

# James W. Anderson

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Department of Computer Science & Engineering

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## Education:

### UNIVERSITY OF CALIFORNIA, SAN DIEGO

La Jolla, CA

Candidate for Doctor of Philosophy in Computer Science, June 2004-present. Adviser: Amin Vahdat

Selected Courses: Computer Networks, Database Systems, Algorithms, Computer Architecture, Complexity

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Master of Engineering degree in Electrical Engineering and Computer Science, June 2004. **Graduate GPA: 5.0/5.0**

Selected Courses: Distributed Systems, Operating Systems, Parallel Computing, Pervasive Computing, Techniques in AI

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Bachelor of Science degrees in Computer Science and Literature, June 2003. **Undergraduate GPA: 4.8/5.0**

## Research Interests:

Distributed systems, peer to peer systems, data availability, computer networks, operating systems

## Experience:

### UC San Diego CSE Systems and Networking Group

La Jolla, CA

Graduate Research (June 2004 to present)

- Onet: Designing the API for the next generation Internet. (Current research project.)
- Mace: Researched and developed C++ language-extensions, source-to-source compiler, and toolkit for building high performance, fault-tolerant, event-driven distributed systems.
- MaceMC: Built a software model checker and interactive debugger capable of finding liveness violations in systems code.
- Tsync: Researched a system for maintaining high data availability through *transparent* synchronization between globally distributed peers. Released C++ prototype under GPL, partly sponsored by a **Google Summer of Code** grant.

### HP Labs Storage Group

Palo Alto, CA

Research Intern (June 2006 to September 2006)

- Developed a distributed self-rate-limiting auditing tool to be deployed on the Internet Archive to find latent storage faults.

### MIT CSAIL Computer Architecture Group

Cambridge, MA

Graduate Research (May 2003 to May 2004)

- Researched and designed a high-performance software router using parallel architectures for the forwarding path.
- Implemented and evaluated a Gigabit router with 13.7 Gbps throughput and 9.4 Mpps MLFFR using MIT RAW processor.

### MIT LCS Programming Methodology Group

Cambridge, MA

Undergraduate Research (December 2002 to May 2003)

- Researched an archival peer-to-peer file system without storage and performance overhead due to log-based DHT structure.

### Machinatio, Inc.

Cambridge, MA

Founder and Chief Technology Officer (January 2000 to January 2003)

- Co-founded a consulting company that developed custom web and network projects for many clients.

### IBM Extreme Blue

Research Triangle Park, NC

Software Engineer (May 2002 to August 2002)

- Designed and implemented databases and autonomic algorithms to automatically deploy configuration and OS profiles.
- Key autonomic management innovation filed with US Patent Office.

### MIT Course: Distributed Systems

Cambridge, MA

Student (Fall 2002)

- Designed and implemented a robust distributed storage system in C++ using erasure codes to achieve high fault-tolerance with minimal redundant-storage. Wrote a Linux block-device interface for conventional access.

## Publications:

Charles Killian, James W. Anderson, Ryan Braud, Ranjit Jhala, and Amin Vahdat, "Mace: Language Support for Building Distributed Systems." *2007 Programming Languages Design and Implementation*, June 2007.

Charles Killian, James W. Anderson, Ranjit Jhala, and Amin Vahdat, "**Life, Death, and the Critical Transition: Finding Liveness Violations in Systems Code.**" *2007 Networked Systems Design and Implementation*, April 2007.

Umar Saif, James W. Anderson, Anthony Degangi, and Anant Agarwal, "**Gigabit Routing on a Software-exposed Tiled-microprocessor.**" *2005 Symposium on Architecture for Networking and Communications Systems*, October 2005.

Dejan Kostić, Ryan Braud, Charles Killian, Erik Vandekieft, James W. Anderson, Alex C. Snoeren, and Amin Vahdat, "**Maintaining High-bandwidth under Dynamic Network Conditions.**" *2005 USENIX Annual Technical Conference*, April 2005.