EXHIBIT C

Curriculum Vitae
Mark T. Jones

Work Address: US Citizen
302 Whittemore Hall   DOB 3/15/1965
ECE Department   (540) 231-8849
Virginia Tech   mtj@vt.edu
Blacksburg VA 24060

EDUCATION

- Ph.D., Computer Science, Duke University, May 1990
  - Von Neumann Fellowship, Duke University, 1986-1989
- B.S. *summa cum laude*, Computer Science, Clemson University, May 1986
  - R. F. Poole Scholarship, Clemson University, 1983-1986
  - National Merit Scholar, 1983

EMPLOYMENT

- Professor of Electrical and Computer Engineering, Virginia Tech, 6/07 – present
- Associate Professor of Electrical and Computer Engineering, Virginia Tech, 4/00 - present
- Assistant Professor of Electrical and Computer Engineering, Virginia Tech, 8/97 – 3/00
- Assistant Professor of Computer Science, University of Tennessee, 8/93 – 7/97
- Assistant Computer Scientist, Mathematics and Computer Science Division, Argonne National Laboratory, 6/90 – 7/93

PROFESSIONAL HONORS AND AWARDS

Research Recognition
- 2003-2004 VBI Faculty Fellow
- 1st prize and Honorable Mention at AOL-CIT Research Day 2002
- 1995 NSF CAREER Award
- 1995 & 1996 University of Tennessee (Knoxville) Science Alliance Award
- 1994 Atanasoff Best Paper Award, 3rd National Symposium on Large-Scale Structural Analysis
- 1992 Gordon Bell Prize, awarded by IEEE Computer Society
- 1992 Honorable Mention, Intel Grand Challenge Computing Award

Teaching Recognition
- *College of Engineering Dean's List*, Virginia Tech: Fall 1997, Spring 1998, Fall 2002, Fall 2002, Spring 2005

PAPERS IN REFEREED JOURNALS

- Jian Liu, T. E. Lockhart, M. Jones, and T. Martin, "Local Dynamic Stability Assessment of Motion Impaired Elderly Using Electronic Textile Pants," *IEEE Transactions on Automation Science and Engineering*, vol. 5, issue 4, pp. 696-702, October 2008.
- Madhup Chandra, Mark Jones, and Thomas Martin, "E-Textiles for Autonomous Location Awareness," *IEEE Transactions on Mobile Computing*, vol. 6, issue 4, pp. 367-380, April 2007.
- Zahi Nakad, Mark Jones, Thomas Martin, and Ravi Shenoy, "Using Electronic Textiles to Implement an Acoustic Beamforming Array: A Case Study," *Pervasive and Mobile Computing Journal*, vol. 3, issue 5, pp. 581-606, October 2007.
- Mark Jones, Zahi Nakad, Paul Plassmann, Yanhua Yi, "The Use of Configurable Computing for Computational Kernels in Scientific Simulations," *Intern. Journal of Future Generation Computer Systems*, 22 (1-2), pp. 67-79 (2006**)**.

- J.-R. Cheng, M. T. Jones, and P. E. Plassmann, "A Portable Software Architecture for Mesh-Independent Particle Tracking Algorithms," *Journal of Parallel Algorithms and Applications*, 19 (2-3), 145-161, 2004.
- Jae H. Park, Gary Friedman and Mark Jones, "Geographical Feature Sensitive Sensor Placement," *Journal of Parallel and Distributed Computing*, volume 64, 2004, pp. 815-825.
- D. Marculescu, R. Marculescu, N. Zamora, P. Stanley-Marbell, P. K. Khosla, S. Park, S. Jayaraman, S. Jung, C. Lauterbach, W. Weber, T. Kirstein, D. Cottet, J. Grzyb, G. Tröster, M. Jones, T. Martin, Z. Nakad, "Electronic Textiles: A Platform for Pervasive Computing," *Proceedings of the IEEE*, volume 91, number 12, December 2003, pp. 1995-2018.
- Kiran Puttegowda, David I. Lehn, Jae H. Park, P. Athanas and Mark Jones, "Context Switching in a Run-Time Reconfigurable System," *Journal of Supercomputing,* Kluwer Academic Press, June 2003, pp 239-257.
- Mark Jones, Shashank Mehrotra, and Jae Hong Park, "Tasking Distributed Sensor Networks," *Journal of High Performance Computing Applications*, Vol 16, pp. 243-257, 2002.
- Eloise Coupey and Mark Jones, "A Script-Based Approach for E-Commerce Applications," *Quarterly Journal of Electronic Commerce*, to appear.
- Eloise Coupey and Mark Jones, "Decision Making in the Electronic Commerce Environment: Issues and Approaches for Tool Development," *Quarterly Journal of Electronic Commerce*, Vol 1, pp. 215-228, 2000.
- Mark Jones and Karthik Ramachandran, "Unstructured Mesh Computations on CCMs," *Advances in Engineering Software*, Vol. 31, pp. 571-580, 2000.
- Mark Jones and Paul Plassmann, "Unstructured Mesh Computations on Networks of Workstations," *Computer-Aided Civil and Infrastructure Engineering*, Vol. 15, 196-208, 2000.
- Lori Freitag, Mark Jones, and Paul Plassmann, "A Parallel Algorithm for Mesh Smoothing," *SIAM Journal on Scientific Computing*, Vol 20, pp 2023-2040, 1999.
- William Barry, Mark Jones, and Paul Plassmann, "Parallel Adaptive Mesh Refinement Techniques for Plasticity Problems," *Advances in Engineering Software*, Vol. 19, pp. 217-229, 1998.
- Mark Jones and Paul Plassmann, "Adaptive Refinement of Unstructured Finite-Element Meshes*,"* *Journal of Finite Elements in Analysis and Design*, Vol. 25, pp. 41-60, 1997.
- Mark Jones and Paul Plassmann, "Parallel Algorithms for Adaptive Mesh Refinement," *SIAM Journal of Scientific Computing*, Vol. 18, pp. 686-708, 1997.
- Robert Gjertsen, Mark Jones, and Paul Plassmann, "Parallel Heuristics for Improved, Balanced Graph Colorings," *Journal of Parallel and Distributed Computing*, Vol. 37, pp. 171-186, 1996.
- Mark Jones and Daniel Szyld, "Two-stage Multisplitting Methods with Overlapping Blocks," *Numerical Linear Algebra with Applications*, Vol. 3, pp. 113-124, 1996.
- Mark Jones and Paul Plassmann, "An Improved Incomplete Cholesky Factorization*,"* *ACM Trans. on Mathematical Software*, Vol. 21, pp. 5-17, 1995.
- Mark Jones and Paul Plassmann, "Algorithm 740: Fortran Subroutines to Compute Improved Incomplete Cholesky Factorizations," *ACM Trans. on Mathematical Software*, Vol. 21, pp. 18-19, 1995.
- Mark Jones and Paul Plassmann, "Results for Parallel Unstructured Mesh Computations*,"* *Computing Systems in Engineering*, Vol. 5, pp. 297-309, 1994.
- Mark Jones and Paul Plassmann, "Scalable Iterative Solution of Sparse Linear Systems," *Parallel Computing*, Vol. 20, pp. 753-773, 1994.
- Mark Jones and Merrell Patrick, "Factoring Indefinite Matrices on High-Performance Architectures," *SIAM Journal on Matrix Analysis and Applications*, Vol. 15, pp. 273-283, 1994.
- Mark Jones and Paul Plassmann, "Computation of Equilibrium Vortex Structures for Type-II Superconductors," *Int. J. Supercomputing Applications*, Vol.7.2, pp. 129-143, 1993.
- Mark Jones and Paul Plassmann, "A Parallel Graph Coloring Heuristic," *SIAM J. on Scientific and Statistical Computing*, Vol. 14, pp. 654-669, 1993.
- Mark Jones and Merrell Patrick, "Bunch-Kaufman Factorization for Real Symmetric Indefinite Banded Matrices, *SIAM Journal of Matrix Analysis and Applications*, Vol. 14, pp. 553-559, 1993.
- Mark Jones and Merrell Patrick, "The Lanczos Algorithm for the Generalized Symmetric Eigenproblem on Shared-Memory Architectures," *Applied Numerical Mathematics*, Vol. 12, pp. 377-389, 1993.

- Daniel Szyld and Mark Jones, "Two-stage and Multi-splitting Methods for the Parallel Solution of Linear Systems," *SIAM Journal of Matrix Analysis and Applications*, Vol.13, pp. 671-679, 1992.

REFEREED PAPERS IN CONFERENCE PROCEEDINGS

- M. Shelburne, C. Patterson, P. Athanas, M. Jones, B. Martin, and R. Fong, "Metawire: Using FPGA Configuration Circuitry to Emulate a Network-on-Chip", *Field Programmable Logic and Applications*, September 2008, pp. 257-262.
- M. Jones, T. Martin, and B. Sawyer, "An Architecture for Smart Textiles", Third International Conference on Body Area Networks, March 2008, to appear.
- David Graumann, Giuseppe Raffa, Meghan Quirk, Braden Sawyer, Justin Chong, Mark Jones, Thomas Martin, "Large Surface Area Electronic Textiles for Ubiquitous Computing: A Systems Approach", *MobiQuitous '07*, August 2007, pp. 1-8.
- George Eichinger, Tom Martin, and Mark Jones, "From Circuit to Sewing in One Click," *ISWC 2007*.
- J. Edmison, D. Lehn, M. Jones, and T. Martin, An E-Textile Based Automatic Activity Diary for Medical Annotation and Analysis, *2006 Workshop on Body Sensor Networks*, April 2006, pp. 131-134.
- C. Einsmann, M. Quirk, B. Muzal, B. Venkatramani, T. Martin, and M. Jones, "Modeling a Wearable Full-body Motion Capture System," *Proceedings of the 2005 IEEE International Symposium on Wearable Computers (ISWC)*, October 2005, pp. 144-151.
- J. Edmison, D. Lehn, M. Jones, and T. Martin, "Users' Perceptions of an Automatic Activity Diary for Medical Annotation and Analysis," *Proceedings of the 2005 IEEE International Symposium on Wearable Computers (ISWC)*, October 2005, pp. 192-193.
- M. Chandra, M. Jones, and T. Martin, "E-Textiles for Autonomous Location Awareness," *Proceedings of the 2004 International Symposium on Wearable Computers*, Arlington, VA, Oct. 31-Nov. 3, 2004, pp. 48-55.
- Zahi Nakad, Mark Jones, and Tom Martin, "Fault Tolerant Networks for Electronic Textiles," *CIC 2004*, Las Vegas, June 2004, pp. 100-106.
- Zafer Gurdal, Tom Hartka, Mark Jones, and Sun Wook Kim, "A Reconfigurable Approach to Structural Engineering Design Computations," *ERSA 2004*, Las Vegas, June 2004.
- Jones, Mark T., and Eloise Coupey, "An Agent-based Simulation Prototype for Evaluating Health Behavior Interventions," *METMBS 2004*, Las Vegas, June 2004.
- Thomas Martin, Mark Jones, Joshua Edmison, Tanwir Sheikh, and Zahi Nakad, "Modeling and Simulating E-Textile Applications *Proceedings of the ACM Conference on Languages, Compilers, and Tools for Embedded Systems*, June 11-13, 2004, pp. 10-19.
- Lehn, D., C. Neely, K. Schoonover, T. Martin, and M. Jones, "e-TAGS: e-Textile Attached Gadgets." *Communication Networks and Distributed Systems Modeling and Simulation Conference*, January 2004.
- M. Abdalla, S. W. Kim, Z. Gürdal, and M. T. Jones, "Multigrid Accelerated Cellular Automata for Design Optimization of Continuum Structures: A 1-D Implementation", 45th *AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference*, April 2004.
- Zahi Nakad, Mark Jones, and Tom Martin, "Communication in Electronic Textile Systems," *2003 International Conference on Communications in Computing (CIC 2003)*, pp. 37-43.
- Mark Jones, Paul Plassmann, Zahi Nakad, and Yanhua Yi, "The Use of Configurable Computing in Scientific Simulations," *2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03)*, pp. 520-524.
- Mark Jones, Mukta Nandwani, Jae Park, Paul Plassmann, and Yanhua Yi, "Examining the Communication Requirements of Remote Scientific Visualization," *2003 International Conference on Communications in Computing (CIC 2003)*, pp. 31-36.
- T. Martin, M. Jones, J. Edmison, and R. Shenoy, "Towards a Design Framework for Wearable Electronic Textiles," *International Society for Wearable Computers 2003*, pp. 190-199.
- M. Jones., T. Martin, Z. Nakad, R. Shenoy, T. Sheikh, D. Lehn, and J. Edmison, "Analyzing the Use of E-textiles to Improve Application Performance," *IEEE Vehicular Technology Conference 2003, Symposium on Wireless Ad hoc, Sensor, and Wearable Networks*.

- Mark Jones, Tom Martin, and Zahi Nakad, "A Service Backplane for e-Textiles," *MAMSET 2002: Proc. Workshop on Modeling, Analysis and Middleware Support for Electronic Textiles*, 6 October 2002, pp. 15-22.
- J. Edmison, M. Jones, Z. Nakad and T. Martin "Using piezoelectric materials for wearable electronic textiles," *Wearable Computers, 2002. (ISWC 2002). Proceedings. Sixth International Symposium on* pp. 41-48, 2002.
- Mark Jones, Lucas Scharf, Jon Scott, Christian Twaddle, Matthew Yaconis, Kuan Yao, Peter Athanas, and Brian Schott, "Implementing an API for Distributed Adaptive Computing Systems," *Proceedings of IEEE Symposium on Field-Programmable Custom Computing Machines*, Napa, CA, April, 1999).
- Jason Hess, David Lee, Scott Harper, Peter Athanas, and Mark Jones, "Implementation of a Prototype Reconfigurable Router," *Proceedings of IEEE Symposium on Field-Programmable Custom Computing Machines*, Napa, CA, April, 1999, to appear 7 pages).
- David Lee, Mark Jones, Scott Midkiff, and Peter Athanas, "Towards Active Hardware," Lecture Notes in Computer Science 1653, Springer-Verlag, pp. 180-187, 1999.
- Lori Freitag, Mark Jones and Paul Plassmann, "The Scalability of Mesh Improvement Algorithms," *The IMA Volumes in Mathematics and its Applications*, Vol. 105, pp. 185-211, 1998.
- Lori Freitag, Mark Jones, and Paul Plassmann, "An Efficient Parallel Algorithm for Mesh Smoothing," *Proceedings of the 4th International Meshing Roundtable*, Albuquerque, NM, pp. 47-58, 1995.
- Mark Jones and Paul Plassmann, "The efficient parallel iterative solution of large sparse linear systems," *The IMA Volumes in Mathematics and its Applications*, Vol. 56, pp. 229-245, 1993.
- Mark Jones and Paul Plassmann, "Solution of Large, Sparse Systems of Linear Equations in Massively Parallel Applications," *Supercomputing '92 Proceedings*, IEEE Computer Society, pp. 551-560, 1992.
- Mark Jones, Merrell Patrick, and Robert Voigt, "A Language Comparison for   Scientific Computing on MIMD Architectures," *Proceedings of the IFIP Working Conference: Aspects of Computation on Asynchronous Parallel Processors*, M. H. Wright (Editor), Elsevier Science Publishers B. V. (North-Holland), IFIP, pp. 55-67, 1989.

PUBLISHED PAPERS IN CONFERENCE PROCEEDINGS

- J. Edmison, M. Jones, T. Lockhart, and T. Martin, "An E-Textile System for Motion Analysis," Wearable eHealth Systems for Personalised Health Management: State of the Art and Future Challenges, Studies in Health Technology and Informatics, vol. 108, August 2004, pp. 292-301
- Eloise Coupey and Mark Jones, Developing Dynamic Decision Support: Opportunities, Issues and Approaches, Twenty-Third Annual International Computer Software and Applications Conference, October 1999.
- Mark Jones, Michael Langston, and Padma Raghavan, "Tools for Mapping Applications to CCMs," *Proceedings of SPIE: Configurable Computing: Technology and Applications*, Boston, MA, SPIE, pp. 72-80, Nov. 1998.
- Lori Freitag, Mark Jones, and Paul Plassmann, "Mesh Component Design and Implementation within SUMAA3d," *Proceedings of SIAM Workshop on Object Oriented Methods for Inter-operable Scientific and Engineering Computing*, SIAM Publications, to appear (page number/total unknown until typesetting).
- Lori Freitag, Mark Jones, and Paul Plassmann, "A Parallel Algorithm for Mesh Smoothing*," Proceedings of the Eighth SIAM Conference on Parallel Processing for Scientific Computing*, Minneapolis, MN, March 1997.
- Lori Freitag, Mark Jones, and Paul Plassmann, "Parallel Adaptive Mesh Refinement with the SUMAA3d Project," *Proceedings of the ICASE/LaRC Workshop on Adaptive Grid Methods*, 1995.
- Lori Freitag, Mark Jones, and Paul Plassmann, "Parallel Algorithms for Unstructured Mesh Computation," *Proceedings of Fifth SIAM Applied Linear Algebra Conference*, SIAM Publications, pp. 123-127, 1994.

- Mark Jones and Paul Plassmann, "Parallel Algorithms for the Adaptive Refinement and Partitioning of Unstructured Meshes," *Proceedings of the Scalable High-Performance Computing Conference*, IEEE, Ed. Dongarra and Walker, pp. 478-485, 1994.
- Lori Freitag, Mark Jones, and Paul Plassmann, "New Techniques for Parallel Simulation of High-Temperature Superconductors," *Proceedings of the Scalable High-Performance Computing Conference*, IEEE, Ed. Dongarra and Walker, pp. 726-733, 1994.
- Lori Freitag, Mark Jones, and Paul Plassmann , "New Advances in the Modeling of High-Temperature Superconductors," *Proceedings of the 1994 International Simulation Conference – Grand Challenges in Computer Simulation*, The Society for Computer Simulation, pp. 208-213, 1994.
- Mark Jones and Paul Plassmann, "Software for the Generalized Eigenproblem on Distributed Memory Architectures," *Proceedings of the Lanczos Centenary Conference*, Ed. Chu, et. al., pp. 322-325, 1994.
- Lori Freitag, J. Garner, Mark Jones, Paul Plassmann, "Recent Computational Results on the Equilibrium Vortex Configurations on Type-II Superconductors," *Proceedings of the Second DELTA Applications Workshop*, Ed. P. Messina, pp. 93-98, March 1993.
- Tom Canfield, Mark Jones, Paul Plassmann, and Michael Tang, "Modeling Piezoelectric Crystals on the Intel DELTA," *Proceedings of the Sixth SIAM Conference on Parallel Processing for Scientific Computing*, pp. 156-159, 1993.
- Mark Jones and Paul Plassmann, "Recent Results in the Modeling of Type-II Superconductors on Massively Parallel Computers," *Proceedings of the Sixth SIAM Conference on Parallel Processing for Scientific Computing*, pp. 147-151, 1993.
- Mark Jones and Paul Plassmann, "Parallel Solution of Unstructured, Sparse Systems of Linear Equations*," Proceedings of the Sixth SIAM Conference on Parallel Processing for Scientific Computing*, pp. 471-475, 1993.
- Tom Canfield, Mark Jones, Paul Plassmann, and Michael Tang, "Thermal Effects on the Frequency Response of Piezoelectric Crystals," *New Methods in Transient Analysis*, Eds. P. Smolinksi, W. K. Liu, G. Hulbert, and K. Tamma, PVP-Vol. 246 and AMD-Vol. 143, pp. 103-108, ASME, New York, 1992.
- Mark Jones and Paul Plassmann, "The Effect of Many Color Orderings on the Convergence of Iterative Methods," *Proceedings of the Copper Mountain Conference on Iterative Methods*, April 1992.
- Mark Jones and Paul Plassmann, "Modeling piezoelectric crystals on the Intel DELTA," *Proceedings of the Intel DELTA Applications Workshop*, Cal Tech, pp. 97-105, 1992.

GRANTS/CONTRACTS
   (Principal investigator responsibilities on the following grants, percentage of responsibility is listed.)
.
- DARPA, "RECE," With BBN, Responsibility 50%, $30,000 , 4/16/09-10/16/09.
- NSF, "Investigating a Novel Embedded Processor Architecture for Electonic Textiles in Wearable and Pervasive Computing," Responsibility 50%, $220,000, 12/1/08-11/30/10.
- NSF, "Fundamental Algorithms to Enable the Simulation of Multi-Scale Biological Systems," Responsibility 50%, $200,000, 9/1/07-8/31/10.
- AFRL, "Phase II: Amorphous Soft-Core Processor for Hardware Anti-Tamper," Responsibility 33%, ~$230,000, 11/1/06-10/31/08.
- Intel, "E-Textile Rug for Gait Analysis, People Tracking and Emergency Directions," Responsibility 50%, $15,000, 6/1/06-12/31/06.
- Carilion, "Quantitative Measurement and Modeling of Early Events in Influenza Pathogenesis," Responsibility 20%, $20,000, 7/1/05-6/30/06.
- AFRL, "Phase I: Wearable Computer for Enhanced Situation Awareness," Responsibility 33%, $30,000, 5/1/06-1/1/07.
- AFRL, "Phase I: Amorphous Soft-Core Processor for Hardware Anti-Tamper," Responsibility 33%, $35,000, 1/1/06-11/1/06.
- MDA, "Phase I: Secure Software Platform for Real-Time Software Anti-Tamper," Responsibility 33%, $29,994, 6/1/06-11/1/06.

- *National Science Foundation* (NSF), "CRI", (e-textiles equipment) Responsibility 50%, ~$80,000, 8/05-7/07.
- *Harris Corporation,* "Exploiting the Reconfigurability of a Software-Defined Radio Platform," $161,070, Responsibility 50%, 9/1/05-6/30/06.
- *DARPA,* "Phase I: Technology for Trusted Circuits," $31,000, 3/1/05-9/15/05, Responsibility, 33%.
- *Harris Corporation,* "Partial Reconfiguration Support for the Harris Programmable Modem Platform," $73,448, Responsibility 50%, 12/01/04-6/30/05.
- *NSF,* "Phase I: An Electronic Textile System for Gait Analysis", $33,000, 1/1/2005-6/30/2005, Responsibility 50%.
- *Office of Naval Research (*ONR). "AWINN." $452,300, 12/20/04-7/31/06, Responsibility 50%.
- *Office of Secretary of Defense,* "Phase II: Reconfigurable Processor Technology for Software Protection," SBIR Subcontract with Luna Innovations, Responsibility 33%, $237,581, 6/04-5/06.
- *NSF*, REU Supplement to ITR: Tailor-Made: Design of e-Textile Architectures for Wearable Computing, NSF, $12,000, 6/1/2005 – 8/31/2005, 50%.
- *Office of Secretary of Defense,* "Phase I: Reconfigurable Processor Technology for Software Protection," SBIR Subcontract with Luna Innovations, Responsibility 50%, $33,000, 8/03-2/04.
- *National Science Foundation* (NSF), "ITR: Tailor-Made: Design of e-Textile Architectures for Wearable Computing", Responsibility 50%, $399,000, 8/02-8/06.
- *NSF,* REU Supplement to above grant, 50%, $10,000.
- *NSF,* REU Supplement to above grant, 50%, $6,000.
- NSF, "A Toolbox of Scalable Algorithms and Software for Advanced Scientific Computing Applications", Responsibility 50%, $300,000, 4/03-4/06.
- *Defense Advanced Research Projects Agency (*DARPA). Computational Fabrics, $217,000, 3/01-12/02. Responsibility 85%. Subcontract from ISI/University of Southern California.
- *Office of Naval Research (*ONR). Secure Configurable Radio. $751,000, 4/00-4/04, Responsibility 50%.
- NSF, SUCCEED. Responsibility 100%. $33,000, 9/1/01-8/31/02.
- *National Science Foundation (NSF)*. Amount: $145,023, 10/99-9/02. Responsibility 100%. Subcontract from Penn State. Research into unstructured mesh algorithms.
- *DARPA*. Amount $411,625, 6/99-6/02. Responsibility 50%. Subcontract from ISI/University of Southern California. Development of algorithms and software for the control of distributed, dynamic sensor networks.
- *DARPA*. Amount $160,000, 10/00-10/01. Responsibility 50%. Subcontact with USC/ISI. Development of algorithms and runtime software for systems of configurable computers.
- *Department of Energy.* Amount: $145,000, 12/98-11/01. Responsibility 100%. Subcontract from Pennsylvania State University. Development of algorithms and software for massively parallel architectures.
- *DARPA*. Amount: $345,574, 9/99-9/01. Responsibility 50%. Subcontract from Xilinx. Development of Java-based tools and applications for fast, flexible run-time reconfiguration of configurable computing devices.
- *DARPA*. Amount: $250,000, 6/99-6/01. Responsibility 50%. Subcontract from Lockheed-Martin/Sanders. Development of an application programming interface, algorithms, and applications for run-time reconfiguration on novel adaptive computing architectures.
- Lockheed-Martin/Sanders, $125,000, 5/00-4/01, Responsibility 50%. A Wireless Link for Remote Telemetry of Compact Airborne System.
- *DARPA*. Amount $169,792, 11/99-10/00. Responsibility 50%. Subcontract from ISI/University of Southern California. Development of algorithms and runtime software for systems of configurable computers.
- *National Security Agency (NSA)*. Amount $75,000, 9/99-7/00. Responsibility 50%. Software for the translation of JBits FPGA programs to EDIF programs.
- *DARPA*. Amount $162,886, 9/98-10/99. Responsibility 50%. Subcontract from ISI/University of Southern California. Construction of an API & applications for the control of distributed systems of configurable computing nodes.
- *NSF*. Amount: $125,881, 7/96-7/99. Responsibility 100%. Career Award: Parallel algorithms and software for unstructured mesh computations.

- *Air Force Research Laboratory*. Amount: $97,425, 11/97-5/99. Responsibility 50%. Research and development of an Internet-based, interactive, decision making program.
- *NSF*. Amount: $85,000, 12/97-12/98. Responsibility 20%. Equipment funding for a 16-node cluster of configurable computers (Tower of Power).
- *NSF*. Amount: $318,807, 7/95-7/98. Responsibility 50%. Scientific applications in a distributed computing environment.
- *NSF*. Amount, $100,000, 1/96-12/96. Responsibility 20%. Equipment funding for an ATM-based cluster of workstations.
- *NSF*. Amount, $10,000, 1996. Responsibility 100%. Funding to support a workshop organized at Argonne National Laboratory.

SOFTWARE

- *SLAAC/ACS API (4/99):* Software for the control of complex systems of configurable computing nodes and high-speed networks. This code is being distributed to the ACS community. Developed in Configurable Computing Laboratory with Peter Athanas.
- *BlockSolve (4/93 & 1/96):* Software for solving large sparse linear systems on distributed memory architectures. This code has been distributed via netlib and ANL ftp and has been accessed by several hundred people as of 4/4/99. Developed at Argonne National Laboratory with Paul Plassmann.
- *LANZ (10/90):* Software for solving the generalized eigenproblem on shared memory architectures. This code has been distributed via netlib and NASA and has been accessed by over 10,000 people as of 4/4/99. Developed at Duke University and Argonne National Laboratory with Merrell Patrick.

TEACHING RESPONSIBILITIES

- Computer Programming
  ECE 2574, *Data Structures*
  ECE 1574, *Engineering Problem Solving with C++*
- Computer Simulation and Modeling
  CS 371, Numerical Analysis
  CS 594, Computational Modeling
- Computer Network, Architecture, and Organization
  ECE 2504, *Introduction to Computer Engineering*
  CS 594, Internetworking with TCP/IP
  ECE 4504, *Computer Organization*
  ECE 4534*, Design of Embedded Systems*
  ECE 5504 (formerly ECE 5515), *Computer and Network Architectures*
  ECE Special Studies: *Configurable Computing*, E-Textiles
  ECE 5984, *Java-Based Configurable Computing*
  ECE 6504, *Applications of Parallel and Distributed Computing*, TV course.
  CS 530, *Computer Systems Organization*
- CEO of DISC, a student-run virtual corporation, for Fall 1998 and Spring 1999.

COURSE, CURRICULUM, AND PROGRAM DEVELOPMENT

Spring 2005 (Virginia Tech): Redesigned the senior level embedded systems design course to focus on modern embedded processors and systems and incorporated a capstone design experience in the course. This course has been incorporated into the curriculum as a required course for computer engineering majors. I have taught the course three semesters, achieving a rating of 3.9/4.0 during the Spring 2006 semester.

Fall 2005 (Virginia Tech): Revitalized the freshman programming course for computer and electrical engineering majors. The new course focused on the design and development of programs in the context of embedded systems. While the course addressed the basics of

object-oriented programming, significant hands-on experiences with an embedded systems platform were incorporated into laboratories and programming projects. In particular, there was a strong emphasis on designing applications that interact with sensors and actuators. The new course was well-received by the students, with a significant improvement in the instructor evaluation over past semesters.

Fall 2001 (Virginia Tech): Designed (and had approved) a course on computational fabrics (e-Textiles). This course focuses on research issues in computational fabrics as well as the background necessary to pursue research in the area. As part of the course, students will create a functioning computational fabric application.

Fall 2001 (Virginia Tech): Designed (and had approved) a course on the design of Internet-based decision support systems. The goal of this course is an object-oriented design and implementation process for DSS in which the students actively participate in the process. Students learn the basics of DSS as well as the software engineering process.

Fall 2000 (Virginia Tech): All freshman wishing to enter the Computer Engineering and Electrical Engineering majors at Virginia Tech must take an introductory object-oriented programming course. Analysis showed that students in this course were not learning to program adequately and had a high percentage of honor code violations. I led an effort to completely revamp the course to address these concerns; modifications included interactive labs and active learning techniques as well as a redesign of the curriculum. Analysis this semester indicates that the students who progressed on in the computer engineering major are now proficient programmers and the number of honor code violations was reduced by over an order of magnitude.

Fall 1999 (Virginia Tech): Developed a new course based on the configurable computing course that I taught in Fall 1998. This new course is refocused to use Java-based tools for developing configurable computing applications. The short project has been changed to be implemented using Java-based development tools and include a short project report. The large application project has also been changed to Java-based development tools. Also, in collaboration with David Lee of 3Com, many of the large application projects in the class will focus on designing and implementing configurable, high-speed network routers.

Spring 1999 (Virginia Tech): Developed a graduate level course on parallel & distributed algorithms based on the textbook by Kumar, et.al. This was a TV course, so I developed presentation slides suitable for that medium. I also developed several programming exercises for parallel implementation on three different parallel computing platforms: a network of workstations, the IBM SP-2, and the Silicon Graphics "Crunch" computer.

Fall 1998 (Virginia Tech): Developed an upper level undergraduate/graduate course on configurable computing. The lecture materials were drawn from research papers and materials from faculty at other institutions. The students were required to complete a small project on configurable computing hardware, followed by a significant application project on configurable hardware.

Spring 1995 (University of Tennessee): Developed a graduate level course on internetworking based on the *Internetworking with TCP/IP* textbooks by Comer. I developed laboratories and lecture notes for the course.

Spring 1994 (University of Tennessee): Developed a graduate level course on scientific computing. As part of the development process, I created lecture materials, reading materials, and laboratories.

PROFESSIONAL SERVICE

- Technical Program Committee: MAMSET 2002, VTC 2003, RAW 2003/2004.
- Reviewer and/or panel participant for various journals, conferences, and agencies, including *SIAM J. on Scientific Computing, SIAM J. on Matrix Anal. & Appl., SPDP, Supercomputing, Journal of Parallel & Distributed Computing, CONPAR 94, HICSS, Int. J. of Supercomputing Applications, ICPP, IPPS, IEEE Tran. on Parallel & Distributed Systems, ACM Trans. on Math. Software, Symp. on Large-Scale Structural Analysis, Applied Numerical Mathematics*, Department of Energy, NIOSH, and the National Science Foundation.

- *Department*: Curriculum Committee (chair and member), Computer Area Committee, Resource Committee, Undergraduate AdCom Committee, Computer Systems Area Committee (chair and member), Social Committee, Web Committee (chair)
- *Centers:* Director for Virginia Tech Information Systems Center (VISC) Spring 1999-Fall 2000

<u>Work</u>:

Virginia Tech since 1997

<u>Cases In Which I Have Testified At Trial Or Deposition In The Last Four Years:</u>

(1) *Blackboard v. Desire2Learn* (Eastern District of Texas). Lawsuit filed in 2006 and went to trial in 2008. I had multiple depositions, reports, and testified at trial, at an injunction hearing, and at a contempt hearing. I was hired by Blackboard. This case is no longer active.

(2) *TechRadium v. Blackboard* (Eastern District of Texas). Lawsuit filed in 2008. I filed at least one report, was deposed once, and testified at a preliminary injunction hearing in 2009. I was hired by Blackboard. The case is no longer active.

(3) *DVSI v. University of Phoenix et al.*. Lawsuit filed in the Eastern District of Texas in 2008. Transferred to the Eastern District of Virginia. I have filed a declaration and been deposed once. I was hired by Walden University (one of the co-defendants). This case is active.

(4) *VirnetX v. Microsoft*. Lawsuit filed in the Eastern District of Texas in 2007. I have been deposed twice and testified at trial. There has been a jury verdict. I believe that there are still matters pending before the court on this case.

I have not been employed or done work for any of the defendants in this case. I have used the products/services of some of them. I received a research award in or around 2002 funded by AOL. (This was not funding for a project, but a cash prize & certificate for research I presented at an event jointly hosted by AOL and another group.)