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EDUCATION

University at Buffalo (UB), The State University of New York **GPA 3.29/4.0** **Feb 2017**
Master of Science, Computer Science, Major Concentration – *Distributed & Networked Systems*, Graduate Certificate - *Information Assurance*

Chitkara University, India **GPA 7.98/10** **August 2012**
Bachelor of Engineering, Computer Science Engineering

TECHNICAL SKILLS

Programming: C, C++, UNIX Network Programming, Java, VB, C#, **Scripting & Automation:** Python, Perl, Ruby, Shell
Operating Systems: Windows, Mac, Unix, Cisco IOS, VM **Web Technologies:** Solr, HTML/CSS/JS, XML, Apache, JSON
Networking: BGP, OSPF, EIGRP, ATM, PPP, MPLS, STP, RSTP, VTP, VLANs, CDP, HSRP, VRRP, GLBP, TCP/IP, DNS, UDP, VoIP, QoS, LACP, PAgP, SNMP
Security: RADIUS, TACACS+, AAA, IPSec, BGPSec, Snort, VPN, Basic Firewalls, CompTIA Security+, CCNA Security
CCNA, Validity: May 2018, License – 407764170287FQYL **CCNP**, Validity: May 2018, License – 421344169061IRXN
Network Platforms: VMware NSX, SDN and OpenFlow, Cisco Nexus 1K, 2K, 5K and 7K, Cisco 3725, 3640, Catalyst - 2960-X, 3750, 3850, 6513, 2950T-48, Compact – 3560,2960
Tools: Xcode, Intelli J, Android Studio, Secure CRT, Wireshark, Cisco SDM, Matlab, Windows Active Directory, Microsoft Visio, Versioning – Git, SVN

INDUSTRY EXPERIENCE

Graduate Researcher, UB Wireless Networks and Systems Lab, The State University of New York **May 2016 – Present**
- Working towards analyzing Crowd Sourced Cellular Network Performance using smartphones by collecting data pertaining to cellular and wireless networks using Android Application Development.

Network and System Engineer, Tech Mahindra Ltd., Noida, India **June 2013 – July 2015**
- Assisted AT&T's network for Customer Ordering and Billing applications outsourced to Tech Mahindra. Involved in:
  1. Suggesting network design improvements involving BGP metric tweaking and load balancing based on BGP Policies.
  2. Router (3725, 3640) and Switch (3750, 6513, 2950) Configuration and troubleshooting solutions for advanced OSPF.
  3. Network troubleshooting and monitoring using AOTS ticketing system, Server side logs, Unix, Python and Perl automation scripting.

Software Engineer, Tech Mahindra Ltd., Noida, India **June 2013 – July 2014**
- Developed and shaped a mainframe screen scraping application for AT&T's Wholesale Ordering and Billing Solutions. Involved in:
  1. Code design and review of the application in VB .NET, SQL scripts and automation
  2. System deployment and support, business requirements analysis and project estimates.

Network Engineer Intern, Bharti Airtel, Chandigarh, India **Aug 2011 – Feb 2012**
- Designed the network for the enterprise, addressing needs like designing a fully redundant highly available L3 design by deploying HSRP and GLBP, Router Security: Zone-based firewalls, RADIUS and TACACS+, Switch Security: VACLs, port security and dot1x authentication.

PROJECTS

CelNetMon **[Java, Google Protocol Buffers, Cellular Networks, Android, Python, Django, SQLite]**
- Designed and developed an Android application in Java that helps in Cellular Network Performance Analysis. The application is being used in an on-going research project at UB Wireless Networks and Systems Lab and is capable of:
  1. Provisions registering your device to a Django based web server followed by periodic uploading of the serialized data using Google Protocol Buffers and provisions viewing analysis reports on your device in the form of CSV files.
  2. Tracking your geographical location using wireless and cellular networks thus optimizing battery performance. Monitoring other cellular network parameters such as RSSI, network type, network state, data activity and data state as you move around.

Simple DynamoDB - Amazon's Replicated Key Value Storage **[Java, Android, Socket Programming, DynamoDB, SQLite]**
- Implemented a simplified version of Amazon DynamoDB in Java, using 5 Android Virtual Devices acting as nodes. The design mimics the highly available and scalable distributed data store built for Amazon's platform and takes care of:
  1. Partitioning & Replication –Consistent Hashing to distribute load across multiple hosts and Chain Replication with a degree of 2
  2. Node Failures - Consistent retrieval in case of node failures.
  3. Replica Synchronization and Conflict Detection and Resolution - Object versioning using Mutex and Semaphores.

Software Defined Routing and DVRP Implementation **[TCP/UDP Socket Programming, GNU, C, C++]**
- Implemented a simplified version of a router which performs Control Plane & Data Plane functionalities and performs routing updates in a Distance Vector Routing fashion. This model works on top of Computer Science Dept. servers (acting as routers) at the University at Buffalo and hence performed routing and two-way file sharing, for all possible network topologies.

Distributed Hash Table – Structured P2P Key Value Storage System **[Android, Java, Socket Programming, DHT Chord, SQLite]**
- Developed a simplified version of DHT based on the Chord algorithm using 5 Android Virtual Devices acting as nodes. The model is capable of handling ID space portioning/re-partitioning, Ring based routing and joining of new nodes to the networked system.

ExactAgent – AT&T's Mainframe Screen Scraping Application **[Cobol, VB.Net, SQL, Shell, Python]**
- The application assisted in creating AT&T's Wholesale Ordering and Billing Service Orders for requests coming into the FLSC (Facilities Local Service Center) via an ASR (Access Service Request) by scraping data from the Mainframe screens at different coordinates.

Distributed Message and File Sharing System **[TCP Socket Programming, GNU, C, C++]**
- Designed a shell-based Multi-Client Chat Application and File Sharing System. The application works on top of the Computer Science Dept. servers at the University at Buffalo. This application implements both Client-Server and P2P model and provides functionalities like: Client login logout and active tracking, message storage and delivery guarantee and blocking client access.

Multilingual Tweet Search Engine **[Java, Json, HTML, Solr, XML, Apache]**
- Developed a complete search-based solution in Java for parsing and indexing of a corpus of Multilingual Tweets. The engine supports:
  1. Provisioning of language detection and translation both at run time and index time using Java thus offering cross-lingual queries.
  2. Built the front-end UI using AjaxSolr (jQuery), HTML and CSS which implements Faceted Search and Content Tagging using Java.

COURSEWORK

- **Undergraduate:** Computer Networks, Routing Protocols, Switched Networks, Operating Systems, Application development in Java
- **Graduate:** Algorithms Analysis, Machine Learning, Information Retrieval, Modern Networking Concepts, Computer & Network Security, Applied Cryptography, Distributed Networked Systems, Wireless Network Security, Information Assurance

ACHIEVEMENTS & HONORS

Young Innovator Award 2014, **Tech Mahindra Ltd.** - Suggested a cost-effective idea that could eliminate IP phones within the company campus.
Free wireless IP Telephony - Best Engineering Project Award 2012, Chitkara University
Designed a model that offered free wireless telephony between two university departments. Received the Best Engineering Project recognition.
Co-founded a firm named Chandigarh Gaming - Organized LAN Gaming events at various universities in India including IITs.