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## Education

**Graduate Student of Computer Science** at Princeton University, September 2008–present. Part of the Liberty Research Group, under advisor David August. Relevant course work: programming languages, theory of computation, and artificial intelligence.

**B.S. in Computer Engineering** with a minor in Applied Mathematics from the University of Virginia, Class of 2005. Thesis Title: *Development of a tool for pre-verification of configuration for a data-driven software system.*

## Technical Skills

- Extensive experience in computer programming in C/C++, Java, C#, Ruby, Python, Standard ML on Linux, Windows, Palm Pilot and RIM Blackberry, and on embedded systems such as MSP430 and PIC16.
- Experience in digital and analog circuit design using Spice, VHDL; experience with FPGAs.
- Experience in web technologies, including SQL relational databases, computer networking and network design, Web Services, Web 2.0 Technologies.

## Professional Experience

- **Research Intern** at Microsoft Research Lab India. June–August 2009. Advisor: Ganesan Ramalingam. Explored the uses of concolic execution for specification inference, and combining specifications for multiple implementations of a single algorithm.
- **Graduate Student** of Computer Science at Princeton University. September 2008–present. Advisor: David August. Implemented the Decoupled Software Pipelining (DSWP) analysis, the Multi-Threaded Code Generation (MTCG) transformation, and On-Stack Replacement (OSR) within the Low-Level Virtual Machine (LLVM) compiler infrastructure.
- **Software Engineer** for mSnap. February–September 2008. Redeveloped significant portions of the mobile message processing infrastructure. Designed robust and scalable message processing pathway. Software architecture and design, database optimization, multithreaded programming.
- **Software Engineering as an Independent Contractor** for clients such as Retail Relay and Elder Research. January 2007–present. Developed software systems on Blackberry hand-held devices which communicated with back-end databases via web services. Developed innovative web-interfaces for a company's data mining software.
- **Embedded Systems Developer** for Visi-Trak Sensors. Aug 2006–September 2007. Developed embedded software for industrial sensors, and a tool chain for manufacturing quality assurance, diagnostic, and integration. Responsibilities included project management, software engineering, digital electronic design, analog design.

- **Computer Programmer, Web Developer** for Riovia Communications Group. June 2005–July 2006. Developed custom software for a tax company and a local non-profit organization. Responsibilities included design of applications using scalable service infrastructures, and integrating third party data sources (such as GoogleMaps) into existing applications.
- **Computer Programmer, System Administrator and Research Assistant** for the Behavioral Medicine Center in UVa’s Health System, and UVa Diabetes Technology Program. May 2003–May 2005. Focusing on research into technologies for treatment of Diabetes, I created the *idbm2* system for management of clinical research data, “digital surveys” as Palm Pilot programs. Required skills included programming, computer security, computer networking, embedded systems programming. Attended the 2004 Diabetes Technology Conference. Experience communicating technical issues to a lay audience, developing a large software system on a mostly independent basis.
- **Research Assistant** for Dr. John C. Knight, Ph.D. in UVa’s CS Department. Aug 2004–May 2005. Researched methods for verification of data in the Federal Aviation Administration’s Minimum Safe Altitude Warning System. Incorporated use of automated theorem provers and translation system technologies.
- **Teaching Assistant** for Dr. Kevin Skadron, Ph.D. in UVa’s CS 414 “Operating Systems.” Jan–May 2005. Designed assignments, held office hours, and graded assignment submissions for a fourth-year class.
- **Computer Programmer, Web Developer** for The Riovia Communications Group. Aug 2001–Aug 2002. Developed active web-pages using ASP, JSP and a MSSQL back-end for corporate clients and the State of Ohio. Skills used include programming, graphic design, database design and optimization.
- **Computer Programmer** for FreeSpace Wireless. June 2003–June 2004. Modified low-level network services for a wireless hot-spot management system, modified ISC’s dhcpd so that it would authenticate clients against a back-end database and adjust firewall rules to control bandwidth allocation on a per-client basis. Skills used include programming, modifying large third-party software, Linux networking.

## Honors, Achievements, and Other Experience

- Created an open-source compiler **jackcc** on for an academic instruction set. <http://jackcc.sourceforge.net/>
- Winner for microprocessor design contest in Dr. John Lach’s course ECE 436 Advanced Digital Design.
- Volunteer bicycle mechanic at 123 Tompkins Community Space, 2007–2008. Volunteer bicycle mechanic at Charlottesville Community Bikes, 2004–2007.
- Top-ten finalist in the 2004 IEEE CS International Design Competition for design of a distributed water quality monitoring network. <http://tinyurl.com/jr3yv>
- Founder of MAKE:Princeton, a student organization of inventors and artists. September 2008–present.