS in Computer Engineering degree.
- Worked with ADTRAN, Inc., to develop accelerated MS degrees in Telecommunications and Real-Time Systems.
- Developed a joint PhD program in Computer Engineering for the University of Alabama campuses in Huntsville and Birmingham.
- Served as an ABET/EAC Computer Engineering program evaluator (1999-2005).
- Continued personal research with publications (with more than 30 peer reviewed publication during 1997-2001); funding (more than \$700K as PI or co-PI, during 1997-2001) and graduate student supervision (3 PhD’s and 4 MS students during 1997-2001).

**1993- 1995 Program Manager  
CCR Division, CISE Directorate, National Science Foundation**

- Managed two research programs: Systems Software and Compilers, with an annual budget of \$7M.
- Streamlined the review process and created an extensive database of reviewers.
- Held workshops to define research directions for the research programs.
- Collaborated with other agencies (DARPA, AFOSR, ONR) to create a compiler infrastructure program.
- Participated in a subcommittee that worked on the PITAC; the committee made recommendations to President Clinton on research priorities in information technology. This in turn lead to substantial increase in budget for Computer Science and Engineering related programs at NSF.

**1982- 1997 Professor  
Computer Science and Engineering, University of Texas –Arlington**

- Progressed through the academic ranks
  - a. Assistant Professor 1982-1986
  - b. Associate Professor with Tenure 1986-1991
  - c. Full Professor since 1991
- Established an Honors Program in Parallel Processing with NSF funding.
- Served as a CSAB Computer Science program evaluator (1991-1997).
- Served as an editor of the IEEE Transactions on Computer (1993-1997) and the editorial board of IEEE Computer Society (1988-1992).

- Served as an IEEE Distinguished visitor (1989-1992).
- Continued personal research with publications (with more than 65 peer reviewed publication); funding (nearly \$1.5M as PI or co-PI) and graduate student supervision (5 PhD's and 30 MS students graduated).

**1980-1982 Assistant Professor**

**CS, University of Louisiana in Lafayette**

**(formerly known as the University of Southwestern)Louisiana**

- Worked with EE faculty to develop Computer Engineering curricula at BS and MS level.
- Received funding from Texas Instruments to develop distributed systems

**Honors and Awards:**

17. SMU CSE Distinguished Alum at CSE 40<sup>th</sup> Anniversary Banquet, Nov. 2007.
16. Keynote speaker, 19<sup>th</sup> Intl. Conf. on Parallel and Distributed Computing Systems (PDCS-2006), Sept. 20, 2006, San Francisco, CA
15. IEEE CS Distinguished visitor, 2006-2007 and 1989-1992.
14. Keynote Speaker, 11<sup>th</sup> Intl. Conference on Advanced Computing, Coimbatore, India, Dec. 17-20, 2003
13. Keynote Speaker, INFOFEST-98, (Budva, Montenegro, Yugoslavia), Sept 28, 1998
12. Keynote Speaker, PAPM-98 (Process Algebra and Performance Modeling), Nice, France, Sept. 12, 1998.
11. Editor, IEEE Transactions on Computers, 1993-1997.
10. IEEE CS Certificate of Appreciation, 1991, 1993, 1996, 1998.
9. Listed in Who is Who in Technology, 1988.
8. Halliburton Outstanding Young Faculty Award, UTA College of Eng., 1988.
7. Senior Member, IEEE, 1986.
6. Teaching award, Dept. CSE, UTA, May 1985.
5. Listed in Who is Who in Frontier Science and Technology, 1984-1985.
4. Listed in Outstanding Young Men of America, 1983.
3. F. E. Termann Award (Outstanding Graduate Student), SMU, 1979.
2. Indian National Merit Scholarship, 1972.
1. Indian Institute of Science Merit Fellowship, 1972-1975.

## Research and Scholarly Activities

### Patents and Inventions

2010: UNTD:1017- A method and apparatus for improving computer cache performance and for protecting memory systems against some side channel attacks, Provisional Patent filed.

### Publications

#### Submitted

1. I. Nwachukwu, K.Kavi, A. Fawibe and C. Yan. "Performance improvement schemes for direct mapped caches", Submitted to Elsevier Journal on Computer and Electrical Engineering
2. C. Y. Lee, **K.M. Kavi** and D.J. Chen. "Message Scheduling Evaluation of SHA-256 via Genetic Algorithm", submitted to the Journal of Information Science and Engineering, published by the Academia Sinica, Taiwan

#### Published

#### Books, Edited Volumes, Chapters in Books:

12. R.Paul, I.L.Yen, F. Bastani, W.T. Tsai, **K.M.Kavi**, A. Ghafoor and J. Srivastava. "An ontology-based integrated assessment framework for high-assurance systems", in Semantic Computing, Edited by Chen-Yu (Phillip) Sheu. 2009
11. **K.M. Kavi**, R. Akl and A.R. Hurson. "Real-Time Systems: An introduction and the state-of-the-art", *Wiley Encyclopedia of Computer Science*, pp 2369-2377, Vol. 4, ISBBN 978-0-471-38393-2, Jan 2009.
10. A.R. Hurson and **K.M. Kavi**. Dataflow Revival – a renewed interest in dataflow architecture", *Wiley Encyclopedia of Computer Science*, pp 890-901, Volume 2, ISBBN 978-0-471-38393-2, Jan 2009.
9. **K.M. Kavi** and R. Akl. Modeling and Analysis using Computational Tools, in *Queuing Theory: Modeling and Analysis* by U. Narayan Bhat, published by Birkhauser, Boston, 2007.
8. D. Kung and **K. Kavi**, "Conceptual modeling and software design of multi-agent systems", in Conceptual Modeling in Information Systems Engineering, edited by J. Krogstle, A. Lothe and S. Brinkkemper, Published by Springer, June, 2007, pp 159-176.
7. **K.M. Kavi**, H. -S. Kim, B. Lee and Ali Hurson. "Distributed Shared Memory Systems: A survey", *Advances in Computers*, Vol. 53, pp 55-108, (Edited by M. Zerkowitz), Academic Press, 2000.
6. **K.M. Kavi**, B. Lee and Ali Hurson. "Multithreaded systems: A survey", In *Advances in Computers*, Vol. 46, pp 287-327, (Edited by M. Zerkowitz), Academic Press, 1998.
5. A.R. Hurson, J.T. Lim, **K.M. Kavi** and B. Lee "Parallelization of DOALL and DOACROSS loops - a survey", *Advances in Computers*, Vol. 45, pp 54-105, (Edited by M. Zerkowitz), Academic Press 1997.
4. B. Shirazi, A.R. Hurson and **K.M. Kavi** (Editors), IEEE CS Press Tutorial on *Scheduling and Load Balancing in Parallel and Distributed Systems*, 1995.
3. **K.M. Kavi** (Editor) IEEE CS Tutorial on *Real-Time Systems: Abstractions, Languages and Design Methodologies*, Nov. 1992, IEEE Computer Society Press.
2. **K.M. Kavi** and T.C. Lin. "Reliability analysis using dataflow graph models and approximate solutions", in *Approximation, Optimization and Computing*, edited by A.G. Law and C.L. Wang, North-Holland/Elsevier, New York, 1990. pp. 105-109.
1. **K.M. Kavi** and B.D. Shriver. (Editors) *Proceedings of the IEEE workshop on Computer Systems Organization*, New Orleans, March 21-23, 1983.

## Journals:

36. **Krishna Kavi**. "Glass Box: An intelligent flight data recorder", *IEEE Spectrum*, pp 46-51, August 2010.
35. Wentong Li, Mehran Rezaei, **Krishna Kavi**, Afrin Naz and Philip Sweany. "Feasibility of decoupling memory management from the execution pipeline", *Journal of Systems Architecture* (published by Elsevier), Vol. 53, No. 12, pp 927-936, (Dec. 2007). Among top 25 most downloaded papers.
34. Wenming Li, **Krishna Kavi** and Robert Akl. "A non-preemptive scheduling algorithm for soft real-time systems" *Elsevier Journal of Computers and Electrical Engineering*, Vol. 33, No. 1, pages 12-29 Jan 2007.
33. Wentong Li, Saraju Mohanty and **Krishna Kavi**. "Page-based software-hardware co-design of a dynamic memory allocator", *IEEE Computer Architecture Letters*, Volume 5, No. 2, July 2006.
32. Afrin Naz, **Krishna Kavi**, Wentong Li and Philip Sweany. "Tiny split data caches make big performance impact for embedded applications", *Journal of Embedded Computing* (IOS Press), Vol. 2, No. 2 (November 2006), pp 207-219.
31. Mehran Rezaei and **Krishna Kavi**. "Elimination of Cache Pollution Due to Memory Management using an Intelligent Memory Manager", *Journal of Systems Architecture* (published by Elsevier), January 2006, Volume 52, No.1, pp 41-55.
30. Frederick Sheldon, Thomas Potok and **Krishna Kavi**. "Multi-agent system case studies in command and control, information fusion and data management", *Journal of Informatica* (published by the Solvne Society Informatica, <http://ai.ijs.si/informatica/>) Volume 28, No. 1, April 2004, pp 78-89.
29. **Krishna Kavi** and Dinesh Mehta. "Mutual Exclusion. On Optical Networks", *Parallel Processing Letters*, Volume 12, No. 3&4, pp 341-358, Dec. 2002.
28. **Krishna Kavi**, Ali Reza Moshtaghi and Deng-Jyi Chen. "Modeling multithreaded applications using Petri nets", *International Journal on Parallel Programming* (published by Kluwer/Plenum Publishing), Vol. 30, No. 5, pp 353-371, October 2002.
27. D.J. Chen, W.C. Chen and **K.M. Kavi**. Visual Requirements Representation, *Journal of Systems and Software*, Vlo. 61, Issue 2, March 15, 2002, pp 129-143.
26. **K.M. Kavi**, R. Giorgi and J. Arul. "Scheduled Dataflow: Execution paradigm, architecture and performance evaluation", *IEEE Transactions on Computer*, Vol. 50, No. 8, pp 834-846, Aug. 2001.
25. P.Y. Chang, D.J. Chen and **K.M. Kavi**. "File allocation algorithms to minimize data transmission time for real-time applications in distributed computing systems", *Journal of Information Science and Engineering*, (Institute of Information Science, Taipei, Taiwan), Vol 17, pp 633-646, 2001.
24. **K.M. Kavi**, J. Arul and R. Giorgi. "Execution and cache performance of the Scheduled Dataflow Architecture", *Journal of Universal Computer Science*, Special Issue on Multithreaded and Chip Multiprocessors, Oct. 2000, pp 948-967, Vol. 6, No. 10.
23. P.Y. Chang, D.J. Chen and **K.M. Kavi**. "Multimedia file allocation under virtual circuit using multipath routing", *IEEE Transactions on Computers*, Sept. 2000, pp 971-977, Vol. 49, No. 9.
22. **K.M. Kavi**, H.S. Kim and A.R. Hurson. "Scheduled dataflow architecture: A synchronous execution paradigm for dataflow", *IASTED Journal of Computers and Applications*. Vol. 21, No. 3 (Oct. 1999), pp 114-124.
21. **K.M. Kavi**. "Multithreaded System Implementations", *IASTED Journal on Microcomputer Applications*, Vol. 17, No. 2, 1999, pp 70-84
20. **K.M. Kavi**, J.C. Browne and A. Tripathi "Computer systems research: The pressure is on", *IEEE Computer*, January 1999, pp 30-39.
19. **K.M. Kavi** and A.R. Hurson. "Design of cache memories in dataflow architectures", *Journal of Systems Architecture* (published by Elsevier) Vol. 44, No. 9-10, June 1998, pp 657-674.
18. A.R. Hurson, **K.M. Kavi** and J.T. Lim. "Cyclic Staggering Scheme: A loop allocation policy for DOACROSS loops", *IEEE Transactions on Computers*, Feb. 1998, pp 251-255.
17. A.R. Hurson, **K.M. Kavi** and B. Lee. "Cache Memories in Dataflow Architectures", *IEEE Parallel and Distributed Technology*, Winter 1996, pp 50-64.
16. **K.M. Kavi** and Ez Nahouraii. "Assessment of Software Tools: Guest Editors Introduction", *IEEE Software*, Sept. 1996, pp 23-26.

## Journals (continued)

15. **K.M. Kavi**, B. Wyatt and B. Shirazi. "Evaluation of dynamic inheritance in distributed environments", *IASTED Journal of Microcomputer Applications* .Vol. 15, No. 1, July . 1996, pp 26-37.
14. **K.M. Kavi**, F.T. Sheldon and S. Reed. "Specification and analysis of real-time systems using CSP and Petri nets", *International Journal of Software Engineering and Knowledge Engineering*, (World Scientific Publishing Company) Vol. 6, No. 2, June 1996, pp 229-248.
13. B.P. Weems, **K.M. Kavi** and B. Shirazi. "HIPP: An honors program in parallel processing", *International Journal of Engineering Education* ., Volume 11, No. 4 and 5, Nov. 1995, pp 329-335.
12. B.G. Wyatt, **K. M. Kavi** and S.P. Hufnagle. "Parallelism in object oriented languages: A survey", *IEEE Software*, Nov. 1992, pp. 56-66.
11. **K. M. Kavi** and B. Shirazi. "Dataflow Architecture: Are dataflow computers commercially viable?", *IEEE Potentials*, Oct. 1992, pp. 27-30
10. F.T. Sheldon, **K.M. Kavi**, R.C. Tausworthe, J.T. Yu, R. Brettschneider and W.W. Everett. "Software reliability measurement: From theory to practice", *IEEE Software*, July, 1992, pp. 13-20.
9. **K.M. Kavi** and S.M. Yang. "A survey of real-time design methodologies", *Journal of Systems and Software* (Elsevier Science Publishing), April 1992, pp. 85-99.
8. **K.M. Kavi** and A.K. Deshpande. "Specification of concurrent processes using a dataflow model of computation and partially ordered events", *Journal of Systems and Software* (Elsevier Science Publishing, Vol. 16, No. 2, pp. 107-120, Oct. 1991.
7. D.J. Chen and **K.M. Kavi**. "Stochastic dataflow graph models for the reliability analysis of interconnection and computer networks", *Journal of Information Science and Engineering* (Institute of Information Science, Taipei, Taiwan), Vol. 7, No. 2, June 1991, pp. 253-278.
6. A.K. Deshpande and **K.M. Kavi**. "A Model for the specification of concurrent processes", *IASTED Journal of Microcomputer Applications* Vol. 8, No. 3, 1989, pp. 95-102, (ACTA Press for International Society for Mini and Microcomputers - ISMM).
5. A.K. Deshpande and **K.M. Kavi**. "A review of specification and verification methods for parallel programs, including the dataflow approach", *IEEE proceedings*, Vol. 77, No. 12, (Dec. 1989), pp. 1816-1828.
4. **K.M. Kavi**, B.P. Buckles and U.N. Bhat. "Isomorphisms between Petri nets and Dataflow graphs", *IEEE Tr. on Software Engineering*, Oct. 1987, pp. 1127-1134 (SE-13, 10).
3. U.N. Bhat and **K.M. Kavi**. "Reliability analysis of computer systems including Petri nets and dataflow graphs", *Sadhana*, Oct. 1987, pp. 167-186 (Vol. 11, Parts 1&2).
2. **K.M. Kavi** and U.N. Bhat. "Reliability analysis of computer systems using dataflow graph models", *IEEE Tr. on Reliability*, Dec. 1986, pp. 529-532, (R-35, 5)
1. **K.M. Kavi**, B.P. Buckles and U.N. Bhat. "A formal definition of dataflow graph models", *IEEE Tr. on Comp.*, Nov. 1986, pp. 940-948 (C-35, 11).

## Refereed Conference Proceedings:

98. I. Nwachukwu, **K. Kavi**, A. Fawibe and C. Yan. "Evaluation of techniques to improve cache access uniformities, *40<sup>th</sup> Annual Conference on Parallel Processing (ICPP-2011)*, Taipei, Taiwan, Sept. 13-16, 2011 (acceptance rate: 22% - 81 out of 365)
97. M. Dubasi, A. Fawibe, O. Garitselov, **K. Kavi**, I. Nwachukwu, O. Okabia, V. Prabhu. "Parabilis: Speeding up single-threaded applications by extracting fine-grained threads for multi-core execution", *Proceedings of the 10<sup>th</sup> International Symposium on Parallel and Distributed Computing (ISPD 2011)*, July 6-8, 2011, Cluj Napoca, Romania.
96. T. Janjusic, **K. Kavi** and B. Potter. "Gleipnir: A memory analysis tool, *Proceeding of the 2011 International Conference on Computational Science* June 1-3, Singapore, pp 208-2067 (acceptance rate based on past conferences = 28%)
95. O. Adamo, A. Naz, **K. Kavi**, T. Janusic, Chung-Ping Chung. "Smaller split L-1 data caches for multi-core processing systems", *Proceedings of the 10<sup>th</sup> International Symposium on Pervasive Systems, Algorithms and Networks (I-SPAN 2009)*, Kaohsiung, Taiwan, Dec. 14-16, 2009, pp 74-79.

## Refereed Conference Proceedings (continued):

94. A.Naz, O. Adamo, **K.Kavi**, T.Janjusic. "Improving uniformity of cache access patterns using split data caches", *Proceedings of the ISCA-22<sup>nd</sup> International Conference on Parallel and Distributed Computing and Communications (PDCCS-2009)*, Louisville, KY, Sept. 24-26, 2009
93. P. Chen, **K. Kavi**, P. Sweany and C.P. Chung. "Evaluating redundant function elimination", *Proceeding of ISCA 21<sup>st</sup> International Conference on Parallel and Distributed Computing and Communications (PDCCS-2008)*, New Orleans, LA, Sept. 22-24, 2008.
92. R. Paul, I-L. Yen, F Bastani, J. Dong, W-T. Tsai, **K. Kavi**, A. Gafoor, J. Srivastava. "An ontology-based integrated assessment framework for high-assurance Systems", *Proceedings of the 2<sup>nd</sup> IEEE International Conference on Semantic Computing (ICSC 2008)*, Santa Clara, CA, Aug. 4-7, 2008.
91. **Krishna Kavi**, Wentong Li and Ali Hurson. "A non-blocking multithreaded architecture with support for speculative threads", *Proceedings of the 8<sup>th</sup> International Conference on Algorithms, Architectures and Applications of Parallel Processing (ICA3PP-2008)*, Cyprus, June 9-11, 2008, Proceedings published by Springer-Verlag, LNCS 5022, pp 173-184 (acceptance rate = 24 out of 69, or 35%).
90. Xing Gao, Ali Hurson and **Krishna Kavi**. "Estimate validity regions for nearest neighbor queries", *Proceeding the 2<sup>nd</sup> International Conference on Software and Data Technologies (ICSOFT-2007)*, July 25-27, 2007, Barcelona, Spain, pp 129-136 (acceptance rate = 41 out of 292 or 14%)
89. David Kung and **Krishna Kavi**, "Conceptual modeling and software design of multi-agent systems", in *Conceptual Modeling in Information Systems Engineering*, edited by J. Krogstle, A. Lothe and S. Brinkkemper, Published by Springer, June, 2007, pp 159-171.
88. Afrin Naz, **Krishna Kavi**, JungHwan Oh and Pierofranco Foglia. "Reconfigurable split data caches: A novel scheme for embedded systems", *Proceedings of the 22<sup>nd</sup> Annual ACM Symposium on Applied Computing*, Seoul, Korea, March 11-15, 2007, pp 707-7112 (acceptance rate: 32.5%)
87. Chia-En (Paul) Lin, **Krishna M. Kavi**, Frederic Sheldon and Kris M. Daley. "A methodology to evaluate agent-oriented software engineering techniques", *Proceedings of the 40<sup>th</sup> Hawaii International Conference on System Sciences (HICSS-07)*, pages 60a-69a, Jan. 2-6, 2007, Hawaii. Nominated for Best Paper award (and came as 1<sup>st</sup> runner up).
86. Wentong Li, **Krishna Kavi**, Afrin Naz and Philip Sweany. "Speculative thread execution in a multithreaded dataflow architecture", *Proceedings of the 19<sup>th</sup> ISCA Parallel and Distributed Computing Systems*, pages 102-107, Sept 20-22, 2006, San Francisco, CA.
85. Afrin Naz, **Krishna Kavi**, Philip Sweany and Wentong Li. "A study of reconfigurable split data caches and instruction caches", *Proceedings of the 19<sup>th</sup> ISCA Parallel and Distributed Computing Systems*, pages 235-240, Sept 20-22, 2006, San Francisco, CA.
84. Wentong Li, Saraju Mohanty and **Krishna Kavi**. "Page-based software-hardware co-design of a dynamic memory allocator", *Proceedings of the 19<sup>th</sup> ISCA Parallel and Distributed Computing Systems*, Sept 20-22, 2006, pages 229-234, San Francisco, CA.
83. P. Chen, **K. Kavi** and R. Akl. "Performance enhancement by eliminating redundant function execution", *Proceedings of the IEEE 39<sup>th</sup> Annual Simulation Conference*, Huntsville, AL, April 2-6, 2006, pp 143-150 (acceptance rate = 41%; 37 out of 90).
82. A. Naz, M. Rezaei, **K.M. Kavi** and P. Sweany. "Making a case for split data caches for embedded applications", *Proceedings of the workshop on MEDEA-2005* (held in conjunction with Parallel Architecture and Compiler Technology, PACT-2005), St. Louis, Sept. 19, 2005.
81. W. Li, **K.M. Kavi** and R. Akl. "An efficient non-pre-emptive real-time scheduling algorithm", *Proceedings of the ISCA 18<sup>th</sup> International Confecce on Parallel and Distributed Computing (PDCCS-2005)*, pp. 154-160, Las Vegas, Sept. 12-14, 2005 (acceptance rate 27%; 57 out of 205).
80. A. Naz, M. Rezaei, **K.M. Kavi** and P. Sweany. "Improving Data Cache Performance With Integrated Use Of Split Caches, Victim Cache And Stream Buffers", *Proceedings of the Workshop on Memory performance dealing with applications, systems and architecture (MEDEA-2004)*, held in conjunction with Parallel Architectures and Compiler Technology (PACT-2004) Conference, Sept. 29-Oct. 3, 2004, Antibes Juan-Les-Pins, France.
79. A. Naz, **K.M. Kavi**, P. Sweany and M. Rezaei. "A study of separate array and scalar caches", *Proceedings of the 18<sup>th</sup> International Symposium on High Performance Computing Systems and Applications (HPCS 2004)*, Winnipeg, Manitoba, Canada, May 16-19, 2004, pp 157-164.

## Refereed Conference Proceedings (continued):

78. **K.M. Kavi** and P. Chen. "Dynamic function result reuse", *Proceedings of the 11<sup>th</sup> International Conference on Advanced Computing (ADCOM-2003)*, Coimbatore, India, Dec. 17-20, 2003.
77. L.M. Fox, C.R. Hill, R.K. Cytron and **K.M. Kavi**. "Optimization of storage-referencing gestures", *Proceedings of the Workshop on Compilers and Tools for Constrained Embedded Systems (CTES-2003)*, held in conjunction with Conference on Compilers, Architecture and Synthesis for Embedded Systems (CASES-2003), Oct. 29, 2003, San Jose, CA.
76. L. Song, **K.M. Kavi** and R. K. Cytron. "An Unfolding-Based Loop Optimization Technique", *Proceedings of the 7<sup>th</sup> International Workshop on Software and Compilers for Embedded Systems (SCOPES'03)*, Vienna, Austria, Sept. 24-26, 2003, pp 117-132 (Lecture Notes in Computer Science, Volume 2826/2003, Springer Verlag)
75. L. Song, Y. Zhang and **K.M. Kavi**. "A simple loop transformation for multithreaded, superscalar and VLIW architectures", *Proceedings of the 16<sup>th</sup> International Conference on Parallel and Distributed Computing Systems (PDCS-2003)*, sponsored by the International Society for Computers and their Applications, ISCA), Aug. 3-15, 2003, Reno, Nevada, USA.
74. M.Rezaei and **K.M. Kavi**. "Utilization of Separate Caches to Eliminate Cache Pollution Caused By Memory Management Functions", *Proceedings of the 16<sup>th</sup> International Conference on Parallel and Distributed Computing Systems (PDCS-2003)*, sponsored by the International Society for Computers and their Applications, ISCA), Aug. 3-15, 2003, Reno, Nevada, USA.
73. **K.M. Kavi**, D. Kung, H. Bharnbhani, G. Pancholi, M. Kanikarla and R. Shah. "Extending UML to modeling and design of multi-agent systems", *Proceedings of the 2<sup>nd</sup> International Workshop on Software Engineering for Large-Scale Multi-Agent Systems (SELMAS'03)*, held in conjunction with the IEEE International Conference on Software Engineering (2003), Portland, Oregon, May 3-10, 2003.
72. L. Song and **K.M. Kavi**. "A technique for variable dependent driven loop peeling", *Proceedings of the 5<sup>th</sup> International Conference on Algorithms and Architectures for Parallel Processing (IC3APP2K2)*, Beijing, China, Oct. 23-25, 2002, pp 390-395
71. **K.M. Kavi**, M. Aborizka and D. Kung. "A framework for the design of intelligent agent based real-time systems", *Proceedings of the 5<sup>th</sup> International Conference on Algorithms and Architectures for Parallel Processing (IC3APP2K2)*, Beijing, China, Oct. 23-25, 2002, pp 196-201.
70. J. Arul and **K.M. Kavi**. "Scalability of Scheduled Dataflow Architecture (SDF) with register contexts", *Proceedings of the 5<sup>th</sup> International Conference on Algorithms and Architectures for Parallel Processing (IC3APP2K2)*, Beijing, China, Oct. 23-25, 2002, pp 214-221.
69. S. Donahue, M.P. Hampton, R. Cytron, M. Franklin and **K.M. Kavi**. "Hardware support for fast and bounded time storage allocation", *Proceedings of the Workshop on Memory Processor Interfaces (WMPI)*, in conjunction with the International Symposium on Computer Architecture, May 2002, Anchorage, Alaska, pp .
68. **K.M. Kavi**, J. Arul and R. Giorgi. "Performance Evaluation of a Non-Blocking Multithreaded Architecture for Embedded, Real-Time and DSP Applications", *Proceedings of the ISCA PDCS-2001*, Dallas Texas, August 8-11, 2001, pp 365-371.
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65. **K.M. Kavi**, M. Rezaei and R. Cytron. "An efficient memory management technique that improves localities", *Proc. 8<sup>th</sup> International Conference on Advanced Computing and Communications (ADCOM 2000)*, Cochin, India, Dec. 14-16, 2000, pp 87-94.
64. M. Aborizka and **K.M. Kavi**. "Learning technologies with flight data recorders", *Proc. of the 4th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP2000)*, Hong Kong, Dec. 11-14, 2000, pp 478-489 (acceptance rate = 26.8% 34 out of 127)..
63. J. Arul, **K.M. Kavi** and S. Hanief. "Cache Performance of Scheduled Dataflow Architecture", *Proc. of the 4th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP2000)*, Hong Kong, Dec. 11-14, 2000, pp 110-123 (acceptance rate = 26.8% 34 out of 127).

## Refereed Conference Proceedings (continued):

62. D. Raskovic, E. Jovanov, and **K.M. Kavi**, "Hierarchical Digital Signal Processing," in *Proc. of 2001 IEEE International Symposium on Intelligent Signal Processing and Communication Systems, ISPACS 2001*, Nashville, TN, Nov. 20-23, 2001.
61. **K.M. Kavi** and D. Mehta. "Mutual Exclusion. On Optical Networks", *Proc. of the 13<sup>th</sup> ISCA Parallel and Distributed Computing Systems Conference (PDCS-00)*, Published by the International Society of Computers and Their Applications, Las Vegas, Aug. 8-10, 2000, pp 250-255.
60. **K.M. Kavi**, R. Giorgi and J. Arul. "Comparing execution performance of Scheduled Dataflow Architecture with RISC processors", *Proc. of the 13<sup>th</sup> ISCA Parallel and Distributed Computing Systems Conference (PDCS-00)*, Published by the International Society of Computers and Their Applications, Las Vegas, Aug. 8-10, 2000, pp 41-47
59. R. Giorgi, **K.M. Kavi** and J. Arul. "Exploiting Thread Level Parallelism in a New Decoupled Non-Blocking Multithreaded Architecture ", *Proceedings of the joint 4th World Multiconference on Systemics, Cybernetics and Informatics (SCI'2000) and the 6th International Conference on Information Systems Analysis and Synthesis (ISAS'2000)*, Orlando, USA, in July 23-26, 2000.
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57. H.S. Kim, **K.M. Kavi** and A.R. Hurson. "A simple non-blocking multithreaded architecture", *Proceedings of the 12<sup>th</sup> ISCA Parallel and Distributed Computing Systems Conference (PDCS-99)*, Published by the International Society of Computers and Their Applications, Ft. Lauderdale, FL, Aug. 18-20, 1999, pp 231-236.
56. A.R. Hurson and **K.M. Kavi**. "Interactive teaching practices in small class sizes while cutting into the high cost of education", *Proceedings of the International Conference on Engineering Education*, Ostrava, Czech, August 10 - 12, 1999.
55. D. Hecht, **K.M. Kavi**, R. Gaede and C. Katsinis. "Implementation Of Recovery Blocks On Cache-Coherent Distributed Shared Memory Systems", *Proceedings of the 1999 International Symposium on Parallel Architectures, Algorithms and Networks (I-SPAN-99)*, Fremantle, Western Australia, June 23-25, 1999., pp 100-105 (acceptance rate = 50%; 49 out of 100).
54. **K.M. Kavi**, H.-S.Kim, J. Arul and A.R. Hurson "A decoupled scheduled dataflow multithreaded architecture", *Proceedings of the 1999 International Symposium on Parallel Architectures, Algorithms and Networks (I-SPAN-99)*, Fremantle, Western Australia, June 23-25, 1999, pp 138-143.
53. J.B. Lim, A.R. Hurson and **K.M. Kavi**. "Concurrent data access in mobile heterogeneous systems", *Proceedings of the Hawaii International Conference on System Sciences (HICSS-99)*, Jan. 1999.
52. **K.M. Kavi**, A. Hernandez and D. Levine. "Hyperactive Messages", *Proceeding of the International Conference on Parallel and Distributed Computing Systems*, Los Vegas, Oct. 28-30, 1998, pp 704-708.
51. **K.M. Kavi**, D. Levine and A.R. Hurson. "A non-blocking multithreaded architecture", *Proceedings of the Fifth International Conference on Advanced Computing (ADCOMP'97)*, Madras, India, Dec. 1997. pp 171-177.
50. T.S. Chen, H.Y. Youn and **K.M. Kavi**. "Scalable software system architecture for parallel logic simulation", *1997 Parallel and distributed computing systems symposium*, Oct. 1-3, 1997, New Orleans, LA, pp 59-64.
49. J.T. Lim, A.R. Hurson and **K.M. Kavi**. "VL-Stag: An allocation policy for Doacross loops", *Proceedings of the First European Conference on Parallel and Distributed Systems (Euro-PDS 97)*, Barcelona, June 9-11, 1997, pp 111-116.
48. A.R. Hurson, J.T. Lim and **K.M. Kavi**. "Cyclic staggered loop allocation", *Proceedings of the IEEE Symposium on Parallel and Distributed Processing*, pp 240-249, New Orleans, LA, Oct. 23-26, 1996.
47. H.Y. Youn, H. Choo and **K.M. Kavi**. "Performance enhancements of multistage interconnection networks using unit step buffering (USB) scheme", *Proc. of the international conference on systems engineering* , Los Vegas, NV.
46. **K.M. Kavi** and A.R. Hurson. "Investigation of operand memory reuse in a dynamic dataflow architecture", *Proceedings of the High Performance Computing Symposium 96*, (The society of computer simulation), pp 288-295, April 8-11, 1996, New Orleans, Louisiana.

## Refereed Conference Proceedings (continued):

45. J. Lim, A. Hurson, L. Miller and **K.M. Kavi**. "Dynamic object allocation for distributed object-oriented databases", *Proceedings of the International Conference on High Performance Computing (HiPC)*, December 27-30, 1995, New Delhi, India.
44. **K.M. Kavi** and F.T. Sheldon. "Specification and Analysis of Real-Time Systems using CSP and Petri Nets", *Proceedings of the Fault Tolerant Systems Conference (FTS-95)*, pp 141-147 (Printed by Narosa Publishing House, New Delhi, India) I.I.T. Madras, India, Dec. 20-22, 1995.
43. **K.M. Kavi** and A.R. Hurson. "Cache memories in dataflow architecture", *Proc of the 7th IEEE Symposium on Parallel and Distributed Processing*, Oct. 25-28, 1995 San Antonio, TX., pp 182-189.
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41. F.T. Sheldon and **K.M. Kavi**. "Reliability analysis of CSP specifications: A new method using Petri nets", *Proceedings of the Computers in Aerospace-10*, (San Antonio, March 1995), pp 317-326.
40. **K.M. Kavi** and H.Y. Youn. "A real-time performability evaluation tool", *Proceedings of the Computers in Aerospace-10*, (San Antonio, March 1995)
39. **K.M. Kavi**, F.T. Sheldon, B. Shirazi and A.R. Hurson. "Reliability analysis of CSP specifications using Petri nets and Markov processes" *Proceedings of the 28th Hawaii International Conference on System Sciences (HICSS-28)*, Jan. 3-6, 1995, Maui, Hawaii, pp. II 516-524.
38. **K.M. Kavi** and F.T. Sheldon. "Specification of Stochastic Properties with CSP", *Proceeding of the International Conference on Parallel and Distributed Systems (ICPADS)*, Dec. 19-21, 1994, Hsinchu, Taiwan, pp. 288-293 (acceptance rate = 33% 88 out of 265).
37. A.R. Hurson, J.J. Lim, B. Shirazi and **K.M. Kavi**. "Staggered Scheme: A loop allocation policy", *6th International Parallel Architectures and Languages Europe Conference (PARLE'94)*, Athens Greece, (July 94), Proceedings available as Lecture Notes in Computer Science #817, Springer-Verlag, pp. 793-796..
36. B. Shirazi, H.B. Chen, **K.M. Kavi**, J. Marquis and A.R. Hurson. "PARSA: A parallel program software development tool", *3rd Symposium on Assessment of Quality Software Development Tools*, (Washington, DC, June 7-9, 1994), pp. 96-111.
35. A.R. Hurson, J.T. Lim, **K.M. Kavi** and B. Shirazi. "Loop allocation scheme for multithreaded dataflow computers", *Proceedings of the 8th International Parallel Processing Symposium (IPPS 94)*, (Cancun, Mexico, April 26-28, 1994), pp. 316-322.
34. V. Karani, P. Patadia, **K.M. Kavi**, P. Shanmugam, B. Shirazi and A.R. Hurson. "Improvements to the ETS dynamic dataflow architecture", *Proceedings of the 27th Hawaii Intl Conference on Systems Sciences, HICSS-27*, (Maui, HI, Jan 4-7, 1994), pp. I 378-387.
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32. P. Shanmugam, S. Andhare, **K.M. Kavi**, B. Shirazi and A.R. Hurson. "Cache memory for an explicit token store dataflow architecture", *Proceedings of the 5th IEEE symposium on parallel and distributed processing* , (Dec. 1-3, 1993, Dallas, Texas), pp. 45-50 (acceptance rate = 35%, 113 out of 324).
31. H.B. Chen, B. Shirazi, **K. Kavi** and A.R. Hurson. "Static scheduling using linear clustering with task duplication", *Proc. of sixth Intl. Conf. on Parallel and Distributed Computing Systems*, (Oct. 93, Lexington, Kentucky), pp. 285-290.
30. B. Shirazi, **K.M. Kavi**, A.R. Hurson and P. Biswas. "PARSA: A parallel program scheduling and assessment environment", *Proc of 1993 International Conference on Parallel Processing*, August 16-20, 1993, pp 68-72.
29. H.B. Chen, B. Shirazi, **K. M. Kavi** and A.R. Hurson. "Linear clustering with task duplication: A novel static scheduling method for distributed memory systems", *Proc. of the 9th international conference on systems engineering* , July 14-16, 1993, Los Vegas, Nevada, pp. 16-20.
28. S.M. Yang, P.R. Pizzorni, **K.M. Kavi** and H. Mei. "A protocol for real-time message scheduling in LAN/MAN", *Proc. of 26th Hawaii International Conference on System Sciences (HICSS-26)*, Jan. 5-8, 1993, pp. II 613-621.

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26. B. Kim, H.Y. Youn and **K.M. Kavi**. "Hierarchical interconnection networks: Routing in the presence of faults", *Proc. of 4th IEEE Symp. on Parallel and Distr. Processing*, Arlington, Texas, Dec. 1-4, 1992, pp. 162-165.
25. J.T. Yen, B. Shirazi. and **K.M. Kavi**. "A new cache coherency and address translation consistency protocol", *Proc. of 1992 Intl Conference on Parallel Processing*, Ann Arbor, MI, Aug. 1992, pp 18-21.
24. D.H. Lin, B. Shirazi and **K.M. Kavi**. "An efficient data interface for heterogeneous distributed environment", *Proc of the International Conference on Distributed Computing Systems (ICDCS-92)*,. Yokohama, Japan, June 9-12, 1992, pp. 390-397.
23. S.M. Yang, **K.M. Kavi**, A. Agrawala, M. Reddi and S. Anam. "SUVS: A distributed real-time system testbed for fault-tolerant computing", *Proc. of 1992 ACM Symposium on Applied Computing (SAC'92)*, Kansas City, KA, March 1-3, 1992, pp. 782-791.
22. W.G. Shieh, B.P. Weems and **K.M. Kavi**. "Extending N-grid group authorization using compact encoding", *Proc. of 1992 ACM Symposium on Applied Computing (SAC'92)*, Kansas City, KA, March 1-3, 1992, pp. 190-196.
21. **K.M. Kavi**, V. Vijayaraghavan, B. Shirazi and A. Hurson. "Barriers and breakpoints in dataflow: extensions to SISAL language", *Proc. of 25th Hawaii Intl. Conf. on System Sciences (HICSS-25)*, Koloa, HI, Jan. 7-10, 1992, pp. I 526-534.
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19. D.H. Lin, B. Shirazi and **K.M. Kavi**. "A heterogeneous distributed processing interface specification language", *Proc. of 1991 Intl Conference on Parallel Processing*, pages II-274-275.
18. V. Vijayaraghavan, **K.M. Kavi** and B. Shirazi. "Control flow extensions to the dataflow language SISAL", *Proc. of the 1991 Symposium on Applied Computing*, Apr. 3-5, 1991, Kansas City, MO, pp. 130-138.
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16. **K.M. Kavi**, S.R. Kuthalam and A.K. Deshpande. "A decomposition approach for analysis of parallel processing systems", *Proc. of 2nd IEEE symposium on parallel and distributed processing* , Dallas, Dec. 9-13, 1990, pp. 776-779.
15. **K.M. Kavi** and A.K. Deshpande. "A model and a proof system for parallel and distributed processes", *Proc. of Hawaii Intl. Conf. on System Sciences, HICSS-23*, Kona, Hawaii, Jan 1990, pp. II 386-392.
14. **K.M. Kavi** and T.C. Lin. "Reliability analysis using dataflow graph models and approximate solutions", *Proc. of Intl. Symp. on Approximations, Optimization and Computing* (Dalian, China, July 3-7, 1989). Proceedings available as *Approximation, Optimization and Computing*, edited by A.G. Law and C.L. Wang, North-Holland, 1990, pp. 105-109.
13. D.J. Chen, M.C. Sheng and **K.M. Kavi**. "The discrete time stochastic dataflow graphs for the reliability modeling and analysis of computer systems", *Proc. of ICCI 89* (Intl. Conf. on Computing and Information), May 23-27, 1989, Toronto, Canada, pp. Volume-II 94-98.
12. F.T. Sheldon and **K.M. Kavi**. "A new software reliability model for estimating failure rate due to residual defects", *Proc. of Workshop on Applied Computing (WAC-89)*, Stillwater, OK, March 30-31, 1989, pp. 7-13.
11. **K.M. Kavi** and D.J. Chen. "A qualitative assessment of object-oriented architectures: SWARD, Intel 432 and IBM S/38", *Proc. of International Computer Symposium, ICS-88*, Taipei, Taiwan, Dec. 15-17, 1988, pp. 175-181.
10. D.J. Chen, **K.M. Kavi** and U.N. Bhat. "Dynamic reliability analysis of communication networks using continuous time stochastic dataflow graphs", *Proc. of ACM South Central Regional conference*, Lafayette, LA, Nov. 21-23, 1987, pp. 158-171.
9. D.J. Chen, **K.M. Kavi** and P. Hsia. "A planned incremental construction methodology using dataflow graphs", *Proc. COMPSAC-87*, Oct. 5-9, 1987, Tokyo, pp. 96-102.

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8. **K.M. Kavi** and D.J. Chen. "Architectural support for object-oriented programming languages", *Proc. COMPCON*, Spring 1987, San Francisco, Feb. 23-26, 1987, pp. 54-58.
7. **K.M. Kavi**, EW. Banios and B.D. Shriver. "MRDF: An architectural model for distributed processing", *Proc. 11th annual Symp. on computer architecture*, (ISCA-11) Ann Arbor, MI, June 5-7, 1984, pp. 271-278 (acceptance rate 39%)
6. **K.M. Kavi**. "Dataflow modeling techniques", *Proc. IASTED Intl. conf. on Siml. and Modl.*, Orlando, FL, Nov. 9-11, 1983, pp. 1-4..
5. **K.M. Kavi** and H.G. Cragon. "A conceptual framework for the description and classification of computer architecture", *Proc. IEEE intl. wksp. on Comp. Syst. Org.*, New Orleans, Mar. 29-31, 1983, pp. 10-19.
4. T.E. Perkins and **K.M. Kavi**. "Heuristic graph algorithms for modularization", *Proc. 5th intl. conf. on computer capacity management*, New Orleans, Apr. 18-20, 1983, pp. 246-252.
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1. **K.M. Kavi** and H.G. Cragon. "Quest for an 'Ideal' machine language", *Proc. of intl. wksp. on HLL comp. arch.*, May 27-29, 1980, Ft. Lauderdale, FL., pp. 33-39.

## Other technical publications (Invited, abstracts or partially refereed publications)

23. M. Aborizka, M. Kouta, **K. Kavi** and S. Saad. "An intelligent agent based digital currency scheme", Proceedings of the 5<sup>th</sup> International Business Information Management Association (IBIMA) *Conference on The Internet and Information Technology in Modern Organizations*, Dec. 13-15, 2005, Cairo, Egypt.
22. L. Song and **K.Kavi**. "What can we gain by unfolding loops?" ACM SIGPLAN Notices, Vol. 39, NO. 2, Feb 2004, pp 26-33.
21. E. Jovanov, D. Raskovic, and **K. Kavi**, "Hierarchical Digital Signal Processing," in *Proc. of 19th Annual Houston Conference on Biomedical Engineering Research, HSEMB 2001*, The University of Houston Hilton Conference Center, Houston, TX, USA, February 8-9, 2001
20. E. Jovanov, J. Price, D. Raskovic, **K. Kavi**, T. Martin, and R. Adhami, "Wireless Personal Area Networks in Telemedical Environment," in *Proc. of 2000 IEEE EMBS International Conference on Information Technology Applications in Biomedicine, (ITAB-ITIS 2000)*, Key Bridge Marriott Hotel, Arlington, Virginia, USA, November 9-10, 2000
19. S.R. Taylor and **K.M. Kavi**. "A comparison of multithreaded implementations", *Yale multithreaded programming workshop*, Yale University, New Haven, CT, June 8-9, 1998, available at <http://arch.cs.yale.edu/ymp-workshop/papers/>
18. **K.M. Kavi** and W.E. Cohen. "Memory latency and thread migration challenges for distributed shared memory systems: A position paper", *Proc. of 31st Hawaii International Conference on System Sciences (HICSS-31)*, Jan. 1998.
17. **K.M. Kavi**. "Branch folding for conditional branches", *IEEE CS Technical Committee on Computer Architecture (TCCA) Newsletter*, Dec. 1997, pp 4-7.
16. **K.M. Kavi** and A.R. Hurson. "Multi-Threaded Systems: Issues, Solutions And Future - Introduction to the Minitrack on Multithreaded Systems, *Proceedings of the 30th Hawaii International Conference on System Sciences (HICSS-30)*, Jan. 1997, Maui, Hawaii.
15. **K. M. Kavi**, I. Lee and N. Serbedzija. "Distributed Real-Time Systems: An Introduction to the Minitrack", *Proceedings of the 29th Hawaii International Conference on System Sciences (HICSS-29)*, Jan. 1996, Maui, Hawaii.
14. F.T. Sheldon and **K.M. Kavi**. "Linking software failure behavior to specification characteristics", *Proceedings of 4th International Workshop on Evaluation Techniques for Dependable Systems*, Oct. 1995, San Antonio, TX.

## Other technical publications (continued):

13. F.T. Sheldon and **K.M. Kavi**. "Linking software failure behavior to specification characteristics.", *Record of 3rd IEEE International Workshop on integrating error models with fault injection*, Annapolis, MD, April 25-26, 1994.
12. **K.M. Kavi**, B. Wyatt, B. Shirazi, and A.R. Hurson . "Evaluation of dynamic inheritance in distributed environments. *Proc. of 1994 ASME European Joint Conference on Engineering Systems Design and Analysis*, (ESDA-94), London, England, July 4-7, 1994, ASME, NY, Vol. 5, pp. 525-532.
11. P. Shanmugam, S. Andhare and **K.M. Kavi**. "Justifying cache memories for dataflow architectures", *Workshop on fine-grained massively parallel coordination, at International Symposium on Computer Architecture*, May 15-20, 1993, San Diego, CA.
10. M.C. Measures and **K.M. Kavi**. "An Hierarchical Model for Object-Oriented Systems", *Proc. of 1992 ASME European Joint Conference on Engineering Systems Design and Analysis*, Istanbul, Turkey, June 29 - July 3, 1993, pp. Vol. 4 67-72.
9. B.P. Weems, **K.M. Kavi** and S.M. Yang. "HIPPI: An honors program in parallel processing", *Proceedings of 1992 ASEE National Conference*, pp 428-432.
8. F.T. Sheldon and **K.M. Kavi**. "A model for estimating software reliability based on residual defects", *Proc. of IEEE Midcon'90*, Dallas, Texas, Sept. 11-13, 1990, pp 22-25
7. F.T. Sheldon, **K.M. Kavi** and R. Reese. "Software reliability modeling: A case study", *Proceedings of General Dynamics Software Technology Conference*, pp 29: 1-14, April 1991, San Diego, CA.
6. C.F. Shelor and **K.M. Kavi**. "Data tags or partitioned memory?", *Proc. of IEEE Midcon'90*, Dallas, Texas, Sept. 11-13, 1990.
5. F.T. Sheldon and **K.M. Kavi**. "An evaluation of two new advanced microprocessor architectures", *Proc. of IEEE Metrocon 90*, Arlington, Feb. 17, 1990.
4. **K.M. Kavi** and K. Krishnamohan. "Architecture quality", *SIGOPS Operating Systems Reviews*, Jan. 1984.
3. **K.M. Kavi**. "Innovative architectures and commercial computers: summary of panel discussion at NCC 1981", *SIGARCH Computer Architecture News*, Aug. 1981.
2. **K.M. Kavi**. "Semantics of an algorithm", *SIGARCH Computer Architecture News*, Dec. 1980.
1. **K.M. Kavi** and D.J. Frailey. "Quantification of architecture using software science", *SIGARCH Computer Architecture News*, Oct. 1979.

## Ph.D. Dissertation

The design of architectures to reduce semantic gap, Southern Methodist University, Dallas, Texas, Aug. 1980, Major Professor: Harvey G. Cragon.

## Invited talks and presentations:

81. Memory optimizations research at UNT, Dept. of CS, Missouri University of Science and Technology, Rolla, Missouri, April 19, 2011.
80. Memory optimizations research at UNT, AMD, Austin, Feb 21, 2011.
79. Memory optimizations research at UNT, ECE Department, National Dong-Hwa University, Hualien, Taiwan, May 21, 2010
78. Memory optimizations research at UNT, Dept of EE, Sen-Yat Sun University, Kaohsiung Taiwan, April 20, 2010
77. Memory optimizations research at UNT, Academia Sinica, Taipei, Taiwan, April 16, 2010
76. Memory optimizations research at UNT, CSE and ECE Departments, National Taiwan University, Taipei, Taiwan, April 16, 2010
75. Scheduled Dataflow Architecture, Dept of CSIE National Chiao-Tung University, Hsinchu, Taiwan, April 13, 2010
74. Memory optimizations research at UNT, CSE Department, National Tsing-Hua University, Hsinchu, Taiwan, March 17, 2010
73. Memory optimizations research at UNT, CSE Department, National Chiao-Tung University, Hsinchu, Taiwan, March 10, 2010

## Invited talks and presentations (continued):

72. Memory optimizations research at UNT, ECE Department, National Cheng-Kung University, Tainan, Taiwan, March 4, 2010
71. Research in High-Performance Computing at the Net-Centric Software and Systems Consortium, Computational Sciences and Engineering Division, Oak Ridge National Laboratory, Oak Ridge, TN, Oct. 13, 2008.
70. Transactional Memories: An Overview. Department of Computer Science, University of Cyprus, June 9, 2008.
69. Transactional Memories: An Overview. College of Computing, National Chiao-Tung University, Hsinchu, Taiwan, Dec. 20, 2007.
68. Transactional Memories: An Overview. Dept of CS, Tunghai University, Taichung, Taiwan, Dec. 18, 2007.
67. Transactional Memories: An Overview. College of Computing, National Cheng-Kung University, Tainan, Taiwan, Dec. 17, 2007.
66. Is it time to revive dataflow as a model of parallel computing?, Department of Computer Science, Tunghai University, Taichung, Taiwan, Dec. 18, 2006.
65. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, Electrical and Computer Engineering Department, Dong-Hwa University, Huilian, Taiwan December 15, 2006
64. Computer Systems Research, Computer Science and Information Engineering Department, National Chiao-Tung University, Hsinchu, Taiwan, December 13, 2006.
63. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, Electrical and Computer Engineering Department, National Taiwan University, Taipei, Taiwan December 12, 2006
62. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, IEEE CS Distinguished Visitor Seminar, CS Department, University of North Florida, Nov. 29, 2006.
61. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, IEEE CS Distinguished Visitor Seminar, Department of CSE, Penn State University, October 19, 2006.
60. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, IEEE CS Distinguished Visitor Seminar, Long Island Computer Society Chapter, October 18, 2006.
59. Is it time to revive dataflow as a model of parallel computing?, Keynote speech, ISCA 19<sup>th</sup> International Conference on Parallel and Distributed Computing Systems (PDCS-2006), San Francisco, CA, Sept. 20, 2006.
58. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, IEEE CS Distinguished Visitor Seminar, Auburn University, Auburn, Alabama, April 5, 2006.
57. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, IEEE CS Distinguished Visitor Seminar, University of Alabama in Huntsville, April 3, 2006.
56. Computer Systems Research at UNT, UNT CSCE 5020- Research Seminar for Graduate Students, March 8, 2006.
55. Billion Transistor Chips: How to garner the silicon real-estate for improved performance, Center for the Development of Advanced Computers (C-DAC), Hyderabad, India, Dec. 17, 2005
54. Computer Systems Research at UNT. UNT IEEE chapter, October 27, 2004
53. Scheduled Dataflow: A decoupled non-blocking multithreaded architecture, Department of Computer and Information Technology, University of Pisa, Pisa, Italy, Sept. 28, 2004.
52. Is it time to revive dataflow architecture?, Invited seminar at the Department of Computer Science and Information Engineering, Fu Jen Catholic University, Taipei, Taiwan, May 19, 2004.
51. Is it time to revive dataflow architecture? Invited seminar at the Department of Computer Science and Information Engineering, National Chiao Tung University, Hsinchu, Taiwan, May 18, 2004.
50. A case for agent-oriented software engineering. Invited seminar at the Department of Computer Science and Information Engineering, National Chiao Tung University, Hsinchu, Taiwan, May 13, 2004
49. Is it time to revive dataflow architecture?, Keynote speech at the 11<sup>th</sup> International Conference on Advanced Computing (ADCOM-2003), Coimbatore, India, Dec. 18, 2003.
48. Is it time to revive dataflow architecture?, XII Congress of APSMS GP Sharma Memorial Lecture, Osmania University, Hyderabad, India, Dec. 13, 2003
47. Scheduled Dataflow: A decoupled non-blocking multithreaded architecture, Department of Computer Science and Engineering, Southern Methodist University, Dallas, Texas, Oct 15, 2003.

## Invited talks and presentations (continued):

46. Scheduled Dataflow: A decoupled non-blocking multithreaded architecture, School of Electrical Engineering and Computer Sciences, Oregon State University, Corvallis, OR, May 5, 2003.
45. Scheduled Dataflow: A decoupled non-blocking multithreaded architecture, Department of Computer Science, The University of Texas at Dallas, February 8, 2002.
44. Architecture and Systems Research at UAH, Department of Computer Science, The University of North Texas, Feb. 15, 2001
43. Evaluation of Scheduled Dataflow Architecture, School of Electrical Engineering and Computer Science, University of Central Florida, Florida, February 8, 2001.
42. Scheduled dataflow: A decoupled, non-blocking multithreaded architecture, Dept of Computer Science and Engineering, University of Minnesota, Minneapolis, MN, Aug. 21, 2000.
41. Scheduled Dataflow: A synchronous execution paradigm for dataflow, Dept. of Electrical and Computer Engineering, University of New Castle, New Castle, Australia, July 1, 1999.
40. Scheduled Dataflow: A synchronous execution paradigm for dataflow, Dept. of Computer Science and Engineering, University of New South Wales, Sydney, Australia, June 28, 1999.
39. Scheduled Dataflow: A synchronous execution paradigm for dataflow, Dept. of Computer Science and Software Engineering, Monash University, Caulfield, Victoria, Australia, June 21, 1999
38. Multithreading: Languages, Systems and Architectures, Dept. of Electrical and Computer Engineering, University of Alabama in Birmingham, Birmingham, AL, March 22, 1999.
37. Multithreading: Languages, Systems and Architectures, Dept. of Electrical and Computer Engineering, University of Alabama, Tuscaloosa, AL, March 22, 1999.
36. Scheduled Dataflow: A synchronous execution paradigm for dataflow, Dept. of Computer Science, Florida State University, Tallahassee, FL, March 5, 1999.
35. Multithreading and Scheduled Dataflow. Sparta Inc., International Systems Operations (INSO), Huntsville, AL, March 3, 1999.
34. Multithreading: Languages, Systems and Architectures, Dept. of Computer Science, University of South Alabama, Mobile, Alabama, Feb. 22, 1999.
33. Scheduled Dataflow: A synchronous execution paradigm for dataflow, University of Tennessee Space Institute, Tallahoma, TN, Feb. 18, 1999.
32. Multithreading: Languages, Systems and Architectures, Dept. of Electrical and Computer Engineering, Auburn University, Auburn, Alabama Jan. 15, 1999.
31. Optimizing for web-based programming - Plenary Talk at the INFOFEST-98, (Budva, Montenegro, Yugoslavia), Sept. 28, 1998.
30. A non-blocking multi-threaded architecture, University of Karlsruhe, Germany, Sept 21, 1998.
29. Multithreaded Programming. Issues and Solutions, University of Venice, Italy, Sept. 17, 1998.
28. Scheduled Dataflow: A synchronous execution paradigm for dataflow, University of Pisa, Italy, Sept. 15, 1998.
27. Dataflow and multithreaded Architectures, Dept. Of CIS, New Jersey Institute of Technology, Feb. 19, 1998.
26. Cache memories for multithreaded dataflow systems, Dept. Of CSE, Penn State University, Jan. 22, 1998.
25. A non-blocking multithreaded architecture, Dept. Of Computer Science, Fu-Jen Catholic University, Taipei, Taiwan, Dec. 23, 1997
24. Multithreaded Systems: Languages and Architecture, Dept. Of Computer Science, Chung-Chen University, Hsinchu, Taiwan, Dec. 22, 1997.
23. Cache memories for multithreaded dataflow systems. Dept of Computer and Information Science and Engineering, National Chiao-Tung University, Hsinchu, Taiwan, Dec. 19, 1997.
22. Multithreaded Systems: Languages and Architecture, Dept. Of Computer Science, The University of Alabama in Huntsville, Nov. 14, 1997.
21. Cache memories for multithreaded dataflow systems, Dept. of Computer Science, New Mexico State University, Las Cruces, NM, , Nov. 6, 1995
20. Cache memories for multithreaded dataflow systems, Dept. of Computer Science, Florida Institute of Technology, May 5, 1995.

## Invited talks and presentations (continued):

19. Stochastic Properties with CSP Specifications, Dept. of Electrical Engineering and Computer Science, University of Illinois at Chicago, March 13, 1995.
18. Cache memories for multithreaded dataflow systems, Dept. of Computer Science, Washington University, St. Louis, MO, Feb. 3, 1995.
17. Stochastic Properties with CSP Specifications, Dept. of Computer Science, Oklahoma State University, Stillwater, OK, Feb. 2, 1995
16. Stochastic Properties with CSP Specifications, Dept. of Computer Science, Wright State University, Dayton, OH, Feb. 1, 1995
15. Cache memories for multithreaded dataflow systems, Brown Bag Lunch Seminar, CISE, NSF, Jan. 31, 1995.
14. What types of papers should we be writing?, A panel participation at the ICPADS'94, Hsinchu, Taiwan, Dec. 20, 1994.
13. Parallel Processing and NSF, Dept. of Computer Science, Mary Washington College, Fredricksberg, VA, Nov. 16, 1993.
12. A survey of fault-tolerant systems and techniques, Section 347 Seminar, Jet Propulsion Laboratories, Pasadena, CA, Aug. 19, 1992.
11. Evaluation of object based computer architecture, Dept. of Computer Science, University of Central Florida, Orlando, April 18, 1991.
10. Dataflow graph models for reliability analysis. IEEE-CS Distinguished Lecture, Lawrence Livermore National Labs, Feb. 28, 1991.
9. Evaluation of object based computer architecture, First Symposium of the Computer Systems Engineering, Centro De Graduados Instituto Tecnologico De Nogales, Nogales, Mexico, October 5, 1990.
8. Dataflow graph models for reliability analysis. IEEE-CS Distinguished Lecture, University of North Texas, Denton, April 13, 1990.
7. Evaluation of object-oriented computer architecture. IEEE-CS Distinguished Lecture, Baylor University, Waco, Texas, March 28, 1990.
6. Dataflow graph models for specification and analysis of concurrent processing system, IEEE-CS Distinguished Lecture, Penn. State University, March 21, 1990.
5. Scheduling and Controlling tasks using reservation tables, Seminar at TI-CSC, Dallas, Texas, Nov. 8, 1988.
4. Language-directed and object-oriented computer architecture. IEEE CS Chapter tutorial, UTA Chapter, Apr. 16, 1988.
3. Object-oriented computer systems. Luncheon seminar, IEEE Dallas Chapter, Jan. 21, 1988.
2. SWARD: An object-oriented computer system. Luncheon seminar, Dept. of Computer Science, SMU, Dallas, Nov. 25, 1987
1. How can a computer architecture increase programmer productivity. Luncheon speech, DPMA regional conference, Ft. Worth., Apr. 25, 1984.

## Short Courses and Tutorials:

17. Tutorial on Architectural Trends for High Performance Computing, Instructors: **K.M. Kavi**  
Half a day tutorial at the Eleventh International Conference on Advanced Computing and Communications (ADCOM-2003), Coimbatore, India, Dec. 17, 2003.
16. Tutorial on Architectural Trends for High Performance Computing, Instructors: **K.M. Kavi** and A.R. Hurson, Half Day tutorial at the 5<sup>th</sup> International Conference on Algorithms and Architectures for Parallel Processing (ICA3pp2k2), Beijing, Oct. 23, 2002.
15. Agent based software systems: Systems level issues (Instructors: **K.M. Kavi** and David Levine), Half Day tutorial at the 4th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP2000), Hong Kong, Dec. 11, 2000.
14. Agent based software systems: Systems level issues (Instructors: **K.M. Kavi** and David Levine), Half Day tutorial at the International Conference on Advanced Computing and Communications (ADCOM 2000), Cochin, India, Dec. 14, 2000

13. An introduction to multithreaded programming (Instructors: **K.M. Kavi** and David Levine), a one-day tutorial at the International Conference on Parallel and Distributed Computing Systems (PDCS'98), Los Vegas, Oct. 28-30, 1998.
12. Advanced Web-based and Network programming (Instructor: **K.M. Kavi**), a half day tutorial at the INFOFEST-98, Budva, Montenegro, Yugoslavia, Sept. 28-Oct 2, 1998.
11. An introduction to multithreaded programming (Instructor: **K.M. Kavi** and David Levine), a one-day tutorial at 5th annual conference on Advanced Computing, ADCOMP-97, Chennai, India, Dec. 15-17, 1997.
10. Introduction to programming in Ada-95 (Instructor: **K.M. Kavi**): A short course for Hughes; Feb. 27-March 28, 1997.
9. Introduction to programming in Ada-95 (Instructor: **K.M. Kavi**): A short course for Hughes; Sept. 19-Oct. 18, 1996.
8. Introduction to programming in Ada-95 (Instructors: **K.M. Kavi** and Dave Umbaugh). A short course for Hughes, July/Aug., 1996.
7. Formal methods for the specification and analysis of concurrent systems (Instructors: **K.M. Kavi** and Bill Buckles), 1993 International Conference on Parallel Processing, Aug. 20, 1993, Lake Charles, IL.
6. Parallelism management: Synchronization, Scheduling and Load Balancing, (Instructors: Behrooz Shirazi and **K.M. Kavi**), Tutorial at the 4th IEEE Symp. on Parallel and Distributed Processing, Dec. 1, 1992, Arlington, Texas.
5. Parallelism management: Synchronization, Scheduling and Load Balancing, (Instructors: Behrooz Shirazi and **K.M. Kavi**), Tutorial at the 3rd IEEE Symp. on Parallel and Distributed Processing, Dec. 2, 1991, Dallas, Texas.
4. Parallel Processing (Instructors: **K.M. Kavi** and Behrooz Shirazi) a Short Course at UTA, May 28-29, 1991.
3. Advanced techniques in Fault-tolerant computing: New reliability models and fault-tolerance using object-based designs, (Instructor: **K.M. Kavi**) Short Course delivered at National Chaio Tung University, Hsinchu, Taiwan, ROC, July 17-22, 1989.
2. Capability-based computer architecture, (Instructor: **K.M. Kavi**), IBM-Educational tutorial, IBM-Thornwood, NY, March 16, 1988.
1. Language-directed and object-oriented computer architecture, (Instructor: **K.M. Kavi**), IEEE CS Chapter tutorial presentation, 1987 Atlanta software technology conference, Atlanta, Nov. 12, 1987.

### Reports for industry:

3. **K.M. Kavi** and F.T. Sheldon. Formal specification of diagnostic software requirements, report for General Dynamics as a part of the Generic Integrated Maintenance Diagnostics (GIMADS), Sept. 1992.
2. B.D. Carroll and **K.M. Kavi**. "Reliability models for advanced fault-tolerant computer systems", Final Report., Motorola govt. electronics group, Phoenix, Az., Nov. 1986.
1. **K.M. Kavi** and B.D. Carroll. "Architectures for postal character recognizers", Final Report. Recognition Equipment, Inc., Dallas, Tx., Sept. 1984.

### Departmental technical reports:

23. **K. M. Kavi**, H.Y. Youn and L. Alkalaj. "A survey of fault-tolerant systems and techniques", CSE TR 93-004, May 4, 1993.
22. B.G. Wyatt, **K. M. Kavi** and S.P. Hufnagle. "Parallelism in object oriented languages: A survey", CSE TR 92-001
21. M.C. Measures and **K.M. Kavi**. "An hierarchical model for object oriented systems", CSE TR 91-004, May 1991.
20. C.F. Shelor and **K.M. Kavi**. "CARDS: An Object-based Architecture for Reliable Distributed Processing", CSE TR 89-004 ; March 1989
19. **K.M. Kavi**, T.C. Lin and D.J. Chen. "A decomposition approach to reliability analysis of interconnection networks using stochastic dataflow graph models", CSE TR 89-003; March 1989.
18. T. Makphaibulchoke, **K.M. Kavi** and S.P. Hufnagle. "DISTIL: A specification and implementation language for distributed processing systems", CSE TR 89-001, Jan. 1989.

17. **K.M. Kavi**, R.M. Boyd and S.R. Amble. "DFDLS: a dataflow language based on graphical structure", CSE TR 86-003, Jan 1986.
16. **K.M. Kavi**, D.J. Chen and D.E. Williams. "Sward front-end system", CSE TN 85-001, May 1985.
15. **K.M. Kavi**, D.J. Chen and D.E. Williams. "Sward front-end system: The control machine (CM)", CSE TN 85-002, May 1985.
14. **K.M. Kavi**, D.J. Chen and D.E. Williams. "Sward front-end system: The maintenance machine (MM)", CSE TN 85-003, May 1985.
13. D.J. Chen and **K.M. Kavi**. "The implementation details, qualitative evaluation and proposed enhancements of SWARD prototype computer system", CSE TR 85-006, Aug. 1985.
12. **K.M. Kavi**, U.N. Bhat and B.P. Buckles: "Reliability analysis of dataflow graph models", CSE TR 85-004, May 1985.
11. **K.M. Kavi**, B.P. Buckles and U.N. Bhat. "A formal definition of dataflow graph models", CSE TR 85-003, May 1985.
10. **K.M. Kavi**, B.P. Buckles and U.N. Bhat. "Isomorphisms between Petri nets and dataflow graphs", CSE TR 85-002, April 1985.
9. D.E. Williams and **K.M. Kavi**. "The SWARD environment at UTA", CSE TN 85-001, Jan 1985.
8. **K.M. Kavi**, B.P. Buckles and U.N. Bhat. "A formal definition of dataflow graph models", CSE TR 84-006, Nov. 1984.
7. K. Krishnamohan and **K.M. Kavi**. "Architectural quality: a review of desirable architectural characteristics", CSE TR 84-002, July 1984.
6. **K.M. Kavi** and U.N. Bhat. "Reliability models for dataflow", CSE TR 83-001, Jan. 1983.
5. **K.M. Kavi**. "DFDLS: A dataflow simulator for digital systems", CSE TR 83-002, Jan. 1983.
4. **K.M. Kavi**. "Innovative architectures and commercial computers", TR 81-3-2, Dept. of Comp. Sci., USL, June 1981.
3. **K.M. Kavi**, et. al. "HLL architectures: pitfalls and predilections", TR 81-3-3, Dept. of Comp. Sci., USL, July 1981.
2. **K.M. Kavi**. "Classification of Markov chains using graph algorithms", CSE 7912, Dept. of Comp. Sci., SMU, Aug. 1979. *Also included in Applied Stochastic Processes by U.N. Bhat, 2nd Ed.*, John Wiley & Sons., 1984.
1. **K.M. Kavi** and T.R.N. Rao. "Encoding and decoding algorithms for m-out-of-n codes, CS 7805, Dept. of Comp. Sci., SMU, Apr. 1978.

## Consulting:

8. Sidley Austin Brown & Wood. Sept 2003 – 2006. Help with patent litigation related to computer architecture, cache memories, flash memories, JTAG, etc.
7. SigmaTech, Inc., Huntsville, AL. May 2000-Dec. 2001. Developing InteractivePro.
6. Computing Technologies, San Jose, CA, Sept. 1996-Dec. 1996, "Application of PVM for power-plant simulation code".
5. Jet Propulsion Laboratories, Pasadena, CA, Dec. 1992 - May 1993. "Evaluation of MAX/Hyphos Dataflow System.
4. General Dynamics, Ft Worth Division. May-Sept. 1992. "Formal Methods for Integrated Diagnostics Software Design".
3. Motorola, Tempe, AZ. July-Dec. 1986. Preliminary investigation of advanced fault tolerant computers-advanced concepts
2. Communications Enterprises, Inc., Dallas. April, Sept.-Nov. 1984. Developed and taught a short course on Computer Networks.
1. Recognition Equipment, Inc., Dallas. July-Sept. 1984. Surveyed and developed architectures for automatic postal mail sorting systems.

## Funding Activities

### Funded:

48. NSF ENG IIP Fundamental Research Program. Collaborative Research – QoS Assured Service Composition and Execution.  
**PI: Krishna Kavi**  
October 1, 2011 – Sept 30, 2013, NSF Funds: **\$98, 295**
47. NSF MRI (Subcontract from SMU and UTD). MRI Consortium: Development of Instrumentation for Measuring the Dependability and Quality of Cloud Computing Systems  
**PI: Krishna Kavi** (with Farokh Bastani, UTD and Jeff Tian, SMU)  
Sept. 1, 2011 – Aug. 31, 2014. NSF Funds: **\$191,320** (total project amount: \$977,020),  
UNT Cost Share: \$87,542
46. Research Experience for Veterans (REV) supplement for NSF IIP Industry/University Cooperative Research Center on Net-Centric Software and Systems  
**PI: Krishna Kavi,**  
Aug. 2011-Feb. 2012, **\$8,000**
45. Unrestricted Research Award from Advanced Micro Devices (AMD): Development of tools to analyze memory accesses in multicore processors  
**PI: Krishna Kavi,**  
Jan 2011 – May 2012, **\$90,000**
44. REU supplement for NSF IIP Industry/University Cooperative Research Center on Net-Centric Software and Systems  
**PI: Krishna Kavi,**  
May 2010-May 2011, **\$16,000**
43. REU supplement for NSF IIP Industry/University Cooperative Research Center on Net-Centric Software and Systems  
**PI: Krishna Kavi,**  
May 2009-May 2010, **\$16,000**
42. NSF IIP Industry/University Cooperative Research Center on Net-Centric Software and Systems  
**PI: Krishna Kavi,**  
Jan 2009-Dec 2014, **\$400,000** from NSF, and **\$150K** per year from Industry
41. Texas Workforce Development. Texas Youth in Technology Grant Program at UNT  
PIs: Robert Akl, **Krishna Kavi** and David Keathly  
Jan 2009-Dec.2010, **\$150,000**
40. NSF CISE CNS-0821736: MRI: Development of a Flexible Instrument and Tools for Experimental Research in Next-Generation 9-1-1 Services, Sept. 1, 2008-Aug. 31, 2011, **\$400,000**  
**PI: Ram Dantu, Co-PIs: K.M. Kavi** and Partha Guturu (and Columbia and Texas A&M)
39. NSF CISE-CNS-0751205: “CRI: IAD: A Testbed for Research and Development of Next Generation 9-1-1 Services”, May 2008-May2012, **\$650,000**  
**PI: Ram Dantu, Co-PIs: K.M. Kavi** and Partha Guturu (and Columbia and Texas A&M)
38. Texas Workforce Commission Youth in Technology Grant Program. Jan. 2008 – Dec. 2009, **\$132,514**  
PIs: R.Akl, **K.M. Kavi** and D. Keathly
37. NSF IIP-0733972. IUCRC Planning Grant to form NetCentric Consortium, Sept. 1, 2007 – Aug. 31, 2008, **\$10,000**  
**PI: K.M. Kavi**
36. KJV Inc. (subcontract on a US Navy SPAWAR contract): NCCS High Assurance Project, June 1, 2007-May 31, 2008, **\$20,000**  
**PI: K.M. Kavi**
35. NSF OISE-0649748. Planning Visit to Taiwan, Feb 2007 –Jan 2008, **\$8,437**  
**PI: K.M. Kavi**
34. Texas Workforce Development (TWD) Recruiting and Retention Strategies in CS at UNT, May 1, 2005-April 31, 2007, **\$125,322**  
Principal Investigators: R. Akl, D. Keathly, **K.M. Kavi**, P. Sweany, K. Swigger, S. Tate
33. NSF CNS-0532686-Support for SCPES-2005 Workshop **\$12,500**

- Principal Investigators: Phil Sweany and **K.M. Kavi**
32. Texas Workforce Development (Subcontract from UT-Austin), Jan. 2005-Dec. 2005, **\$46,253**  
Principal Investigator: **K.M. Kavi**  
Title: Improving Retention of Computer Science students at UNT.
  31. NSF-Research Resources (RR-0222628) (NSF **\$120K**, UNT Match \$60K), \$180,000  
Principal Investigator: **K.M. Kavi**, Co-PIs: A. Mikler, K. Swigger and A. Wilson  
Title: Computational Science and Engineering: Intelligent Information Acquisition and Management Infrastructure
  30. Texas Workforce Development (TETC). Jan 2003-Aug. 2004, **\$83,322**  
Principal Investigator: R.T. Jacob, **Co-PI. K.M. Kavi**  
Title: Improving Retention of Computer Science students at UNT.
  29. NSF-ITR Program (Award #: CCR-0117263)  
Amount **\$450K** (UAH/UNT Share \$208K).  
Principal Investigators: **K.M. Kavi** (jointly with Ron Cytron and Mark Franklin of Washington University in St. Louis, MO).  
Title: Intelligent memory systems for object-oriented programs  
Period: Sept. 1, 2000 – Aug. 31, 2003
  28. NSF SGER (Digital Govt. Program, Award # EIA0087076)  
Amount Funded: **\$62,602**  
Principal Investigator: **K.M. Kavi**  
Title: Exploratory research for correlating and data mining flight data from NTSB accident investigations.  
Period: Sept. 1, 2000 – Aug. 31, 2001
  27. Intergraph, Huntsville, Alabama.  
Amount Funded: **\$25,000** (Cash: \$15,000, Equipment: \$10,000)  
Principal Investigator: **K.M. Kavi**  
Title: Support for multithreaded programming of image processing
  26. NSF Research Experience for Undergraduates-Site (EIA-9820147)  
Amount Funded: **\$135,278** +\$10K supplement from NSF and \$15,000 matching from UAH  
Principal Investigators: **K. M. Kavi** and W. Cohen  
Title: Performance Measurement and Evaluation of Multithreaded Systems  
Period: June 1, 1999-May31,2002
  25. NSF CISE Postdoctoral Research (EIA-9805216)  
Amount Funded: NSF **\$65,880**, UAH Matching: \$50,000  
Principal Investigator: **K. M. Kavi**  
Title: Experimental research for the evaluation of multithreaded architectures  
Period: Feb. 1, 1999 – Jan. 31, 2001
  24. NSF-CDA. Research Instrumentation (EIA-9729889)  
Amount Funded: NSF **\$55,000**, UAH matching: \$60,000  
Principal Investigators: W. Cohen, **K. M. Kavi** and E. Wells  
Title: Measurement and Instrumentation of Multithreaded Systems  
Period: Feb. 15, 1998 - Feb. 14, 2001.
  23. NSF-CDA - Equipment Supplement ( MIP 9622593; MIP-9796310/CCR-9796310)  
Amount Funded: **\$19,582**  
Principal Investigator: **K. M. Kavi**  
Title: Design of a Distributed Computing Environment Using Microkernels
  22. NSF -CCR - Support for a workshop (CCR-9714873)  
Amount Funded: **\$10,000**  
Principal Investigator: **K. M. Kavi**  
Title: Workshop on New challenges and directions for systems research  
(July 31-Aug. 1, 1997, St. Louis, MO).
  21. NSF-ILI (Instrumentation and Laboratory Improvement) (DUE-9650119)  
Amount Funded: **\$81,500** from NSF, and \$64,800 matching from UTA  
Principal Investigators: D. Cook **K. M. Kavi** and B. Shirazi  
Title: A Micro-Kernel based Operating Systems Laboratory  
Period: Aug. 1, 1996 - July 31, 1999

20. NSF - MIPS Micro Systems Architecture (MIP-9796310/CCR-9796310)  
 Amount Funded: **\$382,857**  
 Principal Investigator: **K. M. Kavi**  
 Title: Investigation multithreaded dataflow and hybrid architectures  
 Period: June 1, 1996 - May 31, 2000
19. NSF- CISE Research Instrumentation (CDA-9529561)  
 Amount Funded: **\$62K** from NSF, \$30K from UTA  
 Principal Investigators: D. J. Cook, **K. M. Kavi** and B. Shirazi  
 Title: Design of distributed computing environment using PowerPC microkernel  
 Period: March 1, 1996 - Feb. 28, 1999
18. NSF - Research Experience for Undergraduates Site (CDA-9531535)  
 Amount Funded: \$113,690  
 Principal Investigators: B. Shirazi and **K. M. Kavi**  
 Title: Research Experience for Undergraduates in Software Tools for Concurrent Programming  
 Period: June 1, 1996 - May 31, 1999
17. Tarek Computers  
 Amount Funded: \$15,000  
 Principal Investigators: **K. M. Kavi** and Hee Yong Youn  
 Title: Parallelization of VERILOG logic simulation.  
 Period: March. 1, 1996 - Aug. 31, 1996
16. Texas Advanced Technology Program  
 Amount Funded: \$206,000;  
 Principal Investigator: B. Shirazi  
 Co-Investigator: **K. M. Kavi**  
 Title: PARSA: A parallel processing environment  
 Period: Jan. 1, 1996 - Dec. 31, 1997
15. National Science Foundation (NSF)  
 Amount Funded: \$87,833; Duration: 12 months  
 Start Date: Sept. 1, 1994  
 Principal Investigator: **K. M. Kavi**  
 Title: IPA Mobility Agreement  
 Period: Sept. 1, 1994 - Aug. 31, 1994
14. International Computing Technologies (NSF-SBIR subcontract)  
 Amount Funded: \$11,025; Duration: 6 months  
 Principal Investigator: **K. M. Kavi**  
 (Managed by Behrooz Shirazi due to my NSF appointment)  
 Title: Study of parallel power plant simulator  
 Period: March 1, 1994 - Dec. 31, 1994.
13. National Science Foundation (NSF)  
 Amount Funded: \$84,124  
 Principal Investigator: **K. M. Kavi**  
 Title: IPA Mobility Agreement  
 Period: Sept. 1, 1993 - Aug. 31, 1994.
12. NSF-Research Experience for Undergraduates.  
 Title: Software Tools for Parallel Program Development and Assessment  
 Principal Investigators: B. Shirazi, and **K. M. Kavi**  
 Amount Funded: \$119,375  
 Period: June 1, 1993 - May 31, 1996
11. NASA Langley Research Center.  
 Amount Funded: \$66000;  
 Title: Graduate Fellowship (for F.T. Sheldon)  
 Principal Investigator: **K. M. Kavi**  
 Period: Jan. 01, 1993 - Dec. 31, 1995
10. General Dynamics, Ft Worth Division.  
 Title: Formal Methods for Integrated Diagnostics Software Design  
 Principal Investigator: **K. M. Kavi**

- Amount Funded: \$22,000  
 Period: Jan. 1, 1992 - Dec. 31, 1992
9. NSF-Instrumentation and Laboratory Improvement  
 Title: Undergraduate Honors Program in Parallel Processing (HIPP)  
 Principal Investigators: B. P. Weems and **K. M. Kavi**  
 Amount Funded: \$78,318 UTA Matching funds: \$136,419  
 Period: Feb. 1, 1991 - Jan. 31, 1994
  8. State of Texas Coordinating Board - Advanced Technology Program  
 Title: The design of very high-performance object-oriented computer systems.  
 Principal investigators: **K. M. Kavi** and S. P. Hufnagle  
 Amount Funded: \$195,025  
 Period: Jan. 1, 1990 - Dec. 1991
  7. State of Texas Coordinating Board - Advanced Research Program  
 Title: Analysis of fault-tolerant computers using dataflow graphs.  
 Principal Investigator: **K. M. Kavi**  
 Co-Investigator: B.D. Carroll  
 Amount Funded: \$82,676  
 Period: June 1, 1988 - May 31, 1990.
  6. NASA-Ames Research Center. Feb 1984 - Mar. 1985.  
 Amount funded: \$ 32,685.  
 Principal Investigator: **K. M. Kavi**  
 Purpose: To develop reliability models for dataflow and demand driven computer systems.
  5. UTA Graduate School ORF, Sept. 1983-May 1984.  
 Amount funded: \$3,924  
 Principal Investigator: **K. M. Kavi**  
 Purpose: To study quantitative and qualitative characteristics of computer architecture.
  4. UTA Graduate School ORF, Summer 1984.  
 Amount funded: One month summer salary (\$2,500)  
 Principal Investigator: **K. M. Kavi**  
 Purpose: To perform preliminary investigation of software reliability using information theory and software science.
  3. IBM Equipment Gift. July 1983.  
 Amount funded: IBM donated SWARD to UTA  
 Principal Investigator: **K. M. Kavi**  
 Purpose: To debug and test SWARD.
  2. NASA-Langley Research Center, May 1982-Dec. 1983  
 Amount funded: \$93,761 (UTA share: \$47,328)  
 Principal Investigator: **K. M. Kavi**  
 Co-Principal Investigator: T.R.N. Rao (USL)  
 Purpose: To model ultrareliable avionics computers using dataflow graphs.
  1. Texas Instruments, May 1981-Apr. 1982.  
 Amount funded: \$50,000  
 Principal Investigator: B.D. Shriver (USL)  
 Co-Investigator: **K. M. Kavi**  
 Purpose: To develop the kernel of a distributed operating systems.

# Teaching and Student Supervision Activities

## Graduate Student Supervision

### Current Graduate Students

1. Chih-En Lin, PhD  
Title of Research: A framework for assessing real-time execution assurances of software design patterns  
Expected Date of Completion: May 2012
2. Tomislav (Tommy) Janjuusic, PhD  
Title: Instrumentation tool to identify cache conflicts among data objects, tasks and cores  
Expected Date of Completion: May 2012
3. Ademola Fawibe, MS  
Title: Cooperative Caches for multicore  
Expected Date of Completion: May 2012
4. Jared Sherman, MS  
Title: Memory architectures for next generation multicore chips  
Expected Date of Completion: May 2012
5. Juan Franco, MS  
Title: New Branch prediction approaches  
Expected Date of Completion: May 2012
6. Brandon Potter MS  
Title: Program Analysis Tools  
Expected Date of Completion: Dec 2012

### Former Students

#### Post-Doctoral Associates

##### At the University of North Texas (2001-)

3. Litong Song (2002-2004)  
Intel Corporation, Aspen, CO  
Research Conducted: Compiler optimizations for SDF

##### At the University of Alabama in Huntsville (1997-2001)

2. Roberto Giorgi (1999-2001)  
Department of Information Engineering, University of Siena, Siena, Italy  
Research Conducted: Evaluation of SDF architecture
1. Hong-Shik Kim (1998-2000)  
Department of Computer Science and Engineering, Chungnam National University, Daejeon, Korea  
Research conducted: Decoupled Multithreaded Architectures, SDF simulator

### Doctoral Students:

#### At the University of North Texas (2001-)

12. Wentong Li, **Graduation Date:** December 2007

Software Engineer, Turn, Inc., San Mateo, CA  
**Dissertation Title:** High Performance Architecture using Speculative threads and dynamic memory management hardware

11. Afrin Naz, **Graduation Date:** August 2007  
Assistant Professor, Dept of Information Technology, University of North Texas at Dallas  
**Dissertation Title:** Split Data Caches
10. Wenming Li, **Graduation Date:** August 2006  
**Dissertation Title:** Group-EDF - a new approach and an efficient non-preemptive algorithm for soft real-time systems
9. Mehran Rezaei, **Graduation Date:** May 2004  
Consultant, Washington, DC.  
**Dissertation Title:** Intelligent memory manager: Towards improving the locality behavior of allocation intensive applications.

#### **At the University of Alabama in Huntsville (1997-2001)**

8. Dejan Raskovic (co-Advisor with Dr. Emil Jovanov). Graduation Date: Aug. 2003  
Asst. Professor, Dept of ECE, University of Alaska - Fairbanks  
**Dissertation Title:** Personal Wireless Network for Medical Sensors
7. Mohamed Aborizka. **Graduation Date:** May 2002  
Faculty Member, Arab Academy for Science and Technology, Egypt  
**Dissertation Title:** A Framework for the Specification, Modeling and Analysis of Agent-Oriented Real-Time Intelligent Software Systems
6. Joseph Arul. **Graduation Date:** Aug. 2001  
Associate Professor, Computer Science, Fu Jen Catholic University, Taipei, Tawan  
**Dissertation Title:** Design, Implementation and Evaluation of the Scheduled Dataflow Architecture

#### **At the University of Texas at Arlington (1982-1997)**

5. Frederick T. Sheldon. **Graduation Date:** May. 1996  
Scientist, Oak Ridge National Laboratory, Oak Ridge, TN  
**Dissertation Title:** Specification and analysis of stochastic properties for concurrent systems expressed using CSP.  
*Received UTA Chapter Sigma Xi Doctoral Dissertation Award.*
4. T. Makphaibulchoke, **Graduation Date:** May 1992  
Hewlett-Packard, Ft. Collins, CO  
**Dissertation Title:** DISTIL: A specification, design and implementation language for reliable distributed computing
3. Akshay K. Deshpande, **Graduation Date:** Aug. 1990  
Shay Computing, Fremont, CA  
**Dissertation Title:** A framework and a proof system for concurrent processes  
*Received UTA College of Engineering Outstanding Graduate Student Award, 1988.*
2. Deng-Jyi Chen, **Graduation Date:** May 1988  
Professor, Dept. of Computer Science, National Chiao Tung University, Hsinchu, Taiwan.  
**Dissertation Title:** Stochastic dataflow graph models for reliability analysis of communication networks and computer systems.

1. Edward Walter Banios, **Graduation Date:** December 1986  
Deceased  
**Dissertation Title:** A conceptual model for interprocess message passing.

## **Masters:**

### **At the University of North Texas (2001-)**

41. Izu Nwachukwu (Thesis), May 2011  
Programmable decoders for improving cache conflicts
40. Vinay Rmachandraprabhu (non-thesis), Dec. 2010
39. Yuhua Zhang (Thesis) May 2004.  
Some optimizations to SDF Compiler
38. Chia-En Lin (Thesis), Dec. 2003  
A comparison of agent-oriented software engineering methodologies and frameworks

### **At the University of Alabama in Huntsville (1997-2001)**

37. Steven Conrad, MS (Paper Option), May 2001.
36. Ali Reza Mosthaghi, MS (Thesis), May 2001  
A Petri-net based testing tool for Pthread programs
35. Shuaib Hanief, MS (Thesis), May 2001  
A back-end compiler for a non-blocking multithreaded architecture, SDF.
34. Alireza Ramin Rahbin, MS (Paper option), May 1998.  
Comparison of Fibre Channel with Ultra SCSI for Disk accesses.  
Intergraph, Huntsville

### **At the University of Texas at Arlington (1982-1997)**

33. Richard A. Velasquez, MS (Thesis) Dec. 1997  
AMI: An active messages implementation  
AMR Corporation (American Airlines), Ft. Worth, Texas.
32. Alina Beatriz Hernandez, MS (Thesis), Dec. 1997  
Hyperactive Messages  
Tektronix, Dallas, Texas
31. David Sheely, MS (Thesis), August 1996  
Migratable Dynamically Linkable Objects: A new paradigm for client/server systems.  
*Received UTA College of Engineering Award for Exemplary Teaching by a Graduate Student, 1995.*  
Cambre Corporation -Texas, Dallas
30. S. Bakthavachalan, MS (Thesis), May 1996  
Reuse of Operand Memory in ETS Dataflow Architecture  
Texas Instruments, Dallas, Texas
29. Phenil Patadia, MS (Thesis), Dec. 1994  
Design and evaluation of I-structure cache memory for dataflow multiprocessor environment  
Nortel, Richardson, Texas
28. Elizabeth Abraham, MS (Thesis), Dec. 1994  
Cache memories for multiprocessor dataflow architectures  
Texas Instruments, Houston, Texas
27. Arshad Khan, MS (Thesis), Aug. 1994  
Converting IF1 to ETS architecture  
Instructor, GIK Institute of Engr., Topi-Swabi, Pakistan
26. John Robb, MS (Project), Dec. 1993  
Dataflow Architecture and Multithreading  
Lockheed-Martin, Ft. Worth, Texas
25. Paul McCarthy, MS (Project), Dec. 1993

- Object Name Resolution Techniques  
Independent Consultant, New Orleans, LA
24. Lisa Xu Miao, MS (Project), Dec. 1993  
A Performability Tool  
NEC-America, Irving, Texas
  23. P. Shanmugam, MS (thesis), Dec. 1993  
Cache Memories with Dynamic Dataflow architecture  
Nortel, Richardson, Texas
  22. Jayaram Anandampalli, MS (project), May 1993  
Debugging environment with Dataflow simulator DEK  
Lucent Technologies, New Jersey
  21. Barbara Baker Wyatt, MS (thesis), Dec. 1991  
***Received UTA Chapter Sigma Xi Research Award, May 1993.***  
Implementing inheritance in a distributed object-oriented environment  
Lockheed-Martin, Ft. Worth, Texas
  20. Vasu Vijayaraghavan, MS (thesis), Aug. 1991.  
Control-flow based extensions to dataflow language SISAL  
Anderson Consulting, Houston, Texas
  19. Srinivasan Kuthalam, MS (thesis), Aug. 1990  
Decomposition and aggregation of stochastic dataflow graphs  
OnRamp Corp, Dallas, Texas
  18. Chi Oyang, MS (thesis), Dec. 1989.  
Partitioning and mapping of parallel algorithms using dataflow graphs: Mapping  
SGI, California
  17. Kuoling Fang, MS (thesis), Dec. 1989  
Partitioning and mapping of parallel algorithms using dataflow graphs: Partitioning  
NEC-America, Irving, Texas
  16. M. M. Hamelfarb, MS (thesis), Aug. 1989.  
Logical verification of MRDF
  15. Greg Russ Hunt (thesis), May 1989  
LARS: A list, array, raster and string processor
  14. Steven C. Streiffert. (project) May 1989  
A concurrent C compiler for Transputer based systems
  13. Wen-Gong Shieh.(project) Dec 1988  
A concurrent C language for Transputers  
Professor, Chinese Cultural University, Taipei, Taiwan
  12. F.T. Sheldon, MS (thesis), Aug. 1988  
Software development and reliability modeling: Software life cycle model  
Oak Ridge National Labs
  11. A. Lindberg, MS (thesis), Dec. 1987.  
Code optimization for pipelined processors
  10. W.M. Lie, MS (project), Aug. 1986.  
A comparative evaluation of dataflow, pipelined and array processors for signal processing algorithms
  9. S. Bhattacharjee, MS (project), Aug. 1986.  
CACTTUES: A computer architecture teaching tool using expert systems
  8. J.T. Reynolds, MS (project), Dec. 1985.  
A survey of LISP machines.
  7. A. Srinivasamurthy, MS (project), Dec. 85.  
Simulation of computer systems using DFDLS
  6. R.M. Boyd., MS (thesis), Dec. 1985.  
DFDLS: A dataflow simulation environment
  5. D.J. Chen, MS (thesis), Aug. 1985.  
Implementation details of SWARD prototype, evaluation and proposed extensions  
Professor, National Chio-Tung University, Hsinchu, Taiwan
  4. D.E. Williams, MS (project), Aug. 1984

- 3. SWARD environment at UTA  
K. Krishnamohan, MS. (thesis), Aug. 1984.  
Architecture quality measurement  
Intel Corporation, Oregon
- 2. E.W. Banios, MS. (thesis), May 1984.  
A message repository model for distributed operating systems  
Deceased

**At the University of Louisiana (formerly known as the University of Southwestern Louisiana) (1980-1982)**

- 1. T. Wu (at USL): MS (thesis), Aug. 1982.  
Performance evaluation of Multics at USL  
Professor, Southern Illinois University at Edwardsville

## **Teaching**

**At the University of North Texas (2001-)**

CSCE 2610: Assembly Language and Computer Organization  
 CSCE 5610/4610: Computer Architecture  
 CSCE 6720: Advanced Computer Architecture: Multithreaded systems  
 CSCI 3100: Computer Organization  
 CSCI 5200: Automata Theory  
 CSCI 5700: Computer Systems Architecture  
 CSCI 4330/5330: Special Topics: Principles of Parallel Programming using MPI and Pthreads  
 CSCI 6330: Special Topics – Distributed Shared Memory Systems  
 CSCI 6720: Advanced Computer Architecture: Multithreaded systems

**At the University of Alabama in Huntsville (1997 - 2001)**

CPE 302: Design of Digital Computes  
 CPE 510/CPE512: Introduction to Parallel Programming  
 CPE 610(CPE561): Translation Systems  
 CPE 610 (CPE619): Performance Modeling and Analysis  
 CPE 631: Architecture of Parallel Processors  
 CPE 642 (CPE 612): Parallel Algorithms  
 CPE 710/CPE731): Distributed Shared Memory Systems

**At the University of Texas at Arlington (1982-1997):**

CSE 1442 (No longer in the catalog): Introduction to CSE II  
 CSE 3302: Survey of Algorithmic Languages  
 CSE 3315: Theoretical Computer Science  
 CSE 3441: Digital Logic and Computer Organization  
 CSE 3322 (Previously CSE 4322): Computer Architecture I  
 CSE 4323: Computer Architecture II  
 CSE 5306 (Previously CSE 5303): Design of Operating Systems  
 CSE 5305 (Previously CSE 5304): Design and Construction of Compilers  
 CSE 5440 (Previously CSE 5407): Computer Organization  
 CSE 5350 (Previously CSE 5308): Computer Systems Architecture  
 CSE 5302 (Previously CSE 5313): Algorithmic Languages  
 CSE 5305 (Previously CSE 5312): Theoretical Computer Science  
 CSE 5313 (Previously CSE 5317): Mathematical Models for Computer Systems

CSE 5314 (Previously CSE 5337) Performance Measurement and Evaluation  
CSE 5340 (No longer in the catalog) Architectures for non-numeric processors  
CSE 6306 (Previously CSE 6311): Advances in Operating Systems  
CSE 6351 (Previously CSE 6330): Parallel Processing  
CSE 6350 (Previously CSE 6339): Advanced Topics in Computer Architecture  
CSE 6351: Advanced Topics in Parallel and Distributed Processing  
CSE 6352 (Previously CSE 6343) : Fault-Tolerant Computing

**At the University of Louisiana (formerly University of Southwestern Louisiana) (1980-1982):**

CMPS 430: Introduction to Computer Architecture  
CMPS 431: Microprocessors and Microcomputers  
CMPS 513: Principles of Computer Communications and Networks  
CMPS 530: Principles of Computer Systems Organization  
CMPS 630: Advanced Computer Structures  
CMPS 639: Advanced Topics in Computer Architecture

**At Southern Methodist University (1978-1980):**

CS 1316: Introduction to Computer Science for Engineers (Fortran)  
CS 1340: Advanced Computer Programming  
CS 3100: Digital Logic Lab  
CS 3360: Digital Logic and Computer Organization.

## **New Courses, Curricula and Teaching Tools Developed**

**At the University of North Texas (2001-)**

**Curricula:**

- 2002-2003. Developed BS and MS Computer Engineering Curricula

**At the University of Alabama in Huntsville (1997-2001)**

**Courses:**

- CPE 710: Distributed Shared Memory System. Developed this new course emphasizing the current research in shared memory and distributed shared memory processing. This course is renumbered as CPE 731 in 2001 catalog
- CPE 542: Parallel Programming Techniques. Modified the current course to introduce multithreading and OpenMP Fortran. This course is renumbered as CPE 512 in 2001 catalog
- CPE 410/510: Introduction to Parallel Programming. Developed a new course as a part of the NSF REU-Site grant, to train undergraduate student in parallel programming techniques, particularly using Pthreads. This course is renumbered as CPE 412 in 2001 catalog.

**Curricula:**

- 2000-2001. Developed a joint PhD program in Computer Engineering to be managed by the ECE department at UAH and the ECE department at UAB.
- 2000-2001. Graduate and Undergraduate Curriculum. Revised, renumbered all courses in Computer Engineering.
- 1999-2000. Graduate Curriculum. Revised, renumbered graduate courses in Computer Engineering. Streamlined MSE Programs by defining a CORE and areas of specialization.
- 1999-2000. Graduate Curriculum. Developed Distance Learning MSE program in Computer Engineering with Computer Communications And Networks As Specialization.
- 1998-1999. Undergraduate Curriculum. Revised and restructured the CPE degree to increase Computer related courses and permit 9 hours of technical electives

- 1997-1998. Graduate Curriculum. Restructured a number of courses and facilitated graduate degrees with courses well suited for local industrial concerns.

### **At the University of Texas at Arlington (1982-1997)**

#### **Courses:**

- CSE 1442: Introduction to Computer Science and Engineering-II. Developed this new course emphasizing the mathematical foundations of computer science. Although developed in conjunction with the Honors program in Parallel Processing (HIPP), the CSE Undergraduate Studies Committee has accepted this as the second core course for all CSE majors. This course was taught for the first time in Fall 1991.
- CSE 3346 and CSE 3347. Developed a two course sequence on systems software to introduce the basic principles, algorithms and design issues related to software systems including assemblers, linkers, loaders, compilers, operating systems, link-level network protocols, file structures and file-transfers. Although developed in conjunction with the Honors program in Parallel Processing (HIPP), the CSE Undergraduate Studies Committee has accepted the two courses for all CSE majors (replacing current courses on Systems Programming and Operating Systems). These course will be taught for the first time starting in Fall 1991.
- CSE 4322: Completely revised the course, and made it into a project intensive course, and taught the course several times since Spring 1984.
- CSE 4323: Designed the course and taught two times since Fall 1988 for undergraduate students in Architecture Track.
- CSE 4351: Developed this course for students interested in learning about parallel programming techniques. This course is developed specifically for the Honors program in Parallel Processing.
- CSE 5317 (New Course Number is CSE 5313): Revised and taught the course in Spring 1990 to first year graduate students in an attempt to introduce mathematical techniques and tools needed for research in computer systems (including Graph theory, Petri-nets, Stochastic Processes)
- CSE 5337 (New Course Number is CSE 5314): Revised and taught the course two times starting in Summer 1986 to graduate students interested in measuring and tuning computer systems performance, and computer capacity planning.
- CSE 5340 : Designed and taught this course three times starting in Fall 1985 to advanced graduate students interested in non-numeric processing systems such as database machines, LISP/Prolog machines and Graphics processors.
- CSE 6339 (New Course Number is CSE 6350): Designed and taught this course four times starting in Spring 1983 to advanced graduate students interested in language-directed, object-based and capability-based computer systems.

#### **Curricula:**

- HIPP: Undergraduate honors program in parallel processing (with B. Weems, S.M. Yang and D. Umbaugh) (Also developed 4 new courses, CSE 1442, CSE 3346, CSE 3347, CSE 4351)
- Revised CSE Undergraduate Curriculum for 1993 catalog.
- A New MS in CSE option called Non-Thesis-Non-Project (with L. Peterson and D. Umbaugh).
- Architecture Track for MS degrees (with V.K. Raj, T.C. Lin and B.D. Carroll)

#### **Teaching techniques or material developed.**

- Developed an expert system to aid the students in their project design, (for the selection of an instruction set), used it in CSE 4322 at the University of Texas at Arlington, during the years 1986-1988. This system was developed as a part of an MS project by S. Bhattacharjee.
- Developed a Microprogramming Simulator (with an Undergraduate student) that was used in CSE 430, at the University of Southwestern Louisiana until 1984.

## Service Related Activities

### Scientific and professional society membership:

5. Member of Intelligent Systems Technical Committee, AIAA (2001-2004)
4. IEEE computer society, Senior Member (since 1986)  
Technical committees on Architecture, Distributed processing
3. Association for Computing Machinery.  
SIGARCH, SIGPLAN, SIGOPS, SIGMICRO.
2. Sigma Xi, UTA chapter.
1. Upsilon Pi Epsilon, UTA chapter

### Professional Service Activities

13. Editor, International Scholarly Research Network Journal of Software Engineering (2011-)
12. *Editor, Journal of Information Science and Engineering, Published by Academia Sinica, Taiwan (2011-2015)*
11. Co-Chair, \_Metroplex Technology Business Council (MTBC) Innovation Team, Special Interest Group on Cloud Computing, 2010-
10. *ABET (Computer Engineering) Evaluator, 1999-2005*
9. Guest Editor, IEEE Software, Sept. 1996 Special Issue on Assessment of Software Tools
8. *Editor, IEEE Transactions on Computers, 1993-1997.*
7. IEEE CS Technical Committee on Distributed Computing Systems Executive Committee (1992)
6. *CSAB Evaluator, 1991--1997.*
5. Distinguished Visitor, IEEE Computer Society 2005-2007 and 1989-1992.
4. *Editor, IEEE CS-Press (1988-1992)*
3. Written letters for Tenure and Promotion of faculty at various universities.
2. Reviewer  
Journals: ACM Tr. on Comp. Systems, IEEE Transactions on Computers, IEEE Transactions on Software Engineering, IEEE Transactions on Parallel and Distributed Systems, Journal of Parallel and Distributed Computing, IEEE Tr. on Reliability, IEEE Computer, IEEE Software, IEEE Micro, Proceedings of the IEEE, Journal of Systems and Software, EUROMICRO Microprocessors/ Microcomputer, EUROMICRO Journal of Systems Architecture, International Journal of Reliability, Quality and Safety Engineering, Slovenian International Journal Informatic, Parallel and Distributed Computing Practices (PDCP), ISCA Journal of Computers and Their Applications, ETRI Journal (Korea), Journal of Universal Computing (Europe), ACTA Press International Journal of Power and Energy Systems. CSI Journal of Computer Science and Engineering (2008-2009), IEEE Micro  
Elsevier Information and Software Technology  
Conferences: IEEE/ACM Symposium on Computer Architecture (1982-85, 87-88, 90, 92-93), IEEE Parallel Processing (1988, 1989-92), IASTED Intl. Conf. on Modl. and Siml. (1983, 1989, 1990), Hawaii Intl. conf. on system sciences (1989-96, 2010-2011), Phoenix Conf on Computers and Communications (1988, 1991), IEEE Intl. Conf on Distr. Comp. Syst.(1986, 1988, 1991), ICPADS-94, COMPSAC'95, IPPS (1993-95), ASPLOS-96, ASPLOS-98, HPCA (1996-99), Euro-PDS (1997, 1998), PAPM98, ISPAN-99, PDCS-99, PDCS-2001, PDCS-2002, PDCS-2003, ICA3PP-2000, ICA3PP-2002, ICA3PP-2005, IPDPS-2004, IEEE Intl Conf on Information Reuse and Integration (IEEE IRI) – 2004, IEEE IRI-2005.  
16<sup>th</sup> ACM Principles and Practice of Parallel Programming (PPoPP-2011), San Antonio, Feb 12-16, 2011)  
Book Publishers: Prentice-Hall publishing company, John-Wiley & Sons, McGraw-Hill, Morgan-Kaufman  
Research Proposals: National Science Foundation, DARPA, AFOSR  
Site Visits On Behalf of NSF
1. Conference organization/participation

General Chair: SCOPES-2005. Software and Compilers for Embedded Systems, Sept 2005, Dallas, Texas

PC Chairman: IEEE Intl. Workshop on CSO (New Orleans, March 1983)  
NSF Workshop on New challenges and directions for systems research, July 31-Aug. 31, 1997, St. Louis, MO.

PC Vice Chair: The 40<sup>th</sup> Annual International Conference on Parallel Processing (ICPP 2011), September 13-16, 2011, Taipei, Taiwan

Program Committee:

IEEE Consumer Communications & Networking Conference (CCNC'2012), Jan. 14-17, 2012, Las Vegas, Nevada

19<sup>th</sup> International Heterogeneity Computing Workshop (HCW 2011), held in conjunction with IEEE International conference on Parallel and Distributed Processing Systems (IPDPS 2011).

IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA10), Taipei, Taiwan, Sept 6-9, 2010

ACM 6<sup>th</sup> Annual Cyber Security and Information Intelligence Research Workshop [CSIIRW-6], Oak Ridge, TN on April 21 - 23, 2010

HiPEAC Workshop on Reconfigurable Computing (WRC)  
5<sup>th</sup> WRC-2011 (Heraklion, Crete, Jan. 23, 2011)  
4<sup>th</sup> WRC-2010 (Pisa, Italy, January 23, 2010)

The 4<sup>th</sup> IET International Conference on Intelligent Environments (IE08), Seattle, July 21-22, 2008.

International Conference on Software and Data Technologies (ICSOFT),  
3<sup>rd</sup> (ICSOFT-2008), Porto, Portugal, July 5-8, 2008.  
2<sup>nd</sup> (ICSOFT-2007) Barcelona, Spain, July 22-25, 2007.  
1<sup>st</sup> (ICSOFT-2006) Seubal, Portugal, Sept 11-14, 2006

International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)  
Eight ICA3PP-2008, June 9-11, 2008, Cyprus  
Seventh ICA3PP-2007, June 11-14, 2007, Hagnzou, China  
Sixth ICA3PP-2005, Oct. 2-5, 2005, Melbourne, Australia.  
Fifth ICA3PP-2002, Beijing, China, Oct. 2002.  
Fourth ICA3PP-2000 Hong Kong, Dec. 11-13, 2000.

MEDEA Workshop-- Held in Conjunction with the International Conference on Parallel Architectures and Compiler Technologies (PACT)  
MEDEA-2007, Sept. 15-19, Brasov, Romania  
MEDEA-2006, Sept. 16-20, Seattle, WA  
MEDEA-2005, Sept. 19-20, 2005, St. Louis, MO  
MEDEA-2004, Sept. 29- Oct.3, 2004, France.  
MEDEA-2003, Oct. 2003, New Orleans.  
MEDEA-2002 - Charlottesville, Virginia, USA  
MEDEA-2001.- Sept. 8-12, 2001, Barcelona, Spain.

IEEE International Conference on Information Reuse and Integration  
IRI-2005, Las Vegas, USA, Aug. 15-17, 2005  
IRI-2004, Las Vegas, USA, Nov. 1-3, 2004.

HCW'01: The 10<sup>th</sup> Heterogeneous Computing Workshop, April 23-27, 2001, San Francisco, CA  
 19th IEEE International Performance, Computing, and Communications Conference (IPCCC 2000), February 20-22, 2000, Phoenix, Arizona.  
 Sixth international workshop on Process Algebras and Performance Evaluation (PAPM98), Nice, France, Sept. 12, 1998.  
 First International Conference on Parallel and Distributed Systems (EURO-PDS'97), June 9-11, 1997, Barcelona  
 IEEE Symposium on Assessment of Software Tools (SAST) (Toronto, May 22-24, 1996).  
 3rd IEEE Quality Assessment of Software Tools (June 7-9, 1994, Washington, IEEE International Conference on High Performance Computing, (New Delhi, India, Dec. 28-30, 1995).  
 4th IEEE Intl. Workshop on Evaluation Techniques for Dependable Systems, San Antonio, TX, Oct. 2-3, 1995.  
 IEEE COMPSAC'95, (Dallas, Texas, Aug. 7-10, 1995)  
 IEEE Intl. Conf. on Distr. Comp. Syst. (ICDCS), 1991  
 IEEE Symp on Parallel and Distr. Proc. (SPDP), 1990, 1991  
 IEEE/ACM International Symposium on Computer Architecture  
 11<sup>th</sup> ISCA, May 1984, Ann Arbor, MI  
 12<sup>th</sup> ISCA, May 1985, Boston, MA

Workshops Chair: PACT-2000 (International Conf on Parallel Architectures and Compiler Technologies), Oct. 15-19, Philadelphia, PA  
 Awards Committee: ICDCS-99. Chair, Best Paper Awards

Minitrack Coordinator:

30th Hawaii International Conference on Syst. Sciences, (Maui, Hawaii, Jan. 7-10, 1997).  
 29th Hawaii International Conference on Syst. Sciences, (Maui, Hawaii, Jan. 4-7, 1996).

Panel Moderator: SPDP, San Antonio, TX, Oct. 25-27, 1995  
 Sixth international workshop on Process Algebras and Performance Evaluation (PAPM98), Nice, France (Sept 12, 1998)

Panelist: ICPADS-94, Hsinchu, Taiwan, Dec. 19-21, 1994.

Session Chairman:

NCC-81 (Chicago, 1981)  
 11th Computer Architecture Symposium (Ann Arbor, May 1984)  
 12th Computer Architecture Symposium (Boston, May 1985)  
 Midcon-90 (Dallas, Oct. 1990)  
 2nd Symp on Parallel and Distr. Proc. (Dallas, Dec. 1990)  
 5th Symp on Parallel and Distr. Proc. (Dallas, Dec. 1993)  
 Symposium on Applied Computing, (Kansas City, MO, March 1991)  
 25th Hawaii Intl Conf on Syst. Sci. (HICSS) (Jan 1992)  
 27th Hawaii Intl Conf on Syst. Sci. (Jan 94)  
 30th HICSS, Jan. 1997, Maui, Hawaii.  
 3rd Quality assessment of Software Tools (June 1994)  
 Fault-Tolerant Systems and Software, IIT Madras, India (Dec. 1995)  
 PDCS-96 (Symposium on Parallel and Distributed Processing), Oct. 23-26, 1996, New Orleans, Louisiana.  
 PDCS-99, Ft. Lauderdale, FL, Aug. 18-20, 1999.  
 PDCS-2005, Las Vegas, Sept. 12-14, 2005.  
 ISPAN-99, Fremantle, Western Australia, June 23-25, 1999

Steering Committee: Symposium on Parallel and Distr Processing, 1990-1996.

## **University and Departmental Committees**

### **At the University of North Texas (2001-**

1. Director NSF Net-Centric Industry/University Cooperative Research Center
2. Department Chair (2001-2009)
3. CSE Executive Committee (2001-2009)
4. College of Engineering representative on UNT RCM ad hoc committee (2004-2005)
5. Executive Committee, UNT Chair's Council (2007-2009)

### **At the University of Alabama in Huntsville (1997-2001 )**

1. Chair, College of Engineering Planning Committee (2000-2001)
2. Member, ECE Planning Committee (2000-2001)
3. Chair, Computer Engineering Affairs Committee (2000-2001)
4. Member, ECE Graduate Affairs Committee (1998-1999)
5. Member, College of Engineering Curriculum Committee (1998-1999)
6. Member, ECE Research Enhancement Committee (1997-1999)
7. Member, ECE Planning committee (1998-1999)
8. Member, ECE Faculty Recruiting Committee (1998-199)
9. Member, Search Committee for VP-Research (1998)
10. Chair, Faculty Re-appointment Committee for Cohen, Fork, Gaede, Shtessel (1998)
11. Chair, Computer Engineering Committee (standing committee)
12. Member, ECE Tenure and Promotions Committee (standing committee)
13. Chair, ECE Research Enhancement Committee (1997)
14. Member, College of Engineering Promotions and Tenure Committee (1997-1999)
15. Member, UAH Minigrants Evaluation Committee (1997-1999)

### **At the University of Texas at Arlington (1982-1997)**

1. PhD Admissions Committee (1995-1997)
2. CSE Research enhancement committee (member 1991-1997, chair 1992, 93, 95)
3. Undergraduate studies committee (1988-1993)
4. Undergraduate advisor (1988-1993))
5. Faculty Recruiting committee (1990-1993, 1995-96)
6. Library representative (1989-1992)
7. Graduate studies committee (standing committee)
8. Tenure and promotions committee (standing committee)
9. Ad-hoc committee on long-range-planning(1986-1987)
10. Dean's search committee (1987)