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*)
- 3rd 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 Berkely 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 comparision.

- **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, LaTeX, Git, Wireshark

RELEVANT COURSES

- Digital Message Transmission
- Wireless and Mobile Communications
- Information Theory and Coding
- DSP and its Applications
- Image Processing
- Network Security
- Introduction to Machine Learning
- Applied Linear Algebra
- 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