

KARTIK SHRIVASTAVA

Phone: +1 330-207-9407, E-mail: kartik.inc@gmail.com, Webpage: <http://www.cise.ufl.edu/~kshrivas>
Address: 450 N Mathilda Ave, Apt O-202, Sunnyvale, CA - 94085

EDUCATION

- **Master of Science in Computer Engineering** **GPA 3.70/4.00**
University of Florida, Gainesville, August 2010
- **Bachelor of Technology in Information Technology** **GPA 3.75/4.00**
National Institute of Technology (NIT), Jaipur, India, May 2008

RELATED COURSEWORK

Computer Architecture, Database Management Systems, Embedded Systems, Computer Networks, Analysis of Algorithms, Distributed Operating Systems, Advanced Data Structures, Network Security, Software Engineering, Image Processing, Automata Theory, System Software

WORK EXPERIENCE AND TRAINING

- **Research Assistantship at University of Florida** **June 2009 - Aug 2010**
 - Worked under Dr. Prabhat Mishra at the Embedded Systems Lab, on dynamic and multi-level code compression to improve system performance and efficiency.
 - Research involved surveying existing code compression algorithms, computer architecture modeling, implementation in an open-source cycle-accurate simulator (SimpleScalar), performance data collection and analysis, documentation.
 - Projects included a new dual compression scheme, and synergistic integration of code compression and encryption.
 - My research culminated into my MS thesis and two research papers.
- **Software Intern at Infinite Energy, Gainesville, Florida** **May 2010 - Aug 2010**
 - Created C# and Perl tools and SQL stored procedures to automate of verification of transactions and data dictionaries.
 - Worked collaboratively with software developers, database administrators, business analysts, project managers and customer service personnel in the development of master test plans and test cases.
- **Systems Administrator at NIT, Jaipur** **May 2007 – May 2008**
 - Setup and administered the institute Mail server (Qmail and Courier), LDAP server at NIT, Jaipur and the corresponding Central Authentication System for the Central Computer Lab. Also integrated LDAP with RADIUS

PROJECTS

- **Code Compression and Encryption:**
Formulated and analyzed methods to produce compressed and encrypted program files. Modeled different architectures to run these programs. Implemented in SimpleScalar, an open-source (C, GCC) performance simulator by adding modules to dynamically decode the instructions while executing the modified binary.
- **Dual Code Compression:**
Developed a new code compression algorithm and corresponding architecture to achieve both optimal performance and memory utilization, when running the applications. The implementation was done on SimpleScalar simulator.
- **Aspect Oriented Operating System Kernel:**
Designed and developed an Operating System kernel in aspect oriented paradigm (through AspectC and GCC) and the Minix 2.0 kernel as the base, to find out the feasibility of Aspect Oriented Programming in designing and integrating the kernel modules like memory management, process management, file system, and inter procedure calls.

- **Bit Torrent Client:**
Designed and implemented a BitTorrent client. The project required extensive use of concurrent and socket programming in Java (jdk 1.6) and GNU/Linux (Debian 5.0) as the platform.
- **Super-scalar Simulator:**
Implemented a performance simulator for a super-scalar MIPS processor. It involved two phases: first was to implement the instruction set architecture i.e. to create a functional simulator, and then to implement the pipelined stages of the processor. Platform for the project was in Java (jdk 1.6) on GNU/Linux (Debian 5.0).
- **Covert Channels in the TCP/IP suite:**
Designed and implemented a means of channeling data covertly and bouncing it from an arbitrary host by manipulating the TCP/IP message headers using raw sockets in the Linux's (kernel v2.6) networking API and Berkley Sockets in C.
- **Strong Authentication Protocol:**
Implemented a client registration service using several aspects of secure client-server authentication, like RSA Public key encryption and Digital Signature, MD5 message digesting, TEA secret key encryption, nonces and cookies.
- **Online course registration:**
Designed and developed an online course registration site for students and instructors. It was a course project for Database Management Systems (Fall 2009). System and tools used were Linux, Apache webserver, MySQL backend database and PHP (i.e. LAMPS).

PUBLICATIONS

M.S. Thesis

- Synergistic Integration of Code Compression and Encryption in Embedded Systems
University of Florida, August 2010.

Conference Papers

- Dual Code Compression for Embedded Systems, Kartik Shrivastava and Prabhat Mishra, Accepted to appear in International Conference on VLSI Design, Chennai, India, January 2-7, 2011.
- Synergistic Integration of Code Compression and Encryption, Kartik Shrivastava and Prabhat Mishra, Due for publication in LCTES 2011.

SOFTWARE AND TECHNICAL SKILLS

- **Programming Languages:** Assembly Programming, C, Java (J2SE, J2EE), C# .NET
- **Scripting Languages** Perl, Shell Scripting (bash, csh)
- **Software Tools and Utilities:** SimpleScalar v3, IBM Rational Rose, SQL, MATLAB, GDB, GCC
- **Operating Systems:** Linux: Debian, Gentoo & Ubuntu; Windows: 98, NT, XP, Vista, 7
- **Systems and Servers:** Apache, OpenLDAP v2 Directory Service, MySQL, SQLSever
- **Web Development** PHP, JSP, Java Servlets, DHTML, XML, JavaScript, Ajax