

William F. Acosta

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Education

Ph.D. Candidate, Computer Science

University of Notre Dame, 2006 - Present
Expected Graduation: May 2008

M.S. Computer Science

University of Notre Dame, 2002 - 2005
Thesis: Constructing Efficient and Fault-Tolerant Unstructured Peer-to-Peer Networks
Relevant Graduate Coursework:

- Operating System Design
- Computer Networks
- Computer Architecture
- Programming Languages
- Complexity and Algorithms
- Artificial Intelligence
- Randomized Algorithms
- Distributed Storage Systems
- Multimedia Systems
- Data Mining

B.S. Computer Engineering

The Pennsylvania State University, 1994 -1998

Awards and Honors

Arthur J. Schmitt Presidential Fellowship, 2002 - 2006
Eta Kappa Nu Computer Engineering Honor Society
Upsilon Pi Epsilon Computer Science Honor Society
Outstanding Graduate Teaching Assistant Award, Kaneb Center University of Notre Dame, 2004
Pennsylvania State University Diversity Scholarship, 1994 - 1998
Minority Engineering Academic Achievement Award, 1995 - 1998

Publications

On the need for query-centric unstructured peer-to-peer overlays, William Acosta and Surendar Chandra, *In Proceedings of the IEEE Fifth International Workshop on Hot Topics in Peer-to-Peer Systems (HotP2P '08)*, April 18, 2008, Miami, FL

Exploiting the Properties of Query Workload and File Name Distributions to Improve P2P Synopsis-based Searches, William Acosta and Surendar Chandra, *In Proceedings of the IEEE Conference on Computer Communications (INFOCOM '08) Short paper*, April 14-18, 2008, Phoenix, AZ

Understanding the Practical Limits of P2P Systems: An Analysis of Query Workloads and Object Distributions, William Acosta and Surendar Chandra, In *Proceedings of the ACM/SPIE Conference on Multimedia Computing and Networking (MMCN '08)*, January 30-31, 2008, San Jose, CA

Improving Search Using a Fault-Tolerant Overlay in Unstructured P2P Systems, William Acosta and Surendar Chandra, In *Proceedings of the IEEE International Conference on Parallel Processing (ICPP '07)*, September 10-14, 2007, XiAn, China

Trace Driven Analysis of the Long Term Evolution of Gnutella Peer-to-Peer Traffic, William Acosta and Surendar Chandra, In *Proceedings of the eighth Passive and Active Measurement Conference (PAM '07)*, April 5-6, 2007, Louvain-la-Neuve, Belgium

Designing Flexible Distributed Component Systems, William Acosta and Gregory Madey, Chapter in *Development of Component-Based Information Systems*, eds., M. Lycett, S. de Cesare and R. Macredie, M.E. Sharpe Inc., 2005

Unstructured Peer-to-Peer Networks - Next Generation of Performance and Reliability, William Acosta and Surendar Chandra, In *the IEEE Conference on Computer Communications (INFOCOM '05) Poster Session*, March 13-17, 2005, Miami, FL

Employment

Research Assistant, Systems Lab, University of Notre Dame, 2003 - present

- Supervised several students participating in undergraduate summer research at Notre Dame
- Developed a monitoring tool for capturing traffic on the Gnutella peer-to-peer network
- Created a multi-threaded tool to crawl the Gnutella file-sharing network and discover the overlay topology of the peers connected to the network and discover the files shared by those peers
- Conducted analysis of Gnutella traffic and its change in characteristics, performance and behavior from 2003 to 2006. Over 700 GB of data captured and analyzed.
- Developed the database, data mining and visualization tools to analyze the captured data
- Researching efficient search techniques for locality aware peer-to-peer networks
- Designed a *Makalu*, new mechanism for resilient and locality-aware unstructured peer-to-peer systems based on expanding graph theory

Teaching Assistant, University of Notre Dame, 2004, 2005, 2007, & 2008

- Graduate-level Advanced Operating Systems Course
- Senior and graduate-level Computer Networks Course
- Senior and graduate-level Networked Sensor Systems
- Senior and graduate-level Cryptography course
- Served as substitute lecturer

Enterprise Java Consultant, ThinkSpark, L.P., 2001

- Designed a web-based election reporting tool for a client using J2EE components
- Created an XML/XSL-based tool for automatically generating election reports
- Trained client's developers as well as ThinkSpark consultants on Java and J2EE development

Lead Software Developer, Eziba.com, Inc., 1999 - 2001

- Designed and developed a Java Application Server that supports multiple remote procedure call protocols (Java RMI, XML/RPC etc.), multiple client platforms (Java, Perl, etc.) and remote administration
- Developed the Java e-commerce server platform that powers www.eziba.com
- Designed and implemented the unit and integration testing mechanism used by the development team

- Managed a small group of software engineers

Systems Engineer, Air Traffic Control Systems, Raytheon Company, 1998 - 1999

- Designed a radar data simulator as part of an air traffic control system test engine
- Developed embedded software for air traffic control radar displays terminals
- Designed tests for radar display terminal firmware

Embedded Software Developer - Internship, Unisys Corporation, 1996

- Developed and tested embedded software for Task Control Unit of a custom I/O processor using C and assembly language
- Created processor and memory analysis tools

Service

IEEE INFOCOM 2008, Technical Reviewer (Backup TPC member)

ChinaCom 2007, Technical Reviewer

NOSSDAV 2005, Technical Reviewer

Affiliations

ACM SIGOPS

ACM SIGCOMM

USENIX

IEEE Computer

Eta Kappa Nu Computer Engineering Honor Society

Upsilon Pi Epsilon Computer Science Honor Society

References

Surendar Chandra, Ph.D.

Assistant Professor, Department of Computer Science

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(574) 631-8975

John Tracey, Ph.D.

Senior Technical Staff Member

Manager, Network Server System Software

IBM T. J. Watson Research Center

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Patrick Flynn, Ph.D.

Professor, Department of Computer Science and Engineering

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Amitabh Chaudhary, Ph.D.

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