

Udhav Gupta

B. TECH. · DEPARTMENT OF ELECTRICAL ENGINEERING

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Education

Year	Degree	Institute	CPI / Score
2018 - 2022	B. Tech, Electrical Engineering	Indian Institute of Technology, Kanpur	7.9 / 10.0
2018	Class XII (CBSE)	Jayshree Periwal High School, Jaipur	92.8%
2016	Class X (CBSE)	Jayshree Periwal High School, Jaipur	10.0 / 10.0

Scholastic Achievements

- Secured **All India Rank 500** in **IIT JEE-Advanced** amongst 200,000 shortlisted students 2018
- Secured **All India Rank 2796** in **IIT JEE-Mains** amongst 1.5 million students 2018
- Recipient of the prestigious **KVPY Fellowship** awarded by Dept.of Science and Technology, Govt.of India 2016
- Awarded **NTSE scholarship** by NCERT, Govt.of India. **Top 1000** awarded among 1 million candidates 2015
- Awarded **Gold Certificate** for securing **All India Rank 47** in **Technothon**, IIT Guwahati 2015

Work Experience

Samsung Research Institute Bangalore | Student Trainee May-July'21

- Worked with the **Beyond 5G Team**, part of the Advance Protocol group at Samsung Research Institute, Bangalore
- Carried out literature study regarding **LSTM, CNN, Radio Frequency Sensing** and applications such as Person Re-Identification, Advanced driver assistance systems, High resolution imaging and Daily-life captioning
- Worked towards **Research and Development** for estimation of Sensing Parameters of objects using FMCW signals
- Achieved a **range resolution of 3.75 cm** using bandwidth of 4GHz. Further worked on **Person Identification** using ML

THDC India Ltd | Power Engineering Intern Nov-Dec'19

- Worked with the Electrical Maintenance Team at a **4*100 MW Hydroelectric** power plant, on transformers and Arrestors
- Studied the working of 2main, 1 transfer Bus Transmission System, Frequency-based pricing of the Transmission sector

Projects

Melody Estimation | Prof. Vipul Arora | EE698R (Advanced topics in ML) Jan-April'21

- Worked in a team of 3 members, targeting to **extract the primary dominant frequency** in a polyphonic audio
- Devised **Teacher-Student model** to initially train Teacher Model on large dataset and then effectively train Student Model
- Trained on MIR-1K dataset and achieved **Raw pitch accuracy of 0.66** and Raw chroma accuracy of 0.70 on MIREX-05

Statistical Simulation and Data Analysis | Prof.Dootika Vats | MTH511A Aug-Nov'20

- Studied **Sampling techniques** like Accept-Reject Method, Importance Sampling and Markov chain Monte Carlo
- Implemented **Optimisation methods** like The MM and EM Algorithm, Stochastic gradient ascent, Simulated annealing
- Worked with **Bayesian Models** such as Bayesian linear regression and Bayesian logistic regression

Offline Signature Verification | Self Project 🌐 July-Aug'20

- Developed signature verification** software in C++ which **identify** individual's signature images and **classify** it
- Extracted features like orientation, scale and density of signature by computing **center of gravity of pixels**
- Obtained more than **90% accuracy** by training **SVM machine learning classifier** with the derived feature set

Duck Duck Go | Self Project 🌐 May-June'20

- Implemented a new Search engine** to count the frequency of most popular keywords used in the search Engine
- Used **Max Fibonacci Heap** to keep track of the frequencies of keywords and **Hash table**. Implemented the Fibonacci heap operations. Input file consist of more than **1 million keywords**. Output has the popular keywords in descending order

Coursework

Mathematics and Computer Science

Data Structure and Algorithms	Advanced Topics in Machine Learning	Statistical Simulation and Data Analysis
Machine Learning for Wireless Comm.	Probability and Statistics	Linear Algebra
Fundamentals of Computing	Multivariate Calculus & Complex Variables	Partial Differential Equations

Electrical Engineering

Power Electronics	Digital Electronics	Power Systems	Electromagnetic Theory
Signals, Systems & Networks	Microelectronics-I	Control, System & Analysis	Introduction to Electronics

Technical Skills

Programming Languages	C++, Python(Exposure), MATLAB
Competitive Programming	Active on Codeforces (SimplyDifficult), CodeChef (Handle-buzzzinga)

Positions of Responsibility

Senior Election Officer | Election Commission, IIT Kanpur

2019

- Managed the conduction of democrartic elections for the various positions in Institutional Committees.
- Promoted the knowledge of sound and democratic electoral processes and conditions conducive to free and fair elections.

Secretary | Dance Events Antaragni, IIT Kanpur

2019

- Assisted in conduction of various Dance Events during Antaragni'19, handled more than 600 dance enthusiasts

Extra Curriculars

- Member of **Inter-IIT Cricket** Team, among **Top-20 Cricketers** in IIT Kanpur's community of 8000 students
- Competed in **CBSE-State level Athletics** middle-long distance events, personal best of 57s(400m) and 2:20(800m)
- Bagged **3rd position** in Athletics-400m in intramurals, IIT Kanpur among 200+ participants
- Represented **Athletics Team of IIT Kanpur** in 1500m event at Udghosh 2018 and competed among 50 players