

**OBJECTIVE**

To pursue research in network systems while working towards transforming the Internet architecture.

**EDUCATION**

**Masters of Science** Computer Engineering (*ongoing*) December 2010  
George Mason University, Fairfax, VA, USA  
**Bachelor of Technology** Computer Engineering May 2008  
Malaviya National Institute of Technology, Jaipur, India

**COURSEWORK AT GMU**

Advanced Computer Networks, Security Experimentation, Operating Systems, High-speed Networks, Independent research on Network Operating Systems, Introduction to Random Processes.

**TECHNICAL SKILLS**

**Operating Systems**

Gentoo/Fedora/Ubuntu Linux, Plan 9 from Bell Labs

**Applications and Tools**

GNU tools, distributed version control systems, L<sup>A</sup>T<sub>E</sub>X, Network Simulator 2

**Network and Server Administration**

Apache, LDAP, iptables, shorewall, ipcop, djbdns, cacti, samba, snort, wireshark, munin, monit

**Programming Languages**

C, GNU Shell script, PHP (with MVC Paradigm), Python

**Also Familiar With**

C++, x86 Assembly, JAVA Servlets and JSP, Javascript, AJAX

**INDEPENDENT ACADEMIC PROJECTS**

*Implement a /net/iproute for advanced routing protocols* 2010

- Kernel driver to provide routing functionality in Linux with a Plan 9 inspired filesystem interface
- Project is still in research and proposal stage

*Slashnet: A filesystem interface to tcp/ip networking (<http://slashnet.wordpress.com>)* 2009

- Created a Virtual Filesystem using libfs as a Linux kernel driver module
- Working on providing networking functionality using file read/write interface

*Routing away from congestion using a DHT-inspired approach* 2009

- Research work submitted as project component for the course High-Speed Networks
- Explored a technique to use Kademia-style lookups to dynamically re-route away from traffic
- Argumentatively discussed the balance between connection disruption and congestion control

*Practical implementation of a proposed rate-control technique in Network Simulator 2* 2008

- Provided ns-2 implementation and proof of infeasibility for a master's thesis paper titled "A Low Level Rate Control Congestion Avoidance Technique", from Southampton University, UK

*Independent study project on peer-to-peer networks* 2006

- Basic research study of hash-table based systems like Kademia, Chord, Kelips, Tapestry, Pastry
- Used a tool called MITs P2PSim to run built-in tests for chord, kelips and tapestry
- Proposed a new modular simulator architecture ideal for simulating hash-table based algorithms and DDoS attacks; and discussed its scope and feasibility
- Completed a survey paper titled "Comparative Analytic Simulation of Peer to Peer Networks"

## RELATED EXPERIENCE

*Graduate Teaching Assistant*

October 2008 - present

Computer Resources Department, George Mason University, VA, USA

- Provide GNU/Linux technical support to the entire Engineering Building
- Maintain computing infrastructure in classrooms

*Project Leader and System Administrator*

August 2005 - March 2008

Information Technology Resources, Malaviya National Institute of Technology, India

- Maintained the new campus-wide network along with the campus gateway and firewall
- Designed a content management system currently in use for various administrative tasks
- Sparked a campus-wide adoption of Gentoo Linux and deployed a central rsync mirror for updates
- Mentored sophomores to actively take up free and open source projects
- Jointly conducted a series of lectures, workshops and Gentoo Linux install fest

*Student Developer*

May 2007 - August 2007

Open Source Programs Office, Google Inc., Mountain View, CA, USA

- Part of the project for developing an open source IP Security alternative in OpenSolaris
- Selected by the OpenSolaris Community as a part of Google Summer of Code™ 2007

*Intern*

May 2006 - July 2006

Networking Business Unit, HCL Technologies Ltd., Chennai, India

- Part of the project to implement the Internet-Draft on quickstart in Omnet++ Network Simulator
- Helped prepare the design document for implementing IP security layer in Infineon OS kernel

## JOURNAL PAPERS

*Institutional Information Management with Open Source Software*

December 2006

Presented a workshop paper as a team at the International Conference on Digital Information Management (ICDIM) organized by Christ College, Bangalore, India and Digital Information Research Foundation, Chennai, India and sponsored by the IEEE.

## EXTRA-CURRICULAR ACTIVITIES

*Free and Open Source Software*

- Organized and also conducted various workshops at my Institute level
- Attended various Open Source Software related conferences
- FOSS.IN/2007 was a specially enlightening experience
- Have a general interest in software patents and copyleft licenses

## MISCELLANEOUS INTERESTS

I am primarily an ideas person. I am particularly gifted at creating new problems worth solving. I am information hungry and enjoy discussing technology and latest trends. I am fluent in spoken and written English, as well as spoken Hindi.