

# Viral B. Shah

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## Education

- Ph.D., Computer Science (Emphasis in Computational Sciences and Engineering), UC Santa Barbara. (2001–2007).  
Dissertation: AN INTERACTIVE SYSTEM FOR COMBINATORIAL SCIENTIFIC COMPUTING WITH AN EMPHASIS ON PROGRAMMER PRODUCTIVITY.
- Department of Mathematics, MIT (Fall 2003).
- B.E., Computer Engineering, Mumbai University (2001).

## Patents

- HUSBANDS, P., CHOY, R., EDELMAN, A., SHAH, V., AND JANSEN, E. Methods and apparatus for parallel execution of a process. *Patent Pending* (2005)

## Publications

### Parallel Computing

- GILBERT, J. R., REINHARDT, S., AND SHAH, V. Distributed sparse matrices for very high level languages. *Advances in Computers* (April 2008)
- GILBERT, J. R., REINHARDT, S., AND SHAH, V. A unified framework for numerical and combinatorial computing. *Computation in Sciences and Engineering* (June 2008)
- GILBERT, J. R., REINHARDT, S., AND SHAH, V. An interactive environment to manipulate large graphs. In *Proceedings of the 2007 IEEE International Conference on Acoustics, Speech, and Signal Processing* (April 2007)
- BADER, D. A., MADDURI, K., GILBERT, J. R., SHAH, V., KEPNER, J., MEUSE, T., AND KRISHNAMURTHY, A. Designing scalable synthetic compact applications for benchmarking high productivity computing systems. *Cyberinfrastructure Technology Watch* (Nov 2006)
- REINHARDT, S., GILBERT, J. R., AND SHAH, V. High performance graph algorithms from parallel sparse matrices. In *Proceedings of the Workshop on state of the art in scientific and parallel computing* (2006)

- SHAH, V., AND GILBERT, J. R. Sparse matrices in Matlab\*P: Design and implementation. In *HiPC* (2004), L. Bougé and V. K. Prasanna, Eds., vol. 3296 of *Lecture Notes in Computer Science*, Springer, pp. 144–155

### **Programmer Productivity**

- FUNK, A., GILBERT, J. R., MIZELL, D., AND SHAH, V. Modelling programmer workflows with timed Markov models. *Cyberinfrastructure Technology Watch* (Nov 2006)
- SMITH, B., MIZELL, D., GILBERT, J. R., AND SHAH, V. Towards a timed Markov process model of software development. *Second International Workshop on Software Engineering for High Performance Computing System Applications* (2005)

### **Work in progress**

- SHAH, V. B., MCRAE, B., AND R. GILBERT, J. Scalable numerical and combinatorial techniques in circuitscape: A tool for landscape ecologists. Tech. rep., UC Santa Barbara, 2008
- *Array based graph algorithms*. SIAM, 2007, ch. Interactive Combinatorial Algorithms from Parallel Sparse Matrices
- CHENG, D. R., EDELMAN, A., GILBERT, J. R., AND SHAH, V. A novel parallel sorting algorithm for contemporary architectures. Tech. rep., UC Santa Barbara, 2007

### **Work Experience**

- Senior Research Engineer, Interactive Supercomputing Inc.
- Consultant, Interactive Supercomputing Inc. (2005–2007)
- Where Mountain Lions Roam: STAR-P helps decipher Threatened Wildlife Migration  
 Harness supercomputers and electrical circuit theory to help save wildlife from ever-shrinking habitats in an emerging scientific field called computational ecology.  
<http://biz.yahoo.com/prnews/070417/netu032.html?.v=1>
- Author of sparse matrix support in STAR-P, a parallel version of MATLAB (2004).  
 STAR-P provides an interactive interface to parallel computing in MATLAB, and is now being commercialized by Interactive Supercomputing Inc.
- Summer Intern, High Performance Computing Research Department, Scientific Computing Group, Lawrence Berkeley Lab (Summer 2004).
- Won the MIT \$1k Entrepreneurship Competition in the software category with STAR-P (2003).
- PRisM (Parallel Risk Management) with Dr. Ajay Shah (2000).  
 PRisM is a real-time distributed system to calculate intra-day financial risk at NSE, India. Our improvements resulted in a four fold gain in performance. The project won the Skoch Challenger Award for innovative ICT initiatives, 2004.