Mokshith Kumar Tumallapalli

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EDUCATION

University of Southern California | Masters in *Electrical Engineering (Computer Networks)* ***GPA: 3.50*** **Gradation Date: May 2019**
Bangalore Institute of Technology | B.E. in *Electronics and Communication Engineering* ***Aggregate: 80%*** **Gradation Date: June 2017**

TECHNICAL SKILLS

- **Applications:** Wireshark, Amazon Web Services (AWS), Opnet-Riverbed Modeler, GNS3, Cisco Packet Tracer
- **Protocols & Technologies:** TCP/IP, UDP, DNS, DHCP, VPN, VLAN, VTP, 802.1Q, NAT, ACL, SNMP, OSPF, RIP, EIGRP, BGP, GRE
- **Programming Languages:** C/C++, Python, Embedded C
- **Cloud Technologies:** EC2, S3, IAM, VPC, ELB, Route53, ElastiCache, SNS, SQS, Cloud Watch, Cloud Front
- **Courses:** Computer Networks, Internet and Cloud Computing, Broadband Network Architectures, Operating Systems, Security Systems
- **Operating Systems:** Windows, MacOS, Linux, Cisco IOS, Junos

CERTIFICATIONS

- Cisco Certified Network Professional - Routing and Switching (Ongoing)
- Cisco Certified Network Associate (CCNA - Routing and Switching)
- Juniper Networks Certified Internet Associate (JNCIA - Junos)
- IPv6 Forum Certified Network Engineer (Silver)

EXPERIENCE

Research at Centre for Cyber-Physical Systems and Internet of Things, University of Southern California **Jan 2018 - May 2018**

- Captured/modeled traffic on a stretch of road using YOLO + GPU pipeline and detected number of vehicles passing through a given region
- Captured and archived real-time video and fed it to an application to detect vehicles using Darknet – an open source neural network framework

Robert Bosch Engineering and Business Solutions, India **Jan 2017 - April 2017**

- Interned as Module and System Tester in Driver Assistance Systems for high-end cars and improved response time of various systems such as Adaptive Cruise Control and Predictive Pedestrian Protection
- Performed ECU Testing/Simulation and verified test cases of various services using vTestStudio
- Presented topics such as CAN, Ethernet and FlexRay protocols during knowledge sharing sessions

ACADEMIC PROJECTS

Weenix-Unix Kernel Based Operating System **May 2018**

- Developed fundamentals for UNIX based OS called WEENIX in C
- Programmed System Calls for process creation, thread creation, mutex implementation, scheduling mechanism, context switching, and synchronization primitives
- Implemented an interface between WEENIX Kernel and underlying file system (ramfs or S5FS)
- Implemented virtual memory management for WEENIX OS, functions for page fault handler, thread cloning, forking a process

OpenFlow Switch and Router Design **Mar 2018**

- Designed a switch and a router using OpenFlow and tested it for various topologies and created a firewall to modify switch's behavior
- Used Mininet to simulate a realistic virtual network on a single machine and POX Controller in Python for implementing the switch

Token Bucket Emulation using Multi-Threading **Feb 2018**

- Designed a traffic shaper controlled by a token bucket to transmit TCP/IP packets and programmed a time-driven emulation of Token Bucket Algorithm
- Regulated functionality of a user interrupt to abort emulation in a graceful manner and provided statistics
- Implemented a token generator, token bucket, and servers and handled race conditions using mutex (Pthread library)

UNIX Socket Programming **Nov 2017**

- Programmed a prototype of AWS MapReduce program to perform computational offloading where a single client offloads computation to a server to in turn distribute load to back-end servers
- Programmed a client server model to govern communication of UNIX sockets for both TCP and UDP connections

A Cloud Based Android Application for Recipe Suggestion **Oct 2017**

- Used Amazon Web Services and built an application to suggest users suitable recipes based on input images
- Analyzed and classified input images using AWS recognition to suggest a suitable recipe

Wireshark and Riverbed Modeler **Sept 2017**

- Worked on Riverbed Modeler to analyze effect of packet size, network load and collision detection on throughput of Ethernet
- Analyzed exchange of data packets in networking protocols like DHCP, DNS, ARP, Ethernet, HTTP and IEEE 802.11
- Performed extensive evaluation on performance of Router Information Protocol (RIP) and analyzed effect of link failures on network
- Configured and verified performance of Open Shortest Path First (OSPF) routing protocol and observed effect of load balancing

CO-CURRICULARS

- Elected as Technical Coordinator of Electronics & Communication Students' Association, an official tech club of BIT-ECE
- Organized 3 workshops on IoT, Raspberry Pi and Arduino with over 250 participants
- Awarded first prize among 50 teams in RC Car Challenge at National Level Techno Fest organized by NITTE