

James D. Teresco

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Education

Ph.D.	Computer Science	Rensselaer Polytechnic Institute, 2000
M.S.	Computer Science	Union College, 1993
B.S.	Mathematics and Computer Science	Union College, 1992

Professional Career

2008–	Principal Software Engineer	Clickshare Service Corp.
2009	Adjunct Faculty, Computer Science	Rensselaer Polytechnic Institute
2008	Adjunct Professor of Computer Science	Siena College
2007–2008	Visiting Associate Professor of Computer Science	Mount Holyoke College
2000–2007	Assistant Professor of Computer Science	Williams College
2003–2004	Visiting Faculty Researcher	Sandia National Laboratories
1999–2000	Research Scientist	Rensselaer Polytechnic Institute
1993–1999	Graduate Research Assistant	Rensselaer Polytechnic Institute
1996,1998,1999	Adjunct Instructor of Computer Science	Union College
1996–1998	Laboratory Manager, Parallel Asynchronous and Synchronous Theory and Applications (PASTA) Laboratory	Union College
1992–1998	Technical Assistant	Power Technologies, Inc.

Professional Societies and Affiliations

ACM	Student Member (1989–1993), Full Member (2002–present)
USACM	Student Member (1997–2001), Full Member (2001–present)
SIAM	Full Member (2002–present)
IEEE Computer Society	Full Member (2005–present)
CCSC Northeast Region	Member (2004–present), Regional Board Member (2006–present)

Honors

Phi Beta Kappa, Alumni Member, Union College, 2008
Robert McNaughton Prize (for computer science), Rensselaer Polytechnic Institute, 2000
Computer Science Alumni Silver Award, Union College, 2000
Founders Award, Rensselaer Polytechnic Institute, 1997
Martin Terry Resch Prize (for pure mathematics), Union College, 1992
Sigma Xi
Upsilon Pi Epsilon, Computer Science Honor Society
Salutatorian, Union College Class of 1992

Research Interests

Parallel scientific computation. Dynamic load balancing for adaptive computations in heterogeneous, hierarchical (including hyperthreaded and multi-core), non-dedicated and transient computational environments. Distributed data structures. Tools to facilitate parallel processing. Computer Science education, particularly in relation to parallel processing.

Ph.D. Dissertation

“A Hierarchical Partition Model for Parallel Adaptive Finite Element Computation,” Department of Computer Science, Rensselaer Polytechnic Institute, 2000. Advisor: Joseph E. Flaherty.

Conferences and Other Presentations

“Resource-Aware Parallel Scientific Computation,” Kitware, Inc., Clifton Park, May 28, 2008.

“Teaching Parallel Processing to Upper Level Undergraduates,” Minisymposium talk. *SIAM Conference on Parallel Processing for Scientific Computing*, Atlanta, March 13, 2008.

“Structures and Load Balancing for Parallel Adaptive Scientific Computation.” Siena College, Loudonville, February 22, 2008.

“Supporting Efficient Parallel Computation on Modern Clusters.” Iona College, New Rochelle, February 7, 2008.

“Dynamic Load Balancing from Supercomputers to Clusters to the Desktop.” Wheaton College, Norton, February 1, 2008.

“Dynamic Monitoring for Load Balancing in Cluster Environments,” Invited minisymposium talk. *Ninth U.S. National Congress on Computational Mechanics*, San Francisco, July 23, 2007.

“Chip Multiprocessors: Parallel Computation for the Desktop.” Mount Holyoke College, South Hadley, April 10, 2007.

“Dynamic Load Balancing for Hyperthreaded and Multi-Core Cluster Nodes,” Contributed talk. *SIAM Conference on Computational Science & Engineering*, Costa Mesa, February 21, 2007.

“Automated Dynamic Redistribution of Virtual Operating Systems under the Xen Virtual Machine Monitor,” Accepted paper presentation. *IASTED International Conference on Parallel and Distributed Computing and Networks (PDCN 2007)*, Innsbruck, February 13, 2007.

“Resource-Aware Parallel Computation for Modern Clusters,” Invited talk. Mount Holyoke College, South Hadley, February 6, 2007; Union College, Schenectady, February 7, 2007.

“Parallel, Adaptive Scientific Computation in Heterogeneous, Hierarchical, and Non-Dedicated Computing Environments,” Invited talk. National Institute of Standards and Technology, Mathematical & Computational Sciences Division Seminar Series, Gaithersburg, June 15, 2006.

“Parallel, Adaptive Scientific Computation in Heterogeneous, Hierarchical, and Non-Dedicated Computing Environments,” Invited talk. Siena College Computer Science Seminar Series, Loudonville, April 6, 2006.

“Resource-Aware Parallel Scientific Computation for Heterogeneous and Non-Dedicated Clusters,” Minisymposium talk. *SIAM Conference on Parallel Processing for Scientific Computing*, San Francisco, February 24, 2006.

“Tools for High-Performance Scientific Computation in Cluster Environments,” Minisymposium talk. *SIAM Conference on Parallel Processing for Scientific Computing*, San Francisco, February 23, 2006.

“Resource-Aware Dynamic Load Balancing for Heterogeneous, Hierarchical, and Non-Dedicated Computing Environments,” Invited talk. McGill Computational Science and Engineering Seminar Series, Montreal, January 27, 2006.

“Partitioning and Dynamic Load Balancing for Heterogeneous, Hierarchical, and Non-dedicated Environments,” Invited minisymposium talk. *Eighth U.S. National Congress on Computational Mechanics*, Austin, July 25, 2005.

“Dynamic Load Balancing for Heterogeneous and Hierarchical Computing Environments,” Invited minisymposium talk. *Third M.I.T. Conference on Computational Fluid and Solid Mechanics*, Cambridge, June 15, 2005.

“Resource-Aware Parallel Computation for Clusters,” Invited minisymposium talk. *International Conference on Computational Science 2005: ICCS’05*, Atlanta, May 23, 2005.

“An Overview of Resource-Aware Parallel Computing (With an Emphasis on Hierarchical Partitioning and Load Balancing),” Minisymposium talk. *SIAM Conference on Computational Science & Engineering*, Orlando, February 14, 2005.

“Resource-Aware Scientific Computation,” Williams College Science Lunch Talk, Williamstown, November 9, 2004.

“Parallel Adaptive Scientific Computation in Heterogeneous Computing Environments,” Williams College Computer Science Colloquium, Williamstown, October 15, 2004.

“Dynamic Load Balancing for Heterogeneous and Hierarchical Clusters,” Invited minisymposium talk. *2004 SIAM Annual Meeting*, Portland, July 15, 2004.

“Hierarchical Partitioning and Dynamic Load Balancing for Scientific Computation,” Invited minisymposium talk. *PARA'04 Workshop on State-of-the-Art in Scientific Computing*, Copenhagen, June 22, 2004.

“SALSA_MPI: A Framework for Dynamically Reconfigurable MPI Applications” (Poster), *NSF-RPI Workshop on PCN '04*, Troy, April 29, 2004.

“An Overview of Architecture-Aware Parallel Computation,” Minisymposium talk. *Eleventh Conference on Parallel Processing for Scientific Computing*, San Francisco, February 26, 2004.

“Parallel Adaptive Scientific Computation in Heterogeneous Computing Environments,” Invited talk. Union College Computer Science Seminar Series, Schenectady, January 15, 2004.

“System-sensitive Dynamic Load Balancing for Parallel Adaptive Computation” (Poster), *ADAPT '03, Conference on Adaptive Methods for Partial Differential Equations and Large-scale Computation*, Troy, October 11, 2003.

“Adaptive Parallel Computation over Dynamic and Heterogeneous Networks” (Poster), *ADAPT '03, Conference on Adaptive Methods for Partial Differential Equations and Large-scale Computation*, Troy, October 11, 2003.

“Octree/SFC Dynamic Load Balancing for Parallel Adaptive Computation” (Poster), *ADAPT '03, Conference on Adaptive Methods for Partial Differential Equations and Large-scale Computation*, Troy, October 11, 2003.

“A Comparison of Zoltan Dynamic Load Balancers for Adaptive Computation,” Contributed minisymposium talk. *VII International Conference on Computational Plasticity*, Barcelona, April 8, 2003.

“Dynamic Load Balancing for Adaptive Scientific Computation,” Williams College Computer Science Colloquium, October 4, 2002.

“Architecture-Aware Dynamic Load Balancing,” *IMACS Workshop on Adaptive Methods for Partial Differential Equations*, Toronto, August 6-9, 2002.

“Architecture-Oriented Load Balancing” (Poster), *Workshop on Multi-Scale Computation*, Troy, November 8, 2001.

“Octree Load Balancing” (Poster), *Workshop on Multi-Scale Computation*, Troy, November 8, 2001.

“Hierarchical Programming and Dynamic Load Balancing,” Invited minisymposium talk. *Sixth U.S. National Congress on Computational Mechanics*, Dearborn, August 1-4, 2001.

“A Hierarchical Data Management System for Parallel Partitioning of Adaptive Computation,” Invited minisymposium talk. *Tenth SIAM Conference on Parallel Processing for Scientific Computing*, Portsmouth, March 12-14, 2001.

“Partitioning and Load Balancing for Parallel Adaptive Scientific Computation,” Williams College Computer Science Colloquium, March 9, 2001.

“Partitioning and Load Balancing for Adaptive Finite Element Computation,” Invited talk. *Workshop on Graph Partitioning and Applications: Current and Future Directions*, Minneapolis, October 14-15, 1999.

“Distributed Mesh Structures for Adaptive Finite Element Computation,” Invited minisymposium talk. *Fifth U.S. National Congress on Computational Mechanics*, Boulder, August 4-6, 1999.

“Adaptive and Parallel Finite Element Computation,” Invited talk. *Workshop on Recent Advances in Computational Structural Dynamics and High-Performance Computing*, Vicksburg, November 3-4, 1998.

“Parallel Infrastructure for Adaptive Finite Element Computation,” Invited minisymposium talk. *Fourth U.S. National Congress on Computational Mechanics*, San Francisco, August 6-8, 1997.

“Automated Scalable, Parallel Adaptive Computation” (Poster), *Department of Energy Accelerated Scientific Computation Initiative (ASCI) site review*, University of Chicago, May 23, 1997.

“A Partition Model for Distributing Computational Load in an Object-Oriented Analysis Framework for Parallel Adaptive Finite Element Methods,” *RPI/IBM Research Exchange*, Poughkeepsie, February 7, 1997.

“The Quality of Partitions Produced by an Iterative Load Balancer,” Invited workshop talk. *Third Workshop on Languages, Compilers, and Runtime Systems for Scalable Computers*, Troy, May 22-24, 1995.

“Self-Organization in Three-Dimensional Cellular Automata” (Poster), *National Conference on Undergraduate Research*, Minneapolis, March 20-22, 1992.

Journal Publications

J. D. Teresco, J. Faik and J. E. Flaherty. Resource-aware scientific computation on a heterogeneous cluster. *Computing in Science & Engineering*. Vol. 7, Number 2, pp. 40–50, 2005.

K. D. Devine, E. G. Boman, R. T. Heaphy, B. A. Hendrickson, J. D. Teresco, J. Faik, J. E. Flaherty and L. G. Gervasio. New challenges in dynamic load balancing. *Appl. Numer. Math.*, Vol. 52, pp. 133–152, 2005.

J. D. Teresco, M. W. Beall, J. E. Flaherty and M. S. Shephard. A hierarchical partition model for adaptive finite element computation. *Comput. Methods in Appl. Mech. Engng.*, Vol. 184, pp. 269–285, 2000.

J. E. Flaherty, R. M. Loy, C. Özturan, M. S. Shephard, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. Parallel structures and dynamic load balancing for adaptive finite element computation. *Appl. Num. Math.*, Vol. 26, pp. 241–263, 1998.

J. E. Flaherty, R. M. Loy, M. S. Shephard, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. Adaptive local refinement with octree load-balancing for the parallel solution of three-dimensional conservation laws. *J. Parallel and Distributed Computing*, Vol. 47, pp. 139–152, 1997.

Book Chapters

J. D. Teresco, J. E. Flaherty, et al. “Approaches to Architecture-Aware Parallel Scientific Computing.” Chapter in *Parallel Processing for Scientific Computing*, M. A. Heroux, P. Raghavan, H. D. Simon, editors. pp. 33–58. SIAM, 2006.

J. D. Teresco, J. E. Flaherty and K. D. Devine. “Partitioning and Dynamic Load Balancing for the Numerical Solution of Partial Differential Equations.” Chapter in *Numerical Solution of Partial Differential Equations on Parallel Computers*, A. M. Bruaset, P. Bjørstad, A. Tveito, editors. pp. 55–88. Springer-Verlag, 2006.

K. El Maghraoui, T. Desell, B. K. Szymanski, J. D. Teresco and C. A. Varela. “Towards a Middleware Framework for Dynamically Reconfigurable Scientific Computing.” Chapter in *Grid Computing: New Frontiers of High Performance Computing*, L. Grandinetti, editor. Elsevier, 2005.

Conference Proceedings

T. F. Vachon and J. D. Teresco. A System for Automated Dynamic Redistribution of Virtual Operating Systems Under the Xen Virtual Machine Monitor. To appear, *Proc. The IASTED Conference on Parallel and Distributed Computing and Networks, PDCN 2007*, Innsbruck, Austria, February 13-15, 2007. Acta Press, 2007.

J. D. Teresco, J. Faik and J. E. Flaherty. Hierarchical Partitioning and Dynamic Load Balancing for Scientific Computation. *Applied Parallel Computing, State of the Art in Scientific Computing, Proc. 7th International Workshop, PARA 2004*, Lyngby, Denmark, June 20-23, 2004. J. Dongarra, K. Madsen, J. Wasniewski, editors. Volume 3732 of *Lecture Notes in Computer Science*, Springer-Verlag pp. 911–920, 2006.

J. D. Teresco, L. Effinger-Dean and A. Sharma. Resource-Aware Parallel Adaptive Computation for Clusters. *Proc. Computational Science – ICCS 2005: 5th International Conference*, Atlanta, GA, USA, Part II, V. S. Sunderam, G. D. van Albada, P. M. A. Sloot, J. J. Dongarra, editors. Volume 3515 of *Lecture Notes in Computer Science*, Springer-Verlag, pp. 107–115. 2005.

K. El Maghraoui, J. E. Flaherty, B. K. Szymanski, J. D. Teresco and C. Varela. Adaptive Computation over Dynamic and Heterogeneous Networks, in R. Wyrzykowski, J. Dongarra, M. Paprzycki and J. Wasniewski (Eds.), *Proc. Fifth International Conference on Parallel Processing and Applied Mathematics (PPAM 2003)*, Czestochowa, Poland. Volume 3019 of *Lecture Notes in Computer Science*, Springer-Verlag, Berlin, pp. 1083–1090, 2004.

J. D. Teresco and L. P. Ungar. A Comparison of Zoltan Dynamic Load Balancers for Adaptive Computation. *Proc. VII International Conference on Computational Plasticity*, Barcelona, 2003.

J. E. Flaherty and J. D. Teresco. Software for parallel adaptive computation, in M. Deville and R. Owens, editors, *Proc. 16th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation*. Paper 174–6, IMACS, Lausanne, 2000.

J. E. Flaherty, R. M. Loy, M. S. Shephard and J. D. Teresco. Software for the parallel adaptive solution of conservation laws by discontinuous Galerkin methods. In B. Cockburn, G. Karniadakis, and S.-W. Shu, editors, *Discontinuous Galerkin Methods Theory, Computation, and Applications*, volume 11 of *Lecture Notes in Computational Science and Engineering*, pp. 113–124, 2000.

J. E. Flaherty, R. M. Loy, M. S. Shephard, M. L. Simone, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. Distributed octree data structures and local refinement method for the parallel solution of three-dimensional conservation laws. In M. Bern, J. Flaherty, and M. Luskin, editors *Grid Generation and Adaptive Algorithms*, volume 113 of *The IMA Volumes in Mathematics and its Applications*, pp. 113–134, 1999.

J. E. Flaherty, M. Dindar, R. M. Loy, M. S. Shephard, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. An adaptive and parallel framework for partial differential equations, in D. F. Griffiths, D. J. Higham and G. A. Watson, eds., *Numerical Analysis 1997 (Proc. 17th Biennial Conf.)*, No. 380, pp. 74–90, 1998.

J. E. Flaherty, R. M. Loy, P. C. Scully, M. S. Shephard, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. Load balancing and communication optimization for parallel adaptive finite element computation. *Proc. XVII Int. Conf. Chilean Comp. Sci. Soc.*, pp. 246–255, 1997.

J. E. Flaherty, R. M. Loy, M. S. Shephard, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. Predictive load balancing for parallel adaptive finite element computation, in H. R. Arabnia, ed., *Proc. PDPTA '97*, vol. I, pp. 460–469, 1997.

B. K. Szymanski, E. Deelman, J. E. Flaherty, C. D. Norton, J. D. Teresco and L. H. Ziantz. Parallel Scientific Computing on the IBM SP2 at Rensselaer's Scientific Computation Research Center, in *Proc. Sup'Eur 96, High Performance Computing in Europe on IBM Platforms*, Krakow, pp. 97–110, 1996.

C. L. Bottasso, J. E. Flaherty, C. Özturan, M. S. Shephard, B. K. Szymanski, J. D. Teresco and L. H. Ziantz. The quality of partitions produced by an iterative load balancer, in B. K. Szymanski and B. Sinharoy, eds., *Proc. Third Workshop on Languages, Compilers, and Runtime Systems*, pp. 265–277, Troy, 1996.

C. R. Calkins, J. Robertson and J. D. Teresco. A Parallel Approach to 3D Cellular Automata, in *Proc. National Conference on Undergraduate Research IV*, pp. 975–979, Minneapolis, 1992.

Manuscripts and Technical Reports

J. Faik, J. D. Teresco, K. D. Devine, J. E. Flaherty and L. G. Gervasio. “A Model for resource-aware load balancing on heterogeneous clusters.” Williams College Department of Computer Science Technical Report CS-05-01, 2005.

K. El Maghraoui, C. A. Varela, B. K. Szymanski, J. E. Flaherty and J. D. Teresco. "A Middleware Framework for Dynamically Reconfigurable MPI Applications." Williams College Department of Computer Science Technical Report CS-04-12, 2004.

J. Faik, J. E. Flaherty, L. G. Gervasio, J. D. Teresco, K. D. Devine and E. G. Boman. "A Model for resource-aware load balancing on heterogeneous clusters." Williams College Department of Computer Science Technical Report CS-04-03, 2004. Presented at Cluster '04. Superseded by Williams College Department of Computer Science Technical Report CS-05-01, 2005.

P. M. Campbell, K. D. Devine, J. E. Flaherty, L. G. Gervasio and J. D. Teresco. "Dynamic Octree Load Balancing Using Space-Filling Curves." Williams College Department of Computer Science Technical Report CS-03-01, 2003.

Grants Funded

J. E. Flaherty (Rensselaer) and J. D. Teresco, "Dynamic Data Management and Load Balancing for Parallel Adaptive Computation," Sandia National Laboratories, \$150,000, November 4, 2000 - November 3, 2001.

J. E. Flaherty (Rensselaer) and J. D. Teresco, "Hierarchical Dynamic Data Management and Load Balancing for Parallel Adaptive Computation," Sandia National Laboratories, \$100,000, April 1, 2002 - March 31, 2003.

J. D. Teresco, S. Adjerid (Virginia Tech) and P. K. Moore (Southern Methodist), "Conference on Adaptive Methods for Partial Differential Equations and Large-scale Computation," Army Research Office, \$10,000, August 8, 2003 - February 7, 2004.

P. K. Moore (Southern Methodist), J. D. Teresco and S. Adjerid (Virginia Tech), "Conference on Adaptive Methods for Partial Differential Equations and Large-scale Computation," National Science Foundation, \$5,000.

Other Proposals Submitted

J. E. Flaherty (Rensselaer) and J. D. Teresco, "ITR/AP: Dynamic Data Management for Parallel Adaptive Computation," submitted to National Science Foundation under RFP NSF 00-126, January 2001. Not funded.

J. D. Teresco, "CAREER: Dynamic and Architecture-Aware Management of Parallel Adaptive Computation," submitted to National Science Foundation under RFP NSF-02-111, July 2002. Not funded.

J. E. Flaherty (Rensselaer), B. K. Szymanski (Rensselaer), C. Varela (Rensselaer), J. D. Teresco, E. Deelman (Information Sciences Institute), "NMI: Pervasive Grid Middleware for Adaptive Fault-Tolerant Scientific Computation," submitted to National Science Foundation under RFP NSF 03-513, March 2003. Not funded.

J. E. Flaherty (Rensselaer) and J. D. Teresco, “System-sensitive and Multilevel Data Management and Load Balancing for Parallel Adaptive Computation,” submitted to Sandia National Laboratories, September 2003. Not funded.

S. De (Rensselaer), J. E. Flaherty (Rensselaer) and J. D. Teresco, “ITR: Digital Surgery on Parallel Systems,” submitted to National Science Foundation under RFP NSF 04-012, February 2004. Not funded.

B. K. Szymanski (Rensselaer), C. Varela (Rensselaer), J. E. Flaherty (Rensselaer) and J. D. Teresco, “NMI DEVELOPMENT: Middleware for Large-Scale Adaptive Scientific Computation in Dynamic Heterogeneous and Shared Grid Environments,” submitted to National Science Foundation under RFP NSF-04-555, May 2004. Not funded.

J. E. Flaherty (Rensselaer) and J. D. Teresco, “CSR–AES: Parallel Adaptive Computation on Heterogeneous and Hierarchical Systems,” submitted to National Science Foundation under RFP NSF 04-609, November 2004. Not funded.

M. Magdon-Ismail (Rensselaer), C. Varela (Rensselaer), B. K. Szymanski (Rensselaer), H. Newberg (Rensselaer) and J. D. Teresco, “DDDAS-TMRP: A Dynamic Grid for Astroinformatics: Data-Driven Discovery of the Milky Way Origin and Evolution from the Sloan Digital Sky Survey,” submitted to National Science Foundation under RFP NSF 05-570, June 2005. Not funded.

Software Development

Clickshare. Software system that provides account registration, multi-site authentication, site access control, transaction and billing services for electronic and print publications. <http://www.clickshare.com>

Hierarchical partitioning and load balancing within the Zoltan Toolkit. New partitioning procedure within Sandia’s Zoltan Toolkit to support automatic hierarchical partitioning, where different partitioning procedures are used in different parts of the computing environment. Available under GNU Lesser General Public License (LGPL). <http://www.cs.sandia.gov/Zoltan/>

Zoltan parameter parsing library. Small software library to allow parameters to be passed to the Zoltan Toolkit to be read from a configuration file. Freely available. <http://www.cs.williams.edu/~terescoj/research/zoltanParams/>

Rensselaer Partition Model, C++ library to support generalized distributed mesh data structures, supporting multiple partitions per processor and a wider variety of distributed mesh structures.

Parallel Mesh Database, C library using the Message Passing Interface to create and manipulate distributed mesh data structures for parallel adaptive finite element methods.

PMDBtool, scripting language to manipulate meshes using the Parallel Mesh Database and the Zoltan Toolkit. <http://www.cs.williams.edu/~terescoj/research/pmdbtool.html>

Peer Review

Served as reviewer for *2003 ASME International Mechanical Engineering Congress and R&D Expo*, *Concurrency and Computation: Practice and Experience*, *Engineering with Computers*, *ICCS2005 Education Session on High Performance Computing in Academia*, *IEEE Transactions on Parallel and Distributed Systems*, *International Parallel and Distributed Processing Symposium*, *Journal of Applied and Computational Mathematics*, *Journal of Parallel Algorithms and Applications*, *SIAM Review*, *Parallel Computing*, *Scientific Programming*, *SIAM Journal on Scientific Computing*, *Simulation: Transactions of the Society for Modeling and Simulation International*, *Euro-Par 2005*, *The Computer Journal*, *Wiley Book Series on Parallel and Distributed Computing*, *39th ACM Technical Symposium on Computer Science Education (SIGCSE 2008)*, *15th Annual IEEE International Conference on High Performance Computing (HiPC08)*.

Served as reviewer for grant proposals for the National Science Foundation, the U.S. Army Research Laboratory, the Dutch National Science Foundation (NWO), and the U.S. Department of Energy Office of Science Applied Mathematics Research Program.

Other Contributions to the Community

Edited article “File Server” for the *Encyclopedia of Computer Science*, 4th ed., A. Ralston, E. D. Reilly, D. Hemmendinger, editors, Nature Publishing Group, pp. 710–711, 2000.

Co-organizer for conference *ADAPT '03: Adaptive Methods for Partial Differential Equations and Large-Scale Computation*, October 2003, at Rensselaer Polytechnic Institute.

Co-organizer of minisymposium on architecture-aware parallel computing at the *Eleventh Conference on Parallel Processing for Scientific Computing (PP'04)*, February 2004, in San Francisco.

Co-chair for Panels/Tutorials/Workshops for the *Ninth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2004, at Union College.

Co-organizer of minisymposium on resource-aware parallel computing at the *SIAM Conference on Computational Science & Engineering (CSE'05)*, February 2005, in Orlando.

Co-chair for Student Posters for the *Tenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2005, at Providence College.

Co-organizer of minisymposium on tools for high-performance scientific computation in cluster environments at the *SIAM Conference on Parallel Processing for Scientific Computing (PP'06)*, February 2006, in San Francisco.

Co-chair for Papers for the *Eleventh Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2006, at the College of the Holy Cross.

Held “Robotics Day” open house for local middle school students in conjunction with final project presentations for *LEGO Robot Engineering*, January 2007.

Co-chair for Papers for the *Twelfth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2007, at the Rochester Institute of Technology.

Organizer of minisymposium “The Pipeline: Education in Parallel and Scientific Computation” at the *SIAM Conference on Parallel Processing for Scientific Computing (PP’08)*, March 2008, in Atlanta.

Co-chair for Papers for the *Thirteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2008, at Wagner College.

Co-chair for Panels/Tutorials/Workshops for the *Fourteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2009, at SUNY Plattsburgh.

Advising

Co-advisor for Jamal Faik, Ph.D. Thesis, Rensselaer, 2000-05.

Co-advisor for Luis Gervasio, Ph.D. Candidate, Rensselaer, 2001-06.

Co-advisor for Paul Campbell, Masters Thesis, Rensselaer, 2000-01.

Advisor for Kai Chen, Summer Research Student, Williams College, 2001.

Advisor for Lida Ungar, Summer Research Student, Williams College, 2002.

Advisor for Joshua Ain, Senior Honors Thesis, Williams College, 2002-03.

Advisor for Diane Bennett, Summer Research Student, Williams College, 2003.

Advisor for Arjun Sharma, Summer Research Student, Williams College, 2004.

Advisor for Laura Effinger-Dean, Summer Research Student, Williams College, 2004.

Advisor for Bartolome Tablante, Summer Research Student, Williams College, 2005.

Advisor for Travis Vachon, Senior Honors Thesis, Williams College, 2005-06.

Ph.D. Committee Member for Kaoutar El Maghraoui, Rensselaer, 2005-2007.

Teaching Experience

Computer Organization, CSCI 2500, Rensselaer Polytechnic Institute, Spring 2009 (scheduled).

Parallel Processing, CSIS 400, Siena College, Fall 2008.

The Art and Science of Computer Graphics, COMSC 110, Mount Holyoke College, Spring 2008.

Operating Systems, COMSC 322, Mount Holyoke College, Spring 2008.

Parallel Processing, COMSC 341-02, Mount Holyoke College, Fall 2007.

Computer Architecture, COMSC 324, Mount Holyoke College, Fall 2007.

LEGO Robot Engineering, CSCI-014, Williams College, Winter 2007.

Computer Organization, CSCI-237, Williams College, Fall 2005, Fall 2006.

Operating Systems, CSCI-432, Williams College, Fall 2001, Fall 2002, Spring 2005, Fall 2006.

Parallel Processing, CSCI-338, Williams College, Fall 2000 (lecture format), Spring 2003 (lecture format), Spring 2006 (tutorial format).

Data Structures and Advanced Programming, CSCI-136, Williams College, Spring 2001, Fall 2001, Fall 2004, Fall 2005.

Introduction to Computer Science, CSCI-134, Williams College, Spring 2002, Spring 2003, Spring 2005.

C, Unix, and Software Tools, CSCI-010, Williams College, Winter 2001.

Operating Systems, CSCI-4210, Rensselaer Polytechnic Institute, Fall 1999.

Operating Systems, CSC-135, Union College, Winter 1998, Winter 1999.

Programming in C for Engineers, ESC-013, Union College, Winter 1996.