

Rice University - CAAM MS134 - 6100 Main St. - Houston, TX 77005

<http://www.caam.rice.edu/~mili> - mili@rice.edu - 770-262-9556

Education

Rice University

- PhD in Computational and Applied Mathematics (CAAM) May 2007
- Master of Arts in CAAM Jan 2006

Emory University

- Master of Science in Mathematics May 2002
- Bachelor of Science in Mathematics with Highest Honors May 2002

Honors and Achievements

- Rice University's Tietze Fellowship 2005 - 2006
- Paul and Daisy Soros Fellow Finalist Dec 2003
- Emory University's Trevor Evans Award Apr 2001

Research Experience

- *A Symmetry Preserving Singular Value Decomposition* 2003 - present
- Doctoral research with Dr. Danny Sorensen in CAAM at Rice University

- *Traveling Wave Solution for Contaminant Transport with Freundlich Isotherm* 2000 - 2002

- Masters research with Dr. Michele Benzi in Math at Emory University
- Undergraduate research with Dr. V. S. Manoranjan in Math at Washington State University

Teaching Experience

Instructor of Record

- Introduction to Engineering Computation Fall 2006
 - Modeling, Simulation, and Visualization via Matlab
 - Numerical methods: Newtons method in one and several dimensions
 - Gaussian elimination and optimization
 - Applications to gene nets, fiber nets, and neural nets
- Matrix Analysis Fall 2005
 - Equilibria and the solution of linear systems and linear least squares problems
 - Dynamical systems and the eigenvalue problem with the Jordan form and Laplace transform via complex integration

Teaching Assistant

- Matrix Analysis Fall 2003
 - Gave recitation lectures and prepared solution sets

Grader

- Numerical Analysis II Spring 2005
- Optimization Theory Fall 2004
- Differential Equations in Science and Engineering Spring 2004
- Introduction to Engineering Computation Spring 2003
- Matrix Analysis Fall 2002

Computing Skills

- C/C++, Java, Matlab, MPI, P_ARPACK, LaTeX
- Parallel programming on high-performance clusters using MPI
- Unix, Linux, and Windows operating systems

Publications

- M. Shah and D. C. Sorensen, *A Symmetry Preserving Singular Value Decomposition*, SIAM Journal on Matrix Analysis and Applications, 28 (2006), pp. 749 - 769.
- Willy Wriggers, Zhiyong Zhang, Mili Shah, and Danny C. Sorensen, *Simulating Nanoscale Functional Motions of Biomolecules*, Molecular Simulation, 32 (2006), pp. 803 - 815.
- D. C. Sorensen and M. Shah. *Principle Component Analysis and Model Reduction for Dynamical Systems with Symmetry Constraints*, in Proceedings of CDC-ECC, 2005, pp. 2260 - 2264.

Presentations

- Generalized Symmetry Preserving Singular Value Decomposition*
 - Keck Annual Research Conference, poster Oct 2006
 - SIAM Annual Conference, Mini-symposium lecture Jul 2006
- Calculating Symmetric Modes of Motion in Molecular Dynamics*
 - John P. McGovern Townmeeting on Biocomputing and Imaging, lecture Feb 2006
- A Symmetry Preserving Singular Value Decomposition*
 - SIAM Annual Conference, Mini-symposium lecture Jul 2005
 - Rice CAAM Graduate Seminar, lecture Feb 2005
- Traveling Wave Solutions for Contaminant Transport with Freundlich Isotherm*
 - Rice CAAM Graduate Seminar, lecture Mar 2004
 - USA/USM's Undergraduate Mini-Conference, lecture Apr 2001
 - AMS Annual Conference, awarded best student poster Jan 2001

Clubs and Activities

- CAAM Department Representative* Sep 2003 - present
 - Assisted in the selection and recruiting of prospective graduate students
 - Organized departmental social activities
- Graduate Student Association* Apr 2003 - Apr 2004
 - Held the office of Treasurer
 - Balanced checkbook and constructed end of the semester reports
- Elementary Science Education Partners* Sep 2000 - Dec 2001
 - Worked with elementary teachers to help students learn how to use modular science kits