

Research and Professional Interests

Currently researching program characterization methodology and application-specific accelerators. Broader interests include computer architecture, database systems, parallel systems and embedded systems.

Education

Columbia University Fu Foundation School of Engineering & Applied Science, New York
PhD Computer Science Program **January 2010 – Present**

Columbia University Fu Foundation School of Engineering & Applied Science, New York
M.S. in Computer Science 3.97 GPA **August 2008 – February 2010**
“λSignatures: Function Profiling and Similarity Analysis for Reducing Compiler Design Effort”
Advisor: Prof. Simha Sethumadhavan

A. James Clark School of Engineering, University of Maryland, College Park
B.S. In Computer Engineering 3.4 GPA **August 2004 – December 2007**

Montgomery High School, Montgomery, New Jersey
August 2000 – August 2003

Awards and Honors

- 2010 Andrew P. Kosoresow Memorial Award for Outstanding Performance in TA-ing and Service
- 2010 NSF Graduate Research Fellowship Honorable Mention

Research Experience

Graduate Research Assistant, Computer Architecture Lab, Columbia University
Advisor: Dr. Simha Sethumadhavan, simha@cs.columbia.edu **January 2009 – Present**
Conducting research on code behavior analysis. Defined algorithms for clustering similar functions. Studying applications including semantic code searching, crowd sourcing parallelization, compiler optimizations, and deriving hardware accelerators

Undergraduate Research Project, University of Maryland, College Park
Advisor: Dr. Amol Deshpande, amol@cs.umd.edu **Fall 2007**
Researched models and methods of implementation for non-relational, schema-less databases. Reviewed subjects include XML storage and querying, RDF model and querying, ontological systems, semantic databases and semi-structured data.

Publications

- “Rapid Identification of Architectural Bottlenecks via Precise Event Counting”
John Demme and Simha Sethumadhavan
38th International Symposium on Computer Architecture, San Jose, CA, June 2011
- “COMPASS: A Community-driven Parallelization Advisor for Sequential Software”
Simha Sethumadhavan, Nipun Arora, Ravindra Babu Ganapathi, John Demme* and Gail E. Kaiser
Second International Workshop on Multicore Software Engineering, Vancouver, BC, May 2009
*Student authors ordered alphabetically by last name
- “I, Robot, Architect” (not peer reviewed)
John Demme and Simha Sethumadhavan. Wild and Crazy Ideas VII, Washington, DC, March 2009

Professional Service

- Reviewer, IEEE International Parallel and Distributed Processing Symposium 2010
- Reviewer, IEEE Micro Magazine 2010, 2011

John D. Demme

Technical Service

- Code contributor, *GNU GDB* Symbol demangler for D language
- Code contributor, *Mango Project* XML SAX, DOM, XML-RPC client/server and Java-style collections libraries

Teaching Experience

- Teaching Assistant, Database Systems Implementation, Spring 2011
- Teaching Assistant, Parallel Computer Architecture, Spring 2011
- Private Tutor, Introductory Computer Programming, Fall 2002

Talks and Presentations

- “*I, Robot, Architect*”, John Demme and Simha Sethumadhavan. Wild and Crazy Ideas 2009, Washington, DC

Outreach

- President, *UM Linux Users Group* **2005 – 2007**
- Member, *UM Linux Users Group* **2004 – 2008**
- Member, *UMD ACM International Collegiate Programming Contest Team* **2006 – 2007**
- Volunteer Emergency Medical Technician, *Montgomery EMS* **2002 – 2005**
- Advisor, *Cougar Robotics—FIRST Robotics Team 1403* **2003**

Professional Experience

Putnam Engineering www.putnamengineering.com **2006 – Present**

Contact: Charlie Putnam, cputnam@putnamengineering.com

Lead software and electrical engineer on machining automation product development team. Work included circuit and printed circuit board design, development of machining algorithms and routines, and software development for embedded processors using both assembly and C.

Techno-Sciences, Inc www.technosci.com **2008**

Contact: Bill English, englishw@technosci.com

Re-designed and re-factored prototype code used in production systems currently deployed in Southeast Asia. Integrated various maritime monitoring and communication systems including optical, radar, satellite communications and long-range radio. Responsibilities included travel to Jakarta, Indonesia to assist system installs.

AdaptiveBlue www.adaptiveblue.com **2006**

Contact: Alex Iskold, alex.iskold@adaptiveblue.com

Worked on Firefox plugin “BlueOrganizer”. Wrote parsers to extract semantic information from websites. Implemented interfacing and storage software using Amazon S3 as early adopter of cloud computing technologies. Participated in overall product design.

Open Source Mango Project www.dsource.org/projects/mango **2004 – 2006**

Code maintainer, code contributor and project administrator on preexisting open source project. Created and contributed XML parsers (SAX and DOM) as well as a complete collections library.

CADCode Systems www.cadcode.com **2002 – 2007**

Contact: Ned Brown, President, ned@cadcode.com

Installed and maintained IT infrastructure. Developed custom customer relations management solution and web-based software licensing system. Moved large amounts of server software to Linux and F/OSS.

Freelance Development **2000 – 2005**

Designed and implemented web sites and custom software for clients. Implementations included custom content management system and plug-in for hardware interfacing.