

# 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](#)

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

## EMPLOYMENT

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

2001-present: Project lead for NYU [Parallel and Distributed Systems Group's Distributed Sanctuaries](#) project investigating infrastructure for secure deployment of mobile agents in partially trusted environments.

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

*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.

## CONFERENCE PUBLICATIONS

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

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

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 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.

## PROFESSIONAL SOCIETIES

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

## 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

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.

## REFERENCES

### **Allan Gottlieb**

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### **Vijay Karamcheti**

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### **Benjamin Goldberg**

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### **William Winsborough**

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