

Kristal T. Pollack

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OBJECTIVE

A challenging software engineering position in a fast-paced environment.

EDUCATION

University of California, Santa Cruz - September 2003 – present
Master of Science in Computer Science 2006, Advisor: Darrell Long
Ph.D. in Computer Science expected 2008, Advisor: Darrell Long

Harvey Mudd College - Claremont, CA, August 1999 – May 2003
Bachelor of Science in Computer Science, with Distinction

University of Wollongong - NSW, Australia, July 2001- November 2001
Study Abroad program through Arcadia University

EXPERIENCE

[IBM Almaden Research Center](#), San Jose, CA *February 2006 – present*

Software Engineer – Storage Systems Research

- Designing and implementing scalable autonomic performance management for GPFS (General Parallel File System) in Java using techniques from machine learning to detect and diagnose performance problems.
- Maintained and developed features for a large-scale storage management project in Java.
- Took over responsibilities of a colleague who resigned suddenly which required coming up to speed on a complex project and fixed existing bugs quickly before a customer demo.
- Implemented features enabling autonomic management of a petabyte-scale storage system.
- Refactored the management system to be fault tolerant and transactionally safe.
- Submitted several patent applications.

[University of California, Santa Cruz](#)

September 2003 – February 2006

Graduate Student Researcher

- Designed and evaluated metadata management and reliability architectures for a space-efficient archival storage within the UCSC Deep Store project.
- Investigated architectures for quota enforcement and metadata management for high-performance distributed storage systems within the Object-Based Storage Device project.
- Implemented simulation of a distributed object-based storage system to verify metadata management and quota enforcement designs for scientific and user workloads.
- Captured anonymized metadata snapshot of school file servers to demonstrate plausibility of metadata management designs for a large user file system.

[University of California, Santa Cruz](#)

September 2005 – December 2005

Teaching Assistant

- Served as Teaching Assistant for History of Modern Computing, taught by David Pease. Responsibilities included grading assignments and maintaining office hours.

[IBM Almaden Research Center](#), San Jose, CA

June 2005 – September 2005

Summer Co-Op – Storage Systems Research

- Designed algorithms and data structures for end-to-end detection and diagnosis of performance abnormalities in distributed storage systems.
- Implemented a prototype using Java and MySQL for a GPFS file system.

June 2004 – September 2004

- Extended iSCSI target/initiator kernel modules for performance monitoring and flow control.
- Designed and prototyped an automated abnormality detection and diagnosis framework in Python and MySQL for an iSCSI storage system.

June 2003 – September 2003

- Investigated metadata management techniques for distributed object-based storage systems.
- Built a discrete event simulator in Java to test several metadata management algorithms against distributed file system traces.

[Teradyne Inc.](#), Agoura Hills, CA

September 2002 – May 2003

Harvey Mudd Clinic Team Project Manager – Design For Testability Software Group

- Developed a web-based system built on Apache/Tomcat that provided an XML view of semiconductor enterprise data, implementing dynamic data transformation from proprietary and database formats into a unified XML schema so that single queries could be made across the heterogeneous data in XPath.
- As Project Manager led meetings between team and customer, scheduled group milestones, developed UML, gave status updates to customer, and ensured all deadlines were met.

[IBM Almaden Research Center](#), San Jose, CA

May 2002 – September 2002

Summer Co-Op – Web Technologies Group

- Developed an RDF-based technology for automatically annotating text with relevant graphics and objects in Java using Swing, RDF, and XML.

PUBLICATIONS

Kristal T. Pollack, Darrell D. E. Long, Richard A. Golding, Benjamin Reed, and Ralph A. Becker-Szendy. *Quota enforcement for high-performance distributed systems*. In submission.

Deepavali Bhagwat, Kristal Pollack, Darrell D.E. Long, Thomas Schwarz, Ethan Miller, and Jehan-Francois Paris. Providing High Reliability in a Minimum Redundancy Archival Storage System. In *Proceedings of the 14th IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS '06)*, September 2006.

Kristal T. Pollack and Sandeep M. Uttamchandani. Genesis: A Scalable Self-Evolving Performance Management Framework for Storage Systems. In *Proceedings of the 26th IEEE International Conference on Distributed Computing Systems (ICDCS)*, July 2006.

Kristal T. Pollack and Scott A. Brandt. Efficient Access Control for Distributed Hierarchical File Systems. In *Proceedings of the 22nd IEEE / 13th NASA Goddard Conference on Mass Storage Systems and Technologies (MSST)*. April 2005.

Lawrence L. You, Kristal T. Pollack and Darrell D.E. Long. Deep Store: an Archival Storage System Architecture. In *Proceedings of The 21st International Conference on Data Engineering (ICDE)*. April 2005.

Sage A. Weil, Kristal T. Pollack, Scott A. Brandt and Ethan L. Miller. Dynamic Metadata Management for Petabyte-scale File Systems. In *Proceedings of the 2004 ACM / IEEE Conference on Supercomputing (SC '04)*, Pittsburgh, PA, November 2004.

Sage A. Weil, Scott A. Brandt, Ethan L. Miller, Kristal T. Pollack. Intelligent Metadata Management for a Petabyte-scale File System. *Intelligent Storage Workshop*, April 2004.

PATENTS

K. Pollack, S. Uttamchandani, E. Richards, and L. Duyanovich. *RADAR: A Hybrid of Run-time Tracking and Heuristics for Root-cause Analysis in Large-scale Storage Systems*. Filed 2/13/07.

L. Duyanovich, J. Gomez, K. Pollack and S. Uttamchandani. *A System and Method for Recording Behavior History for Abnormality Detection*. Pending, filed 2/6/06, U.S. 11/348010.

L. Duyanovich, J. Gomez, K. Pollack and S. Uttamchandani. *A Technique for Mapping Goal Violations to Anomalies within a Storage System*. Pending, filed 2/6/06, U.S. 11/347999.

D. Ford and K. Pollack. *Graphical Feedback for Semantic Interpretation of Text and Images*. International application 12/11/03. Granted PCT WO/2004/055614, Taiwan I242728. Pending in U.S. 10/323042, Japan 2004560506, Korea 1020057008822, China 200380106458.5.

INVITED TALKS

“Genesis: A Scalable Self-Evolving Performance Management Framework for Storage Systems”, ICDCS, July 2006.

“Quota Management for High-Performance Distributed Storage Systems”, SSRC Retreat, June 2006.

“Genesis: A Scalable Self-Evolving Performance Management Framework for Storage Systems”, 4th Proactive Problem Prediction, Avoidance and Diagnosis Conference, April 2006.

“Introduction to Databases”, Lecture for CMPE02 at UCSC, November 2005.

“Deep Store”, eBay Research, November 2005.

“The Deep Store Archival Storage System Architecture”, SSRC Retreat, May 2005. *Outstanding presentation award*.

“Deep Store: an Archival Storage System Architecture”, UCSC Database Seminar, May 2005.

“Access Control for Distributed Hierarchical File Systems”, MSST, April 2005.

“Deep Store”, Veritas, March 2005.

“Access Control for Distributed Hierarchical File Systems”, SSRC Retreat, June 2004.

HONORS

Department of Education GAANN Fellowship

UC Regents Graduate Fellowship

Outstanding Contribution to Computer Science Clinic Award, Harvey Mudd College

Harvey Mudd College Dean’s List (all semesters)

Mildred Mudd Scholarship

National Merit commendation

Simi Valley High School Valedictorian and Scholar Athlete of the Year

LEADERSHIP

Co-chair - SNIA Technical Work Group on I/O Traces, Tools and Analysis

Vice President - Harvey Mudd College Senior Class

Chair - Harvey Mudd College Volunteer Activities

President - Mudders Making a Difference

Clinic Project Manager – Harvey Mudd College, Teradyne Clinic Project

TECHNICAL SKILLS

Languages: Java, Perl, Python, C/C++, XML, XSL, HTML/CSS, SQL

Tools: CVS, Eclipse, IDEA, Ant

Environments: Linux, OSX, Windows XP/2000

PERSONAL

Basketball (playing in leagues and coaching for kids ages 4-12), Volleyball, Tennis, Oil Painting

References: available upon request