

# Eric Freudenthal

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## EDUCATION

May 2003: **Ph.D., Computer Science, Courant Institute, New York University**

Advisor: Allan Gottlieb

Title: [Comparing and Improving Centralized and Distributed Techniques for Coordinating Massively Parallel Shared-Memory Systems](#)

May 1985: **B.A., Computer Science, New York University**

## EMPLOYMENT

2004-present **Assistant Professor, University of Texas at El Paso**

1986-2004: **Associate Research Scientist, Courant Institute, New York University**

2001-2004: Project lead for NYU [Parallel and Distributed Systems Group's Distributed Sanctuaries](#) project investigating infrastructure for dynamic deployment of programs and establishment of secure communication channels in partially trusted environments. Co-creator of "Coral-CDN" self-organizing proxy that serves 20M requests from hundreds of Planet-lab hosts daily.

1996-2001: Co-PI of NYU Recognition Lab, which participated in DARPA's MSTAR automatic target recognition program. Areas of research include target hypothesis generation, signature comparison, hypothesis refinement, and scalable deployment.

1986-1997: Assistant Research Scientist, Ultracomputer Research Laboratory. Contributions include algorithms for inter-process coordination, and the analysis and improvement of combining networks.

1985-1986: **Proprietor of small engineering firm.** Designed, programmed and manufactured digital image processing systems for biological research.

1983-1985: **System Design Engineer, Logic Systems** of Saddle Brook, NJ. Designed and supervised the manufacture and programming of digital device controllers and image processing systems. Responsibilities included design of analog and digital circuits, and embedded control software.

Prior experience includes circuit and system design for broadcasting and electronic instrumentation.

## RESEARCH GRANTS and CONTRACTS

*A Practical Sensing and Image Dissemination System for Pervasive Monitoring* CDSR and WSMR / 1/2008

*The Adaptation and Dissemination of a Programming-Centric Computer Literacy Course at HSIs*, NSF / CCLI Phase II, 9/2007

*Investigation of Technical Challenges Related to the Proposed WSMR Playbox*, WSMR 9/2007

Faculty gift award: Texas Instruments Corporation, June 2007

Constraint Validation of RBAC Policy, ARL 8/2005 (1.5yr) \$80,247

*AAI-UTEP Homeland Security Concept of Operation Study.* AAI Corporation, October 2005.

*Constraint Validation of RBAC Policy*, ARL, September 2005

*DAyOS: Dynamic Adaptability for Online Systems*. IBM Faculty Award, January, 2005

*Stable Trust Management through Quantified Reliability*, with Vijay Karamcheti, DARPA IPTO Seedling, March 2003.

*Geometric Hashing for Target Recognition in SAR*, with Ben Goldberg. DARPA SPO/AFRL, through SAIC, September 2000.

*Analysis of ATR Problem Complexity and Scalability*, with Ben Goldberg of NYU, John Wissinger and Bill Irving of Alphatech, and Tom Ryan of SAIC. This first phase STTR was granted by AFRL in the fall of 1998, Second phase was granted in the fall of 1999.

*Model-based Reasoning in a Distributed Computing Environment*, with Ben Goldberg and several educational and commercial partners. DARPA SPO/AFRL, 1999-2002.

*A Computational Laboratory for Automatic Target Recognition*, with Ben Goldberg and Davi Gieger. Air Force Office of Scientific Research, March 1998.

## JOURNAL PAPER

Steven Gutstein, Olac Fuentes and Eric Freudenthal, *Knowledge Transfer in Deep Convolutional Neural Nets*, International Journal on Artificial Intelligence Tools (IJAIT) (accepted for publication).

## REFERREED CONFERENCE PUBLICATIONS

Eric Freudenthal, Mary Kay Roy, Alexandria Nicole Ogrey, Sherri Terrell, Olga Kosheleva, Pilar Gonzalez, and Ann Gates, *Work in progress – Initial Evaluation of an Introductory Course in Programming that Assists in Career Choices*, Proc. *Frontiers in Education*, October 2008.

Eric Freudenthal, Brian Carter, Frederick Kautz, and Alexandria Ogrey, *Work in Progress – Combined Introduction of C and Assembly Language With a Focus on Reduction of High Level Language Constructs*, Proc. *Frontiers of Education*, October 2008.

Eric Freudenthal and Ann Q. Gates, *Media Exposed: A Highly Motivational Introductory Programming Course That Assists Students with Career Choices*, Proc. Texas ACET, October 2008.

Eric Freudenthal and Brian Carter, *Integrating the Teaching of C and Assembly Language*, Proc. Texas ACET, October 2008.

Ryan Spring and Eric Freudenthal, *Sloth-NFS and the Possibility of Using Fuzzy Control to Optimize Cache Management*, Proc. NAFIPS, June 2008.

Eric Freudenthal, Virgilio Gonzalez, Brian A. Carter, *An Anti-Entropy Protocol Suitable For Managing Data Deletion in an Epidemic Data Transmission System*, Proc. 24th Southern Biomedical Engineering Conference, April, 2008.

Eric Freudenthal, Brian Carter, Frederick Kautz, Alexandria Ogrey, Robert Preston and Arthur Walton, *Integration of C into an Introductory Course in Machine Organization*, Proc. ASEE Annual Conference, June 2008.

Eric Freudenthal, Pilar Gonzalez, Olga Kosheleva, Mary Kay Roy, and Ann Q. Gates, *A Creatively Engaging Introductory Course in Computer Science that Motivates Future Study and Assists with Career Choices at a Minority Serving Institution*, Proc. ASEE Annual Conference, June 2008.

Steven Gutstein, Olac Fuentes and Eric Freudenthal, *The Utility of Knowledge Transfer for Noisy Data*, Proceedings of FLAIRS-08 Conference, Coconut Grove, Florida, May 2008.

Eric Freudenthal, David Herrera, Frederick Kautz, Carlos Natividad, Alexandria Ogrey, Justin Sipla and Leonardo Estevez, *Suitability of NFC for Medical Device Communication and Power Delivery*, Proc. *IEEE/Engineering in Medicine and Biology Workshop*, November 2007

Ryan Spring, Eric Freudenthal and Leonardo Estevez, Practical Techniques for Limiting Disclosure of RF-Equipped Medical Devices, Proc IEEE/Engineering in Medicine and Biology Workshop, November 2007.

Eric Freudenthal, David Herrera, Steve Gutstein, Ryan Spring, and Luc Longpre, *Fern: An updatable authenticated dictionary suitable for distributed caching*. Proc MMM/ACNS Sept. 2007.

Christian Servin, Martine Ceberio, Eric Freudenthal and Stefano Bistarelli, An Optimization Approach using Soft constraints for the Cascade Vulnerability Problem, *Proc. North American Fuzzy Information Processing Society (NAFIPS, IEEE)*, June 2007.

Steven Gutstein, Olac Fuentes and Eric Freudenthal, [Knowledge Transfer in Deep Convolutional Neural Nets](#), *Proc. FLAIRS-07 Conference*, Key West, Florida, May 2007

Ryan Spring, Luc Longpre, and Eric Freudenthal, DeSPAC-SE: Making the Internet Safe for Grandma, *South Central Information Security Symposium, Houston, 2006*. Also presented at work-in-progress session, SE-Linux Symposium, 2006 and as a poster at NSDI 2006.

Eric Freudenthal, Nick West, and Luc Longpre: ICE: Putting the Freeze on Malware. *South Central Information Security Symposium*, Austin, April 2005. Also presented as a poster at NSDI 2005.

Luc Longpre, Vladik Kreinovich, Eric Freudenthal, Martine Ceberio, Francois Modave, Neelabh Bajjal, Wei Chen, Vinod Chirayath, Gan Xiang, and J. Ivan Vargas: Privacy, Protecting, Processing, and Measuring Loss, *South Central Information Security Symposium*, Austin, April 2005.

Pattama Jaksurat, Eric Freudenthal, Martine Ceberio, and Vladik Kerinovich. Probabilistic Approach to Trust: Ideas, Algorithms, and Simulations. *Proc. Tech '04*, November 2004. Also available as UTEP Computer Science Technical Report UTEP-CS-04-26a.

Michael Freedman, Eric Freudenthal, and David Mazières, Democratizing Content Publication with CoralWeb. In *Proc. NSDI 2004*.

Eric Freudenthal and Vijay Karamcheti, DisCo: Middleware for Securely Deploying Decomposable Services in Partly Trusted Environments. In *Proc. ICDCS*, March 2004.

Eric Freudenthal, Tracy Pesin, Lawrence Port, Edward Keenan, and Vijay Karamcheti, dRBAC: Distributed Role-based Access Control for Dynamic Environments. In *Proc. 22<sup>nd</sup> ICDCS*, pp411-420, July 2002.

Raj Bhatnagar, Brent Siebert, Lynne Vettel, Eric Freudenthal, and David Morgenthaler, Chunk-based matching of images for ATR. In *Proc. SPIE #5095*, pp303-314, April 2003.

Eric Freudenthal, Eugene Lavelly, William Pierson, Mariam Argyle, Joshua Fishman, ATR Complexity and Template Set Size. In *Proc. SPIE #4382*, Fall 2001, pp. 286-297. Also appears in *Proc. AFRL ATR Theory Conference* (Dayton), Spring 2001.

John Wissinger, Robert Ristroph, Joseph Diemunsch, William Severson, and Eric Freudenthal, MSTAR Extensible Search Engine and Model-Based Inference Toolkit. In *Proc. SPIE Vol. 372*, pp 554-570, 1999.

Eric Freudenthal and Robert Hummel, Methods for Scoring and Aligning Peak Features in SAR Imagery. In *Proc. 47<sup>th</sup> ATRWG*, 28-30 October 1997, Redstone Arsenal, AL.

Eric Freudenthal and Allan Gottlieb, Process Coordination with Fetch & Increment. In *Proc. ASPLOS IV*, Santa Clara, California, April 1991, pp. 260-268. Expanded version available as *Ultracomputer Note 159*, Courant Institute, New York University.

## WORKSHOP PRESENTATIONS

Eric Freudenthal, Lawrence Port, Tracy Pesin, Edward Keenan, and Vijay Karamcheti, Switchboard: Secure, Monitored Connections for Client-Server Communication. In Proc. Resource Sharing Workshop, 22nd ICDCS, July 2002, pp 660-665.

Eric Freudenthal and Allan Gottlieb, A New Look at the Effectiveness of Hardware Combining. *ISCA Shared Memory Workshop*, Barcelona, 1998.

## TECHNICAL REPORTS

Eric Freudenthal, David Herrera, Ryan Spring, and Luc Longpre, Fern: An Updatable Authenticated Dictionary Suitable for Distributed Caching. *UTEP Computer Science Technical Report # UTEP-CS-06-45-A and submitted to ACNS 2007*.

Eric Freudenthal and Allan Gottlieb, Comparing the Performance of Centralized and Distributed Coordination on Systems with Improved Combining Switches. *NYU Computer Science Technical Report TR-2003-849*, November 2003.

Eric Freudenthal and Vijay Karamcheti, QTM: Trust Management with Quantified Stochastic Attributes. *NYU Computer Science Technical Report TR2003-848*, August 2003.

Eric Freudenthal, Evaluation of Inter-processor Triggers as a Coordination Primitive for Shared-Memory MIMD Computers. *The 1992 MPCJ Yearly Report: Harnessing the Killer Micros*, p 241-242, UCRL-ID-107022-92, Lawrence Livermore National Laboratory. Also available as *Ultracomputer Note 185*, Courant Institute, New York University.

Eric Freudenthal, A Short Note on Parallel Power-of-Two Buddy Allocation for Shared Memory MIMD Machines. *Ultracomputer System Software Note 66*, Courant Institute, New York University, February, 1992.

Eric Freudenthal and Oliver Peze, Efficient Synchronization Algorithms Using Fetch & Add on Multiple Bit-field Integers. *Ultracomputer Note 148*, Courant Institute, New York University, February, 1988.

## PATENT

*System and method for distributing foveated data in a network*, USPTO publication US 2004/0215716 A1 published October 28, 2004

## PROFESSIONAL SOCIETIES

IEEE Computer Society  
ACM (Association for Computing Machinery)  
NYAS (New York Academy of Sciences)  
Sigma Xi

## AWARD

Henning Biermann Award 2004, Granted for outstanding contributions by a PhD student to education or service to the Computer Science department of the Courant Institute.

## COMMUNITY SERVICE

Volunteer relationship-skills teacher for youth incarcerated in Las Cruces, NM. 2006-

Vice President of the Bronx-Riverdale Society for Ethical Culture. 2002-2003

Trustee, Unirondack Summer Camp, 1996-1999.

Founding chair of adult education program at the First Unitarian Society of Brooklyn, 1993-1996. Administered program, mentored new workshop leaders, and taught.

New York Cares, 1994-1995. Informal mentoring of NYC youth.

Trustee and Membership Chair of the Brooklyn Society for Ethical Culture, 1989-1992.

