Abhishek Gautam

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Education

Master of Science, Computer Science and Engineering	GPA 3.44/4	Aug 2015 - Feb 2017

State University of New York at Buffalo

Major Concentration: *Distributed Networked Systems*
Advanced Certificate: *Information Security Assurance*

Bachelor of Engineering, Computer Science and Engineering	GPA 7.98/10	Aug 2008 - Aug 2012

Chitkara University

Career Summary

Software Engineer   Feb 2017 - Present

Cisco Systems, Inc. San Jose, CA

Designing and developing Platform Forwarding Software for Cisco's IOS-XR Routing and Switching Platforms

Graduate Researcher   May 2016 - Feb 2017

State University of New York at Buffalo, AT&T Bell Labs, New York

Worked towards analyzing Network Performance using smartphones by collecting data pertaining to Cellular and Wireless Networks using Android Application Development under Professor Dimitrios Koutsonikolas

Worked towards re-setting up a testbed related to SDN/VPN based research project in collaboration with AT&T Labs by building and debugging the controller(in C and Python) and data path of OVS using Ryu, Mininet and Open vSwitch

Network and Systems Engineer   Jun 2013 - Jun- 2015

Tech Mahindra Ltd, India

Assisted AT&T's network for Customer Ordering and Billing Applications outsourced to Tech Mahindra. Involved in suggesting network design improvements encompassing BGP metric tweaking, load balancing based on BGP Policies and network configurations for advanced OSPF.

Software Engineer   Jun 2013 - Jun 2014

Tech Mahindra Ltd, India

Developed and shaped a mainframe screen scraping application for AT&T's Wholesale Ordering and Billing Solutions in VB.NET. Involved in code design and review, system deployment and support, business requirements and project estimates

Projects

CellMon [Java, Android, Python, Django, MongoDB, SQLite, Google Protocol Buffers]
An Android application that lets you track various cellular network parameters as you move around. Pulls data from your phone, serializes using Google Protocol Buffers and sends it over the network to a Django based server. The data is processed and can be viewed by the user in geo-map and statistical UI.

Software Defined Routing and Distance Vector Routing Implementation [C/C++, Python, GNU]
A model that mimics the SDN design, separating the control plane and the data plane of the router. Includes a router written in C/C++ and a Controller scripted in Python. Provisions distance vector routing updates and file sharing orchestrated by the controller using the best possible route.

CE to CE MPLS L3 VPNs and LDP Packet Analysis [MPLS, BGP, MPBGP, OSPF, Cisco ISR 2800, EPC]
Analysis of MPLS packets (Transit labels and VPN labels) by configuring L3 VPNs on Cisco ISR platforms with the help of Cisco Embedded Packet Capture.

Reliable Transport Protocol [C/C++, TCP/IP, GNU]
Programmed a protocol for reliably delivery at L4. Performance analysis and comparison with TCP/IP, Go-Back N and Selective Repeat at different loss and corruption probabilities.

Simple Amazon DynamoDB [Java, Android, SQLite, DynamoDB, Socket Programming]
A replica of Amazon Dynamo using 5 Android phones as storage nodes. The model takes care of Data Partition & Replication, Node Failures and Replica Synchronization & Conflict Resolution.

Distributed Hash Table [Java, Android, SQLite, ChordDHT, Socket Programming]
Implemented Chord DHT using 5 Android phones as storage nodes. Provisions node partitioning/re-partitioning, node joins and ring based data routing.

BGP Traffic Behavior [BGP, Cisco 7200 and ASR Platforms]
Research assignment studying how BGP behaves when tuned for different attributes in a simulated environment consisting of 5+ ASs. Manipulating, filtering and configuring failover routes.

Other Interesting Personal Work:
URL Pruner - A CLI based URL shortener written in Go.Lang
Stocks Scraper - A Python based stock scraper using Yahoo Query Language
Geo-Tracker - Android application that tells you where you are and where did you go in the past days
Multilingual Tweet Search Engine - A search-based solution in Java for indexing of a corpus of Multilingual Tweets crawled using a custom crawler. Offers Faceted Search and Content Tagging.
CLI based Chat and File Sharing System - A Chat application written in C++ where you can chat, send files, track user activity, buffer messages and block users too!
Sweet Spot Spotify - For all the terminal geeks, an AppleScript based tool that uses Spotify API to control Spotify music right from CLI!
CTCIv5.0 - Wrote code for solutions of the famous Cracking The Coding Interview Book in 4 different languages - C/ C++, Java, Python and Go

Skills

Computer Networking
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TCP/UDP, IP, Cisco Data Center Technologies, SDN, OpenFlow, Cisco NX2k, 5k & 7k, BGP, OSPF, EIGRP, MPLS, MPBGP, IS-IS, STP, LACP, FEX, vPC, FabricPath

C/ C++
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Networks and Systems Programming

Golang
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OOPS, Scripting, Web

Python
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Zero-touch task automation, Network Management, Data Analysis

Java
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OOPS, Android Application Development

Perl
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Scripting and Automation

Unix, Shell
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CLI, Scripting

Operating Systems
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RHEL, CentOS, macOS, Windows, Unix

Web & Data
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SQLite, SQL, Django, MongoDB, JSON, HTML5

Certifications and Awards

Cisco Certified Network Associate
407764170287FQYL, May 2018

Cisco Certified Network Professional
421344169061IRXN, May 2018

Young Innovator Award, 2014, Tech Mahindra

Best Engineering Project, 2012, Chitkara University

Coursework

Modern Networking Concepts
Distributed Systems
Computer & Network Security
Applied Cryptography
Algorithm Analysis and Design
Information Retrieval
Operating Systems
Routed and Switched Networks
CCNA Data Center, CCNP Data Center - CBT
MPLS Fundamentals - CBT
Software Defined Networking - Coursera
OpenFlow and SDN - Udemy
Amazon Web Services - LinkedIn

Publications

Post-Quantum Security Algorithms For Constrained Devices

Comparative study of Lattice-based cryptographic algorithms and evaluating their performance by testing them on constrained device environment (Raspberry Pi B+)

Portfolio

gautamgitspace.github.io