

Brandon Lucia

8924 Ravenna Ave NE
Seattle, WA 98115
Ph:518-256-0485
Em:blucia [at] gmail [dot] com

Education

Tufts University, School of Engineering, B.S. In Computer Science 2007
University of Washington, (Currently pursuing) PhD in Computer Science, thesis in Computer Architecture, Start Date: Fall 2007.

Accolades:

Faithful Steward Fellowship, University of Washington, Computer Science Department 2007
Clairmont L. Egtvedt Fellowship, University of Washington, School of Engineering 2007
CUSP Scholarship, Tufts University, School of Engineering 2006
Paper Selected for publication in IEEE MICRO TopPicks

Publications:

Atom-Aid: Surviving and Detecting Atomicity Violations – Brandon Lucia, Joseph Devietti, Karin Strauss, Luis Ceze. ISCA 2008, Selected for IEEE MICRO TopPicks 2009

Explicitly Parallel Programming with Shared-Memory is Insane: At Least Make it Deterministic – Joseph Devietti, Brandon Lucia, Luis Ceze, Mark Oskin. Workshop on Software and Hardware Challenges of Manycore Platforms, 2008.

DMP: Deterministic Shared Memory MultiProcessing – Joseph Devietti, Brandon Lucia, Mark Oskin, Luis Ceze. ASPLOS 2009.

Research Experience:

Current Research— University of Washington (Ongoing), Advised by Luis Ceze (UW)

Concurrency bug detection and avoidance –

This work focuses on using **architectural support** for **dynamic program analyses** of concurrent programs. The goal of these techniques is to provide **detection** and **avoidance** of concurrency errors. Detection helps developers **create more reliable software**. Avoidance allows for the **reliable execution of unreliable software**. This work was selected for and presented at **ISCA 2008**, and was selected for **IEEE MICRO TopPicks 2009**.

Deterministic Multiprocessing –

This work focuses on **eliminating non-determinism** from concurrent programs. Deterministic execution **makes development and debugging easier**, effectively **reducing the complexity of creating parallel code** to that of creating sequential code. A key contribution of this work was providing determinism, yet **maintaining runtime performance**. This work was selected for **ASPLOS 2009**.

Prior Research—

Programming Language Optimization – Tufts University (9/06 – 5/07), Advised by Sam Guyer (Tufts)

This work focused on the **performance evaluation** of the **Java programming language**, and the exploration of **transparent, byte-code optimizations** (Object Inlining) at class-load time to **increase runtime performance** and **optimize memory use**.

VLSI CAD – Tufts University (6/05 – 5/07), Advised by Soha Hassoun (Tufts)

This work focused on the **development** and **evaluation** of a **novel SAT method** for solving timely, and important **VLSI placement and layout problems**. Our SAT technique was evaluated in comparison with several LP/ILP techniques, as well as other state of the art VLSI placement tools.

CAD for DNA-Based Nano-Circuitry – Tufts University (01/06 – 5/07), Advised by Soha Hassoun (Tufts)

Research consisted of **exploration of design-space** for the use of DNA in the construction of **nano-scale circuitry**, and development of **CAD tools to synthesize and optimize** circuits composed of **carbon nanotubes** and **DNA self-assembled** scaffolding structures.

Work Experience:

Software Development – ExtraHop Networks. (6/07-9/07)

Developed high-performance data-driven network appliance software. Implemented a variety of features including non-blocking streaming image-processing (PNG, GIF, JPEG, BMP), non-blocking push-parse based streaming command parsing, and a packet level SNMP client and server. Development using C, and customization of flex/Bison parser generator framework, Net-SNMP server framework, and image-processing libraries.

Software Development – UBS Securities, Japan. (6/06-9/06)

Development of document generation and management system for integration with Microsoft Office workflow. Utilized K2 workflow manager, MSO OLE integration layer to MS Excel/MS Word. Accessed real-time market data via Bloomberg/Reuters data services, static data from Oracle database via custom internal API. Development primarily in C#/VB.NET.

Software Development – Creative Technical Services, Inc. (5/04-5/05)

Duties consisted of database deployment, development of inventory management application in Perl, database in MySQL, GUI via CGI web scripts. Features included inventory management, scheduling, and rental conflict resolution.

Unix/Windows System Administration – Tufts University (9/03-1/05)

Duties included Unix and Windows user account management, mailing list administration, database account administration, Local and Remote administration of Windows 2003 Server Operating System. Administration of ~150 clients running Red Hat Linux, and Windows XP Operating Systems.

Other Skills:

Natural Languages— Semi-fluent in Spanish, Proficient (but not fluent) in Japanese.

Relevant Coursework:

Data Structures in C/C++, Computer Architecture, Programming Languages, Compilers, Operating Systems, VLSI CAD, Computer Graphics, Theory of Computation, Non-Linear Dynamics and Chaos, Software Engineering, Cognitive and Brain Science Seminar, Algorithms, Artificial Intelligence