Prabhsimrandeep Singh

Software Engineer, Juniper Networks

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Education

B Tech 9.8/10
Electrical Engineering, Minor in Computer Systems
IIT Kanpur May 2019

Intermediate (+2) 92.8%
Central Board of Secondary Education, India May 2015

Class X 94%
Indian Certificate of Secondary Education (ICSE),India May 2013

Achievements

- JEE advanced 2015 - AIR 1168 out of 1.2 million aspirants
- Received research grant for a three months long project under the (SURGE'17) programme at IITK
- Earned Amit Saxena Memorial Award from Dept. of EE, IITK
- Received the Academic Excellence Award in 2015-16, 2016-17 and 2017-18 sessions.

Tool-Kit

Languages

C, C++, Verilog, Python, LaTeX, MATLAB, Bash, Gawk

Softwares and libraries

GNU Octave, Git, svn, Jenkins

Tutorship

Student Guide,Counselling Service, IIT Kanpur

- Mentored and guided 6 freshmen in dealing with their emotional and academic predicaments.
- Co-ordinated with a team of 150 colleagues for the orientation of first year students.
- Helped in organizing and managing Orientation Program for smooth induction of fresher students.

Professional Experience

Juniper Networks, Bengaluru

Timing And Synchronization Team *July'19-current*

- Worked on the new Junos-Evolved based platforms in Juniper.
- Implemented Timing/Synchronization protocols like SyncE, PTP for new ACX routers.
- Designed Timing Diagnostics to verify the Clock lines from one unit to another.

Customer/Regression PRs *July'19-current*

- Helped in resolving regression issues seen in Junos based platforms like MX, QFX.
- Solved issues based on multi threading, hardware clock Path, data races etc.
- Created Automated scripts for building in a Kubernetes based build service which ensured that builds can be triggered overnight without any manual involvement.

Texas Instruments, Bengaluru

Automatic TestBench Generation And Verification Of FIFO *May'18 - July'18*

- Created an automated FIFO(First In, First Out) TestBench Generation Python script, generating a customizable TestBench.
- Generated Logic for Calculating optimal Latency in terms of number of samples using Live Comparison saving space from O(n) to O(1).
- Designed logic for catching Overflow/Underflow in generic FIFO configurations.

Other Selected Projects

Simultaneous localization and mapping(SLAM), UGP

Mentor:Prof. Ketan Rajawat *Aug'18-Nov'18*

- Experimented with Various ROS(Robot Operating System) Packages for People Detection And Tracking like Openni, Aruco etc.
- Designed ROS node for fusing data from sensors like Leg Detector, MS Kinect etc which was instrumental in creating a more resilient system

Short term traffic prediction using DTC

Mentor: Prof. Ketan Rajawat *Mar'17-July'17*

- Implemented matrix completion via rank minimization using the SVT(Singular Value Threshold) algorithm.
- Collected Traffic data from PeMS and structured it into a 4-D tensor. Ran DTC on this tensor to obtain the MAE(Mean Absolute Error) close to 10.

TV Denoising of Signals with Poisson Distribution

Mentor: Prof. Ivan Selesnick, NYU *May'17-July'17*

- Learned and worked on problems related to Sparse regularization and Total variation(TV). Determined problems with the Poisson noise.
- Implemented the TV Denoising algorithm for Poisson noise using alternating direction method of multipliers(ADMM).

Course Projects

CatTalks: A centralized chat application | 4 member team *Aug'18-Nov'18*

- Developed a text and video chat application which can be used for person to person communication. Made use of flask and MongoDB libraries.
- Provided functionality like User sign up, Chat Backup, friend requests etc.

deCAPTCHA | 4 member team *Aug'17 - Nov'17*

- Broke the Squirrel Mail client captchas using CNNs and Autoencoders.
- Achieved an accuracy of 97.94% with CNN and 98.24% with Autoencoders.

Trace Characterization for ML based Apps | 2 member team *Jan'19 - May'19*

- Characterized various ML based applications based on their performance on Cache Hierarchy based systems w.r.t. cache sizes, prefetchers and replacement policies.
- Used prefetchers and replacement policies like IP stride, SPP(Signature Path Prefetcher) Dev, KPCP(Kill the Program Counter Prefetcher), SHiP, LRU.

Relevant Courses

- Signal, Systems and Networks
- Data Structures and Algorithms
- Microelectronics
- Computer Networks
- Computer Architecture
- Computer Systems