

## Erika Fuentes

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### CONTACT INFORMATION

Innovative Computing Laboratory  
Computer Science Department, University of Tennessee  
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### RESEARCH INTERESTS

- Scientific computing
- Adaptive systems, Machine Learning, Data Mining, Statistical Application Algorithms
- Sparse linear systems and Iterative methods: Algorithms and behavior
- Parallel and distributed systems

### EDUCATION

PhD. in Computer Science  
Expected Graduation Date: Fall 2007  
University of Tennessee, Knoxville  
Major GPA: 3.9/4.0  
*Specialization:* Applied Statistical Analysis, Machine Learning and Data Mining. Linear Algebra and Numerical Analysis.

M.S. in Computer Science  
May 2002  
University of Tennessee, Knoxville  
Major GPA: 3.8/4.0  
*Specialization:* Networking Protocols and Optimization, Operating Systems, Logistical Networking.

B.S. in Computer Engineering  
June 1997  
Institute of Technology and Superior Studies of Monterrey (I.T.E.S.M.)  
Mexico City, Mexico  
Major GPA: 3.9/4.0  
*Specialization:* Compilers and Artificial Intelligence.

### HONORS, AWARDS AND SOCIETIES

- (2003) Member of *ΥΠΠΕ* Computer Science International Honor Society
- Member of *IEEE* and *ACM*
- (1997) Graduated with Honors as top of the class for the major of B.S. in Computer Engineering
- (1997) Honors Top-Student Diploma from the Institute of Technology and Superior Studies of Monterrey
- (1993-1997) Excellence Scholarship from the Institute of Technology and Superior Studies of Monterrey
- (1996) Distinguished Honors-Student Award from the Institute of Technology and Superior Studies of Monterrey
- (1993) Distinguished Country-wide Student Award from the National University of Mexico

### PUBLICATIONS AND CONFERENCES

- Fuentes, E., "*Statistical and Machine Learning Techniques Applied to Algorithm Selection for Solving Sparse Linear Systems*", Doctoral Dissertation, University of Tennessee, 2007.
- Fuentes, E., "*Statistical and Pattern Recognition Techniques Applied to Algorithm Selection for Solv-*

- ing Linear Systems*", presented at: SC07 International Conference for High Performance, Computing, Networking, Storage and Analysis (Doctoral Research Showcase), Reno, NV, 2007.
- Fuentes, E., "*Statistical and Machine Learning Techniques Applied to Algorithm Selection for Solving Linear Systems*", poster presented at: Grace Hopper Celebration: Women in Computing, Orlando, FL, 2007.
  - Bhowmick, S. and Eijkhout, V. and Freund, Y. and Fuentes, E. and Keyes, D., *Application of machine learning to selecting solvers for sparse linear systems*, Presentation at the 2006 SIAM Conference on Parallel Processing, 2006.
  - Bhowmick, S., Eijkhout, V., Freund, Y., Fuentes, E., Keyes, D., "*Machine Learning Applied to Algorithm Selection for Sparse Linear Systems*", to appear in: The International Journal of High Performance Computing Applications, 2006.
  - Bosilca, G., Chen, Z., Dongarra, J., Eijkhout, V., Fagg, G., Fuentes, E., Langou, J., Luszczek, P., Pjesivac-Grbovic, J., Seymour, K., You, H., Vadhiyar, S. "*Self Adapting Numerical Software (SANS) Effort*" IBM Journal of Research and Development, Vol. 50, no. 2/3, 2006.
  - Eijkhout, V., Fuentes, E., Eidson, T., Dongarra, J. "*The Component Structure of a Self-Adapting Numerical Software System*," International Journal of Parallel Programming, Vol. 33, no. 2, June, 2005.
  - Demmel, J., Dongarra, J., Eijkhout, V., Fuentes, E., Petitet, A., Vuduc, R., Whaley, R.C., Yelick, K. "*Self Adapting Linear Algebra Algorithms and Software*," IEEE Proceedings, 2004.
  - Fuentes, E. "*Numerical Metadata API Reference*," Innovative Computing Laboratory Technical Report, Presented at SuperComputing 2003, Phoenix AZ, ICL-UT-03-03, November 21, 2003.
  - Eijkhout, V., Fuentes, E. "*A Proposed Standard for Matrix Metadata*," Innovative Computing Laboratory Technical Report, presented at SuperComputing 2003, Phoenix AZ, ICL-UT-03-02, November, 2003.
  - Fuentes, E., "*Bayes Theorem Application in Data Mining*," Advancements in Data Mining, Edited by M. Berry, Ch. 1, World Scientific Publishing of Hackensack, NJ, 2006.
  - Beck, M., Fuentes, E., "*An Exposed Approach to Reliable Multicast in Heterogeneous Logistical Networks*" Presented In Workshop on Grids and Advanced Networks, Tokyo, Japan, May 12-15, 2003
  - Beck, M., Fuentes, E., Plank, J., *et all*, "*Logistical Storage Resources for the Grid; In the Proceedings of the International Conference on Computational Science*" ICCS 2002, Part II, LNCS 2330, Springer Verlag 2002

## PROFESSIONAL EXPERIENCE

Innovative Computing Laboratory  
Computer Science Department, University of Tennessee  
June 2002 - Present

Research Assistant (Dr. Jack Dongarra):

- Collaborating in the SANS-Effort project
- Participating in the Self-Adaptive Large-scale Solver Architecture (SALSA) project
- Responsible for the development of the intelligent agent, knowledge database, adaptive modules, and their respective interfaces for the SALSA project
- Teaching Assistant for the course "Scientific Computing for Engineers" (2007)

LoCi Laboratory  
Computer Science Department, University of Tennessee

April 2001 - June 2002

Research Assistant (Dr. Micah Beck and Dr. James Plank):

- Collaborated in the Internet Backplane Protocol (IBP) distributed computing project
- Responsible for the design and development of the Data Movers subproject of IBP

Innovative Computing Laboratory

Computer Science Department, University of Tennessee

August 1999 - April 2001

Research Assistant (Dr. Jack Dongarra):

- Collaborated in System and Network Administration of UNIX and Windows environments for workstations, servers and clusters

Datasys of America Internet Services

Mexico City, Mexico

June - July 1999

Software Engineer, Technical Support and System Administration:

- Responsible for designing and developing software projects for Internet applications in Linux and Windows platforms

InterSoftware Consulting and Development Group

Mexico City, Mexico

1997 - 1999

Project Manager and Software Engineer:

- Responsible for designing and developing software projects for Windows and UNIX platforms
- Design, analysis, development and management of the Talent Review System for Warner Lambert Mexico
- Collaborated in the implementation and programming Inventory System for the retail company "El Palacio de Hierro, S.A."

SPS Consulting Group

Mexico City, Mexico

1996

Software Engineer and Developer:

- Collaborated in the design and implementation of software projects using Lotus Notes
- Supervised and supported the development of UNIX platform projects

RELATED  
COURSEWORK  
TOPICS AND  
PROGRAMMING

- Parallel Architectures and MPI Programming
- Parallel Computing
- Statistical Data Mining, Experimental Analysis
- Operating Systems
- Pattern Recognition
- Special Topics in Data Analysis
- Theoretical foundations and algorithms
- Distributed and High Performance computing
- Grid Computing
- Numerical Analysis and Linear Algebra
- Advanced Architectures Systems
- Artificial Intelligence
- Advanced Research in Machine Learning
- Emergent Algorithm Methods
- Complex Systems
- Markov Chains
- Programming Languages: C, Matlab, C++, Perl
- Journal Club and Seminar in Genetics and Bioinformatics