

## SCHOLASTIC ACHIEVEMENTS

- **99.68** percentile in **GATE** in Electronics and Communication among **1,52,318** candidates (2016)
- Secured an all India rank of **7578** in **AIEEE** (2012)
- **3<sup>rd</sup>** runner up in **national level** abacus competition by SIP-INDIA (2008)

## MAJOR PROJECTS AND SEMINAR

- **M.Tech Project: OpenFlow Router with eBPF Forwarding Engine** (May'19 - Present)  
*Guide: Prof. D. Manjunath, IIT Bombay*  
**Objective:** Create a fast data plane forwarding device for small to medium networks.  
**Completed work:** Put together the functional requirements of controller and switch.  
**Ongoing & future work:**
  - Using POX controller to communicate with OpenVSwitch via OpenFlow protocol.
  - Using eBPF in kernel space as backend for fast packet forwarding, and less number of packet copies.
  - Implementing a level-compressed TRIE for fast lookup.
  - Porting the entire system to a SPARC processor on FPGA, as a prototype for IoT deployment
  - Benchmark testing of the system
- **Seminar: Open Source Router** (Jul'18 - Dec'18)  
*Guide: Prof. D. Manjunath, IIT Bombay*
  - Studied Click Modular Router, Extended Berkeley Packet Filter, Network Processor Architecture and Software Defined Networking(SDN)
  - Implemented a basic version of Click modular router, to work as an ethernet switch.

## WORK EXPERIENCE

- **Software Developer | Nykaa** (Jun'16 - Jul'17)
  - **Responsibilities:** Involved in development of product listing, search, and checkout domains of the website.
  - Closely worked with Marketing team to strategically place tracking tags at numerous locations of the website.
  - **Softwares used:** HTML, Javascript, jQuery, Magento Framework, PHP
- **Teaching Assistant: Communication Networks | IIT Bombay, IIT Dharwad** (Jan'19 - Apr'19)  
*Instructor: Prof. D. Manjunath, IIT Bombay*
  - Created and evaluated **7** lab experiments, based on **wireshark** and **socket programming**.
  - Work also involved **traveling**, setting up lab experiments and evaluations at **IIT Dharwad**.
- **System Administrator | Electrical Department, IIT Bombay** (Jul'17 - Present)
  - Development of EE department website, Dashboard, and maintaining numerous portals like faculty search committee, meeting room booking system, faculty wiki pages and TA allotment portals.
  - Provide mail service, storage space, computing and network facilities to the Department.
  - **Automation** of admission process through web based services and **Bash Scripts**

## KEY COURSE PROJECTS AND SEMINAR

- **Simulation of Cellular system in MATLAB** (Jan'18 - Apr'18)  
*Instructor: Prof. Abhay Karandikar, IIT Bombay*
  - Computed **SIR**, **blocking probability** for different cluster sizes and **sectoring**. Analyzed **handover** process and **ping-pong** rate for different user mobilities and hysteresis values.
  - Analyzed BER performance for **space and time diversity** in a slow, flat fading Rayleigh channel.
  - Analyzed BER performance for a **single-cell** and **multi-cell** scenario in a **CDMA** cellular system.
- **Different Scheduling Schemes in LTE** (Jan'18 - Apr'18)  
*Instructor: Prof. Abhay Karandikar, IIT Bombay*

- Simulated channel aware schemes: Maximum Throughput **(MT)**, Proportional Fair **(PF)**, Throughput to Average **(TTA)** scheduling schemes in LTE Downlink.
- Used Cell Throughput, Average user throughput, and Jain Fairness Index as metrics to compare the scheduling schemes.
- Basic Image Editor** (Jul'18 - Nov'18)  
Instructor: Prof. Amit Sethi, IIT Bombay
  - Developed a Web based, cross platform GUI to perform operations on images
  - Showcased Histogram Equalization, Log Transform, Gamma Correction, Blurring, Sharpening, Median filtering techniques in the application.
  - Implement full inverse filtering, truncated inverse, approximate wiener, and constrained least square filtering to deblur the input image
- Image Dehazing through Depth estimation** (Jul'18 - Nov'18)  
Instructor: Prof. Amit Sethi, IIT Bombay
  - Estimated Depth of a scene, using Color Attenuation Prior **(CAP)** and Dark Channel Prior **(DPC)**.
  - Using the estimated depth, reconstructed a haze-free image based on atmosphere degradation model
- House sale status classification** (Jan'18 - Apr'18)  
Instructor: Prof. Amit Sethi, IIT Bombay
  - Based on the input attributes, classified house sale status
  - Used Random Forest, Support Vector Machine (SVM), Perceptron, Gaussian Naive Bayes Algorithm, and K-Nearest Neighbour Algorithm classification models
  - Grid Search, and Cross validation were done, for a subset of hyper parameters for each model, to increase cross validation accuracy
- Implementation of DBSCAN Algorithm from scratch** (Jan'18 - Apr'18)  
Instructor: Prof. Amit Sethi, IIT Bombay
  - Developed a program in python which will take a csv as input and give labels of each datapoint as output, depending on the hyperparameters that are set.
  - Utilised the implementation as a backend process for a web based GUI, which clusters data points and labels them, each cluster having a different color.
- B.Tech Project: Obstacle Detection at Unmanned Railway Crossing Using Image Processing** (Jul'13 - Apr'14)  
Guide: Prof. V. R. Satpute, Electronics and Communication Engineering, VNIT Nagpur
  - Created own dataset for input.
  - Used basic image processing techniques, and morphological operations to extract moving obstacles at railway crossing

## KEY COURSE PROJECTS AND SEMINAR

<b>Languages</b>	:	C, C++, Bash Scripting, HTML, Javascript, jQuery, PHP, Python
<b>Tools</b>	:	Matlab, GNU Radio, L <sup>A</sup> T <sub>E</sub> X, Git, Wireshark
<b>Frameworks</b>	:	Magento, CodeIgniter

## RELEVANT COURSES

- |                                      |                               |                                    |
|--------------------------------------|-------------------------------|------------------------------------|
| • Digital Message Transmission       | • DSP and its Applications    | • Introduction to Machine Learning |
| • Wireless and Mobile Communications | • Image Processing            | • Applied Linear Algebra           |
| • Information Theory and Coding      | • Statistical Signal Analysis | • Communication Networks           |

## POSITIONS OF RESPONSIBILITY

- Web Secretary** | Hostel 1, IIT Bombay (Jul'17 - Jun'18)
  - Development and Maintenance of Hostel 1 Web site, and Computers.
- Student Companion** | Institute Student Companion Program, IIT Bombay (Jul'18 - Jun'19)
  - Mentored** 7 M.Tech students by providing continuous help and support throughout the year
  - Played a key role in Department orientation, which included course registrations, informal sessions and lab visits for PG and PhD freshmen in *Communication Engineering* specialisation.
- PG Bridge Course Overall Coordinator** | Electrical Department, IIT Bombay (Jul'18)
  - Organised a week long program for the **academic upliftment** of PG freshers.
  - Executed the program effectively in **parallel to regular academics** for more than **100** students.
- Web Nominee** | Post Graduate Academic Council, IIT Bombay (Jul'18 - Jun'19)
- Web Coordinator** | Students' Reading Group, Electrical Department, IIT Bombay (Jul'18 - Jun'19)

## OTHER ACTIVITIES & INTERESTS

- **Volunteered** for **Python** workshop by PGAC, IIT Bombay (Oct'18)
- **Volunteered** for **Linux** workshop for Electrical Department PG Bridgecourse, IIT Bombay (Jul'19)
- **Hobbies:** Watching TV series, solving puzzles, chess, snooker