B. Anshuman

Sophomore Undergraduate
Electrical Engineering IIT Kanpur

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 Homepage

I have explored quite a few topics in my fresher year, yielding to a variety of Misc. Projects and Positions of Responsibility. I'm particularly interested in Signal and Image Processing as well as Machine Learning Applications.

PROJECTS

Game of Blocks | Science and Technology Council, IIT Kanpur   **May 2021 — Aug 2021**
- Involved understanding the underlying principles of BlockChains, how the system succeeds to be trustworthy in an otherwise environment, how the concept is applied to Cryptocurrencies, focussed on Ethereum
- Included going through the basics of Game Theory for applying its concepts in the development of 2 Smart Contracts, on IRV and Dutch Auction Mechanism implementations, using Solidity and deploying on web3 as dapps

Numbers Made Dumber | Stamatics, IIT Kanpur   **Apr 2021— Jul 2021**
- Based on understanding the principles of Number Theory, topics that were oriented more towards Cryptography
- Worked towards implementation of standard cryptographic algorithms including RSA and SHA

Computational Astrophysics | Science and Technology Council, IIT Kanpur   **May 2021 — Jul 2021**
- Was introduced to Astrophysics and understood the usual conventions and patterns used throughout the field
- Worked with Python's Astronomy dedicated library Astropy, with problems based on datasets from standard sites including Vizier and SDSS

ML with Julia | Association for Computing Activities, IIT Kanpur   **May 2021 — Aug 2021**
- Explored the language Julia and implemented Regression Models and ANNs from scratch in the language
- Explored Linux system with basic CTFs and Exercism
- Got acquainted to dealing with the mathematical operations and how they are represented in computers, including rationals, vectors and gradients, all in Julia

ML with Octave | Stanford University's Online Course   **Sept 2021 — Dec 2021**
- Got acquainted with concepts of Polynomial and Logistic Regressions, and implemented them from scratch in Octave and Python
- Implemented a python framework that can create an ANN architecture. Implemented ANNs from scratch in Octave as well, and CNNs using Tensorflow
- Implemented a Spam filter (using regression), Malware detector (Anomaly detection), Image compression (using PCA), a Recommendation system (using Collaborative Filtering) and understood Online Learning for real time data handling.

EXPERIENCE

Technical Team Member   **Apr 2021 — Present**
Aerial Robotics, IIT Kanpur

- Working in a team on Autonomous UAVs. Till now based on simulations, via ROS-Gazebo integrated environment
- Worked on a project to implement a ROS Package based on the CSRT Tracker, involving the AUV to follow its prey
- Worked on implementation of the Stereo based visual SLAM (Simultaneous Localisation and Mapping) algorithm for effective localisation, using concepts of Kalman Filtering

Secretary   **Sep 2021 — Present**
Programming Club, IIT Kanpur

- Position of Responsibility of conducting workshops, offering projects and organising hackathons for freshmen
- Contributing to the Club's repositories, which are based on deployable projects, that directly affects the campus community

Secretary   **Jul 2021 — Present**
Design and Animation Club, IIT Kanpur

- Took part in Team based Rebranding event, the team securing 2nd position out of 9 teams of proficient designers.
- Position of Responsibility of holding workshops and introducing freshmen to the concepts of design

EDUCATION

Indian Institute of Technology Kanpur, India   **Nov 2020 — May 2024(Expected)**
Electrical Engineering Sophomore Undergraduate,
CPI: **9.17/10.00** till 3rd Semester

Jawahar Vidya Mandir Shyamali, Ranchi, Jharkhand, India   **May 2018 — Jun 2020**
Standard X   (2018): 97.3%
Standard XII (2020): 96.7%

TECHNICAL SKILLS

Languages	C, Python, C++, Javascript, Julia, Solidity, Bash Scripting, Octave, Haskell
Frameworks/Softwares	Node.js, ROS, Gazebo, Qt, OpenCV, Pytorch, Adobe Photoshop, Illustrator, Blender, Godot
Utilities	Git, Vim, Radare, LaTeX, Docker, Linux Shell, Conda, Jekyll

RELEVANT COURSEWORK

Fundamentals of Computing	Linear Algebra	Differential Equations
Real Analysis	Physics I - Mechanics	Physics II - Electrodynamics
Introduction to Electronics	Signals and Systems	Complex Analysis
Signal Speech Processing ^{i}	Control System Analysis^i	Probability and Statistics^i

i - Currently in progress

AWARDS & HONORS

2020	**All India Rank 651** , JEE Advanced
2020	**All India Rank 1638** , JEE Mains
2020	**KVPY SX Scholarship Awardee** , Govt. of India
2019	**KVPY SA Scholarship Awardee** , Govt. of India
2018	**NTSE Scholarship Awardee** , Govt. of India