

SWATI ROY

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EDUCATION

Princeton University **1/2015 – Present**
Master of Arts, Computer Science
Advisor: Dr. Nick Feamster

Georgia Institute of Technology, Atlanta, GA **8/2011 – 5/2013**
Master of Science, Electrical and Computers,
GPA 3.87/4.0

Visvesvaraya Technological University, Belgaum, India **8/2006 - 6/2010**
Aggregate Percentage: **82.85% (Rank #1-Department of Telecommunication)**

PROFESSIONAL SKILLS

- **Programming:** C/C++, Java, SQLPlus, Python, MATLAB
- **Operating Systems:** UNIX, LINUX

EXPERIENCE

Princeton University **Princeton, NJ**
Assistant in Research **6/2015 – 01/2016**

Project in collaboration with AT&T:

- Experimented with various regression techniques on operational cellular data for estimating service quality metrics in MATLAB.
- Conducted thorough evaluation of developed methodology.

Princeton University **Princeton, NJ**
Assistant in Instruction **2/2015 – 5/2015**

Algorithms and Data Structures

- Mastered various sorting and graph algorithms, regular expressions.
- Conducted mini-lectures for undergraduate students to support course material and programming assignments in Java.

Georgia Institute of Technology **Atlanta, GA**
Graduate Research Assistant **8/2014 – 1/2015**

Project in collaboration with AT&T:

- Understood relationship between different service quality metrics and network metrics.
- Applied machine learning techniques to large-scale measurement data for end-user service performance assessment in MATLAB.
- Analyzed different case studies of how self-organizing network controller actions impacted end-user service performance with the developed methodology in MATLAB.

AT&T Labs-Research **Bedminster, NJ**
Summer Student Intern **5/2014 – 7/2014**

Project Impact assessment of Self-Organizing Networks (SON) in Dynamic Environment

- Mastered domain-knowledge of metrics impacting service performance of mobile cellular networks.
- Built model for impact assessment of service quality metrics in the presence of automated SON actions in MATLAB.

- Built shell scripts to run network measurement tools on the routers.
- Developed algorithm to detect network anomaly in Python.
- Analyzed data and drew conclusions based on experimental evaluation in MATLAB.

PROJECTS

Machine Learning

- Mastered supervised and unsupervised learning algorithms.
- Implemented machine learning based trading strategies to market orders in Python.

Networks

- Mastered inter-domain BGP routing protocols, Transport Issues and various flavours of TCP, Access Network, Performance Evaluation and introduction to multicasting.
- Mastered wireless network characteristics on existing network protocols, and newer protocols such as protocols for medium access control, scheduling, routing, reliable transport, Mobile IP and introduction to Ad-hoc Networks.
- Introduced to various challenges for wireless sensor networks, studied various protocols for different layers of protocol stack, Cross-layer module, Error-control.

Operating systems:

- Implemented a multi-threaded web server for static pages in C language. A web server is a server program that implements the HTTP protocol. Several copies of a file are kept in the local directory of the Server. Client accesses all the files at random.
- Developed an optimized skeletal web proxy server in C language. The proxy server is an intermediary between a web server and a web client. The proxy server is optimized through shared memory so that it can work efficiently when communicating with the web server running on the same machine.
- Designed a distributed proxy server to manipulate data in a computation-intensive way in C language. The proxy server manipulates data in a computation-intensive way, so that under heavy load the bottleneck is not the network but the CPU.

Computer Architecture

- Simulated various branch predictors and simulation results matched with theoretical results in C++.
- Implemented Tomasulo algorithm in C++ which allows instructions to execute randomly but still maintaining the in-sequence execution.

AWARDS AND RECOGNITION

- Awarded N2Women **best poster** presentation award for SIGCOMM conference 2014.
- Awarded N2Women travel grant award for SIGCOMM conference 2014.
- Won **3rd** place in ACM SIGCOMM Student Research Competition, 2013.
- University 10th rank holder in Bachelor's program, India, 2010.
- Telecommunication Engineering Department Topper 2006-2010.

CONFERENCE PROCEEDINGS

Characterizing Correlated Latency Anomalies in Broadband Access Networks. Swati Roy, Nick Feamster.
Poster at ACM SIGCOMM 2013.