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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:** Python, Perl, Shell
Operating Systems: Windows, Macintosh, Unix, Cisco IOS, VM
Web Technologies: Solr, HTML/CSS/JS, XML, Apache, JSON
Networking: BGP, OSPF, EIGRP, STP, RSTP, VTP and IPv6 routing
CCNA, Validity: May 2018, License – 407764170287FQYL **CCNP**, Validity: May 2018, License – 421344169061IRXN
Other tools: Xcode, MS Visual Studio, SQL Server Management Studio, Dreamweaver, Eclipse, Android Studio, Secure CRT, Wireshark, Cisco SDM, Matlab, Windows Active Directory, Microsoft Visio, Versioning – Git, SVN

CAREER SUMMARY

Graduate Researcher, University at Buffalo, 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**
- Coordinated with AT&T's Network Operations Team for Customer Ordering and Billing applications outsourced to Tech Mahindra. This included implementing and troubleshooting OSPF, BGP and IGP redistribution by analyzing business needs, Network troubleshooting and monitoring using AOTS ticketing system, Server side Unix scripting and providing project estimates to the business.

Software Engineer, Tech Mahindra Ltd., Noida, India **June 2013 – July 2014**
- Developed and shaped AT&T's mainframe screen scraping application named ExactAgent in VB .NET. The application assisted in creating service orders for requests coming into the FLSC (Facilities Local Service Center) via an ASR (Access Service Request) by crawling data from main frame screens at different coordinates.

Research Assistant & Corporate Trainer, Network Bulls, India **June 2012 – July 2013**
- Completed research assignments on BGP traffic behavior and trained IT Professionals on Cisco's learning requirements.

Network Engineer Intern, Bharti Airtel, Chandigarh, India **Aug 2011 – Feb 2012**
- Designed the network for the enterprise, addressing needs like LAN communication, switch redundancy (STP and RSTP), first hop redundancy (HSRP, VRRP and GLBP) and VLANs. Advanced routing (OSPF and EIGRP) and internetwork routing (BGP)

PROJECTS

Cellular Network Monitor **[Android, Java, Python, Django, SQLite]**
- Designed and developed an Android application that tracks your location based on the network provider and monitors other network parameters such as RSSI, current network type, current network state, data activity and data state as you move around. Provisions uploading this data to a web server also giving the user an option to export data to a CSV file.

Simple DynamoDB - Amazon's Replicated Key Value Storage **[Android, Java, Socket Programming, DynamoDB, SQLite]**
- Implemented a simplified version of Amazon DynamoDB in Java, using 5 Android Virtual Devices acting as nodes. The design takes care of Partitioning, Data Replication, Node Failures and Replica Synchronization & Conflict Resolution using Object Versioning.

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.

Reliable Transfer Protocol **[C, C++]**
- Programmed a Reliable Transfer Protocol at Transport Layer, implementing best features from Go-Back-N, Alternating-Bit-Protocol and Selective Repeat. Did performance comparison of throughput of the 3 protocols using different window sizes and loss probabilities.

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.

Post-Quantum Primitives for Constrained Devices **[Python, C, C++, Raspberry Pi]**
- Performed a comparative study of Lattice-based cryptographic algorithms and evaluated their performance by testing them on constrained device environment (Raspberry Pi B+). Programmed the following algorithms in Python and C: LP, U-LP, BLISS and NTRU.

Social Media Indexer and Multilingual Search System **[Java, Json, HTML, Solr, XML, Apache]**
- Developed a complete search-based solution in Java for parsing and indexing of a corpus of multilingual Tweets through cross-lingual queries. The model implements Faceted Search, Content Tagging and provisions language detection at run time and index time.

Student Career Paths based on Probability Distributions and Bayesian Networks **[Matlab, Python, Bayesian Networks]**
- Evaluated and analyzed statistical data of the universities in the United States and formulated the likelihood of the probability curves of career growth of students using MATLAB.

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.

ACHIEVEMENTS & HONORS

Young Innovator Award 2014, **Tech Mahindra Ltd.**
Suggested an innovative cost-effective idea that could eliminate the use of 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.