

James D. Teresco

Associate Professor

Siena College, Department of Computer Science

515 Loudon Rd., Loudonville, NY 12211

jteresco@siena.edu

<https://j.teresco.org>

Phone: (518) 782-6992

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

2016–	Associate Professor of Computer Science	Siena College
2015–2016	Associate Professor of Computer Science	The College of Saint Rose
2012–2015	Assistant Professor of Computer Science	The College of Saint Rose
2010–2012	Visiting Assistant Professor of Computer Science	Siena College
2010	Consultant	Clickshare Service Corp.
2009–2010	Visiting Associate Professor of Computer Science	Mount Holyoke College
2008–2009	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)
CSTA	Member (2015–present)
USACM	Student Member (1997–2001), Full Member (2001–2008)
SIAM	Full Member (2002–2015)
IEEE Computer Society	Full Member (2005–2011)
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

Computer Science education, particularly in the use of highway data and online maps for teaching and visualizing graph and other algorithms and data structures. Parallel processing in undergraduate curricula. 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.

Peer Reviewed Conference Proceedings Publications and Presentations

J. D. Teresco, M. A. Dagostino, A. Samad, E. D. Sauer. A Framework for Code-Level Tracing of Map-Based Algorithm Visualizations. Proc. 2018 ACM SIGPLAN Workshop on SPLASH-E. *SPLASH-E Workshop at SPLASH 2018, The ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity*, Boston, Massachusetts, ACM, pp. 1–9. 50% acceptance rate among SPLASH-E Workshop papers considered for publication. Presented November 5, 2018.

J. D. Teresco. Graph Traversals and Spanning Trees Using METAL Highway Data and Visualizations. *Journal of Computing Sciences in Colleges*, Volume 34, Issue 2, December 2018, pp. 102–109. *Twenty-seventh Annual Consortium for Computing Sciences in Colleges Rocky Mountain Conference*, Socorro, New Mexico. Presented October 13, 2018.

- J. D. Teresco, R. Fathi, L. Ziarek, M. R. Bamundo, A. Pengu, and C. F. Tarbay. Map-based Algorithm Visualization with METAL Highway Data. *Proc. 49th ACM technical symposium on Computer Science Education, SIGCSE '18*, Baltimore, Maryland, ACM, pp. 550–555, 2018. 35% overall acceptance rate, 29% in the Experience Reports and Tools track. Presented February 22, 2018. Also presented as an “Encore Talk” at the *Twenty-fourth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 13, 2019, at the University of New Haven.
- J. D. Teresco. Improved Highway Data and Map Visualizations for Teaching Data Structures and Algorithms. *2017 Proc. EDSIG Conference*, Austin, Texas, ISCAP, L. Lester, N. Bhatnagar, J. Cummings and J. Sharp, editors, Volume 3, Number 4325, 2017. Presented November 7, 2017.
- M. F. Alohalay and J. D. Teresco. Popularity-Based Temporal Relevance for Micro-Blogging Retrieval. *Proc. 52nd ACM Southeast Conference*, Kennesaw, Georgia, ACM, 2014. Historical acceptance rate 51%. Presented March 28, 2014.
- M. B. Gousie and J. D. Teresco. Helping Students Understand the Datapath with Simulators and Crazy Models. *Proc. 44th ACM technical symposium on Computer Science Education, SIGCSE '13*, Denver, Colorado, ACM, pp. 329–334, 2013. 38% acceptance rate. Presented March 8, 2013.
- J. D. Teresco. Highway Data and Map Visualizations for Educational Use. *Proc. 43rd ACM technical symposium on Computer Science Education, SIGCSE '12*, Raleigh, North Carolina, ACM, pp. 553–558, 2012. 35% acceptance rate. Presented March 3, 2012.
- T. F. Vachon and J. D. Teresco. A System for Automated Dynamic Redistribution of Virtual Operating Systems Under the Xen Virtual Machine Monitor. *Proc. The IASTED Conference on Parallel and Distributed Computing and Networks, PDCN 2007*, Innsbruck, Austria, February 13-15, 2007. Acta Press, 2007. Presented February 13, 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. Presented June 22, 2004.
- 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. Presented May 23, 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. 16% acceptance rate. Presented by co-authors.

- 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. Presented April 8, 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. Presented by Flaherty.
- 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. Presented by co-authors.
- 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. Presented by co-authors.
- 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. Presented by co-authors.
- 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. Presented by co-authors.
- 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. Presented by co-authors.
- 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. Presented by co-authors.
- 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. Presented May 1995.

Journal Publications

J. D. Teresco, J. Faik and J. E. Flaherty. Resource-aware scientific computation on a heterogeneous cluster. *Computing in Science & Engineering* (Impact Factor 2.074). 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.* (Impact Factor 1.087), 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.* (Impact Factor 3.949), 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.* (Impact Factor 1.087), 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* (Impact Factor 1.930), 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.

Other Peer-Reviewed Abstracts and Conference Presentations

J. D. Teresco. Projects Using METAL Highway Graphs with Traveler Data. *Journal of Computing Sciences in Colleges*, Vol. 35, Issue 3, October 2019, pp. 197–198. Nifty Ideas Presentation at the *Thirty-fifth Annual Consortium for Computing Sciences in Colleges Eastern Conference*, Robert Morris University, Moon Township, October 26, 2019.

J. D. Teresco. Travel Mapping and METAL: Maps and Map Data for Fun and Computer Science Education. *State of the Map US*, Minneapolis, September 8, 2019.

J. D. Teresco, R. Fathi and L. Ziarek. Using METAL's Expanded Highway Graphs and Maps in Computer Science Courses. *Journal of Computing Sciences in Colleges*, Volume 33, Issue 3, January 2018, pp. 157–158. Tutorial Presentation at the *Thirty-third Annual Consortium for Computing Sciences in College Eastern Conference*, Muhlenburg College, Allentown, October 21, 2017.

J. D. Teresco. Using Highway Mapping Data Graphs and Map Visualizations in Computer Science Courses. *Journal of Computing Sciences in Colleges*, Volume 31, Issue 2, December 2015, pp. 48–50. Tutorial presentation at the *Twenty-fourth Annual Consortium for Computing Sciences in Colleges Rocky Mountain Conference*, Southern Utah University, Cedar City, October 2, 2015.

J. D. Teresco. Using the Google Maps API with Highway Mapping Data as a Pedagogical Tool. *Journal of Computing Sciences in Colleges*, Volume 26, Issue 6, June 2011, pp. 58–60. Demo presentation at the *Sixteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, Western New England College, Springfield, April 15, 2011.

J. D. Teresco. Graph Algorithms Using Highway Mapping Data and the Google Maps API. Poster at *SIGCSE 2011, The 42nd ACM Technical Symposium on Computer Science Education*, Dallas, March 14, 2011.

J. D. Teresco. A Dijkstra's Algorithm Shortest Path Assignment Using the Google Maps API. *Journal of Computing Sciences in Colleges*, Volume 25, Issue 6, June 2010, pp. 253–255. Poster presentation at the *Fifteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, University of Hartford, April 16, 2010.

Invited and Other Non-Peer Reviewed Conference Presentations

“Rethinking CCSCNE: Challenges and Opportunities.” Panel. *Twenty-first Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, Hamilton College, Clinton, April 30, 2016.

“Evaluating application-level vs. middleware-level load balancing for parallel adaptive computation,” Contributed talk. *SIAM Conference on Parallel Processing for Scientific Computing*, Savannah, February 16, 2012.

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

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

“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.

“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.

“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.

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

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

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

“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 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.

“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.

Other Public Presentations

Contributor to and participant in the Pre-Symposium Event “Liberal Arts Computing Curricula: Innovations, Challenges, and Opportunities” at the *51st ACM technical symposium on Computer Science Education, SIGCSE '20*, March 11, 2020, Portland.

“How To Get Where You’re Going: Maps and Computing.” Siena Plan for Attracting and Retaining Computer Scientists (SPARCS) program, Siena College, Loudonville, August 28, 2019.

“How To Get Where You’re Going: Maps and Computing.” Siena Plan for Attracting and Retaining Computer Scientists (SPARCS) program, Siena College, Loudonville, August 28, 2018.

“Using Event-Driven JavaScript and the Google Maps API.” SaintsHack, Siena College, Loudonville, April 28, 2018.

“The ‘Roadgeek’ CS Prof: Class Projects Using Travel Mapping Data.” Siena College, Loudonville, February 19, 2016.

“Teaching Computer Graphics to Non-Majors.” Provisions Session, The College of Saint Rose, Albany, February 16, 2016.

“Supporting Efficient Parallel Scientific Computation on Modern Clusters.” Colgate University, Hamilton, April 29, 2010.

“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.

“Chip Multiprocessors: Parallel Computation for the Desktop.” Mount Holyoke College, South Hadley, April 10, 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 Dynamic Load Balancing for Heterogeneous, Hierarchical, and Non-Dedicated Computing Environments,” Invited talk. McGill Computational Science and Engineering Seminar Series, Montreal, January 27, 2006.

“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.

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

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

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

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

“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.

Other Conference Proceedings

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.

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.

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.

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.

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.

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.

Software Development

Map-Based Educational Tools for Algorithm Learning (METAL). This is a project to provide a system that allows students to experiment with graph and other algorithms in map form using highway routing data derived from the Travel Mapping project. Students can implement graph algorithms and display, in map form, the results of computations using those algorithms. Interactive map-based visualizations of algorithms are also provided, including the ability to trace through algorithms line-by-line, seeing the key variables and data structures updated in real time in map and tabular form. <https://courses.teresco.org/metal/> (2015-present)

Travel Mapping. This project gathers information about highways around the world and allows its users to track their accumulated travels, and view statistics and maps of those travels. The project involves significant Python programming, a database design and deployment, and development of web-facing tools using PHP and JavaScript, among others. <https://travelmapping.net>, <https://github.com/TravelMapping> (2015-present)

Clinched Highway Mapping Data as a Pedagogical Tool. This the predecessor project to METAL, using earlier highway routing data from the Clinched Highway Mapping (CHM) Project, and before the introduction of interactive map-based algorithm visualization. (2010-2015)

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> (2008-2009,2010)

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/> (2003-2004)

Dynamic Resource Utilization Model (DRUM). Software library to support resource-aware large-scale scientific computation in heterogeneous, hierarchical, and dynamic computing environments. Designed to work independently or to be used in conjunction with the partitioners and load balancers in Sandia National Laboratories' Zoltan Toolkit. Freely available. <https://j.teresco.org/research/drum/> (2000-2007)

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. (2004)

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. (1997-2000)

Parallel Mesh Database, C library using the Message Passing Interface to create and manipulate distributed mesh data structures for parallel adaptive finite element methods. (1993-2000)

PMDBtool, scripting language to manipulate meshes using the Parallel Mesh Database and the Zoltan Toolkit. (1998-2006)

Grants Funded

J. D. Teresco, "Enhancing the METAL Project's Map-based Algorithm Visualizations," Siena College Committee on Teaching and Faculty Development (COTFD) research fellowship. \$2,500. Summer 2018.

J. D. Teresco, "Parallel Processing Course at Siena College," National Science Foundation XSEDE (Extreme Science and Engineering Discovery Environment), supercomputer time valued at \$453.16. July 21, 2017 - July 20, 2018.

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. 2004.

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.

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. 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.

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)*, *CCSCNE 2009*, *CCSCMW 2010*, *SIGCSE 2011*, *CCSCNE 2011*, *ITiCSE 2011*, *PPAM 2011*, *CCSCMW 2012*, *ITiCSE 2012*, *SIGCSE 2012*, *CCSCNE 2012*, *SIGCSE 2013*, *CCSCNE 2013*, *SIGCSE 2014*, *Cluster Computing*, *CCSCMW 2015*, *ACM Inroads*, *CCSCNE 2017*, *EDSIGCON 2017*, *SIGCSE 2018*, *Frontiers in Education 2018*, *CCSCNE 2019*, *CCSC Rocky Mountain 2019*, *CCSC Rocky Mountain 2020*.

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

Associate Program Chair for the *50th ACM technical symposium on Computer Science Education, SIGCSE '19*, February 2019, Minneapolis, for the *51st ACM technical symposium on Computer Science Education, SIGCSE '20*, March 2020, Portland, and for the *52nd ACM technical symposium on Computer Science Education, SIGCSE '21*, March 2021, Toronto.

Other Contributions to the Community

Program Chair for the *Twenty-sixth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2021, at Ramapo College of New Jersey (virtual vs. in-person to be determined).

Program Chair for the *Twenty-fifth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2020, at Ramapo College of New Jersey (the in-person conference was cancelled due to the pandemic).

Co-presenter with Dr. Daniel DiTursi for the session “CS Unplugged: Finite Machine” for Siena College’s 13th Annual Career Exploration and Competition in Computer Science and Information Systems for Students Interested in Mathematics and Problem-solving unAware of Computer Talent (Project IMPACT), October 2019.

Co-chair for Undergraduate Poster Exhibit and Research Competition for the *Twenty-fourth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2019, at the University of New Haven.

Board Member for Saint Mary’s Institute in Amsterdam, New York, January 2019-present.

Co-presenter with Dr. Robin Flatland for the session “Computer Graphics and GameMaker” for Siena College’s 11th Annual Career Exploration and Competition in Computer Science and Information Systems for Students Interested in Mathematics and Problem-solving unAware of Computer Talent (Project IMPACT), October 2017.

Conference Co-Chair for the *Twenty-second Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2017, at The College of Saint Rose.

Co-presenter with Dr. Robin Flatland for the session “Computer Graphics and GameMaker” for Siena College’s 10th Annual Career Exploration and Competition in Computer Science and Information Systems for Students Interested in Mathematics and Problem-solving unAware of Computer Talent (Project IMPACT), October 2016.

Member of Editorial Advisory Board for *ACM Inroads*, 2016-present.

Program Chair for the *Twenty-first Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2016, at Hamilton College.

Program Chair for the *Twentieth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2015, at The College of the Holy Cross.

Chair for Reviewers and Faculty Posters for the *Nineteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2014, at Providence College.

Co-chair for Papers for the *Eighteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2013, at Siena College.

Co-chair for Papers for the *Seventeenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2012, at Quinnipiac University.

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

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

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

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

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 Student Posters for the *Tenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference*, April 2005, at Providence 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 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 architecture-aware parallel computing at the *Eleventh Conference on Parallel Processing for Scientific Computing (PP’04)*, February 2004, in San Francisco.

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

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.

Advising

Supervisor for Zachary Goodsell, Independent Study Project, Siena College, Fall 2019.

Supervisor for Zachary Goodsell, Tyler Gorman, Alissa Ronca, Summer Scholars Research, Siena College, 2019.

Supervisor for Michael Dagostino, Independent Study Project, Siena College, Spring 2019.

Co-supervisor for Sara Lopez, Arjol Pengu, Jonathan Pratico, Independent Study Project, Siena College, Spring 2019.

Supervisor for Michael Dagostino, Abdul Samad, Eric Sauer, Summer Scholars Research, Siena College, 2018.

Supervisor for MariaRose Bamundo, Arjol Pengu, and Clarice Tarbay, Summer Scholars Research, Siena College, 2017.

Advisor for Razieh Fathi, Masters Project, The College of Saint Rose, 2014-15.

Advisor for Manar Alohaly, Masters Project/Thesis, The College of Saint Rose, 2013.

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

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

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

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

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

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

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

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

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

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

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

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

Teaching

Operating Systems, CSIS 330, Siena College, Spring 2012, Fall 2020.

Data Structures, CSIS 210, Siena College, Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020.

Advanced Programming, CSIS 225, Siena College, Spring 2017, Spring 2020.

Programming Languages, CSIS 340, Siena College, Fall 2019.

Design and Analysis of Algorithms, CSIS 385, Siena College, Spring 2011, Spring 2017, Spring 2018, Spring 2019.

Parallel Processing, CSIS 400, Siena College, Fall 2008, Fall 2017.

Problem Solving with Spreadsheets, CSIS 011, Siena College, Fall 2016, Spring 2017.

Operating Systems, CSC 432, The College of Saint Rose, Spring 2016.

The Art and Science of Computer Graphics (Python-based), CSC 112, The College of Saint Rose, Fall 2015, Spring 2016.

Problem Solving with Java, CSC 252, The College of Saint Rose, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2016.

Programming Unix with C, CSC 381 (2 credit, hybrid/online), The College of Saint Rose, Fall 2015, Winter Immersion 2016.

Data Structures and Algorithm Analysis, CSC 501, The College of Saint Rose, Fall 2013, Fall 2014, Fall 2015.

Competitive Programming, CSC 385, The College of Saint Rose, Spring 2015.

Algorithms, CSC 431, The College of Saint Rose, Spring 2013, Spring 2015.

Software Engineering, CSC 507, The College of Saint Rose, Spring 2013, Spring 2014, Spring 2015.

Programming Languages, CSC 433, The College of Saint Rose, Fall 2012, Fall 2014.

Advanced Programming, CSC 523, The College of Saint Rose, Summer 2014.

Programming Unix with C, CSC 381 (1 credit), The College of Saint Rose, Fall 2013, Winter Immersion 2014.

Introduction to Programming, CSC 202, The College of Saint Rose, Fall 2012, Fall 2013.

The Art and Science of Computer Graphics (Scheme-based), CSC 112, The College of Saint Rose, Spring 2013.

Introduction to Programming, CSIS 120, Siena College, Spring 2011, Spring 2012.

Assembly Language and Computer Architecture, CSIS 220, Siena College, Fall 2010, Fall 2011.

Web Design, CSIS 180, Siena College, Fall 2011.

Introduction to Computer Applications Laboratory, CSIS 010, Siena College, Fall 2010, Spring 2011.

Introduction to Computer Applications, CSIS 010, Siena College, Fall 2010.

The Art and Science of Computer Graphics, COMSC 110, Mount Holyoke College, Spring 2008, Spring 2010.

Operating Systems, COMSC 322, Mount Holyoke College, Spring 2008, Spring 2010.

Data Structures, COMSC 211, Mount Holyoke College, Fall 2009.

Computer Architecture, COMSC 324, Mount Holyoke College, Fall 2007, Fall 2009.

Computer Organization, CSCI 2500, Rensselaer Polytechnic Institute, Spring 2009.

Parallel Processing, COMSC 341-02, 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.

Elected College Committees

Siena College Committee on Teaching and Faculty Development (COTFD). September 2017-present. Re-elected April 2019.

College of Saint Rose Professional Development Committee. August 2015-June 2016.

College of Saint Rose Academic Technology Committee. August 2013-June 2016. Re-elected April 2015.

Williams College Calendar and Schedule Committee. September 2002-June 2003.

Appointed College Committees

Computer Science representative on the Siena College School of Science Space Committee, which is part of the Science Center Expansion Project team. Spring 2019-present.

College of Saint Rose Ad-hoc Committee on Contingent Faculty. March 2013-June 2014.

Williams College Parking Committee. January 2002-June 2003.

Department Committees

Siena College Computer Science Department committee to develop new learning goals and assessments for the majors, minors, and certificate programs housed in the Computer Science department. September 2018-present.