

## RELEVANT COURSES

- Computer Networks
- Wireless Communication
- Machine Learning
- Digital Signal Processing

## 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 **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 for comparison.
- **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.
  - Implemented 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 (**DCP**).
  - 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 Neighbor 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 data point as output, depending on the hyperparameters that are set.
  - Utilized the implementation as a backend process for a web-based GUI, which **clusters** data points and **labels** them, each cluster having a different color.

## TECHNICAL SKILLS

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

## 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
- Network Security
- 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.
- **PG Bridge Course Overall Coordinator** | *Electrical Department, IIT Bombay* (Jul'18)
  - Organized a week long program including hands-on workshops, and lectures for PG freshers.
  - Executed the program effectively for more than **150** students, with a team of **20** volunteers.
- **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 freshers in *Communication Engineering* specialization.
- **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