Vaibhav Vardhan

Senior Undergraduate

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Education

Year	Degree/Certificate	Institute	CPI/%
2018 - Present	Bachelor of Technology, Electrical Engineering	Indian Institute of Technology, Kanpur	9.6/10.0
2018	AISSCE, CBSE-XII	Apeejay School, Delhi	96.6%
2016	AISSE, CBSE-X	Apeejay School, Delhi	10.0/10.0

Experience

Syft Student Python Developer

OpenMined *Feb 2021 -*

- Working on PySyft & PyGrid python libraries for privacy enabled machine learning using differential privacy, *Google Summer of Code* extended work.
- Integration of Apache Arrow serialization & de-serialization modules, grpc based Apache Flight-backend to enable zero-copy data transfers.
- Deployment of grpc self-connection servers. Gradient compression, tensor compression, and bytes compression integration with the core-codebase.

Automation & Development Internship

Anheuser-Busch InBev *May 2021 - July 2021*

- Worked on data extraction & syncing with speed & memory optimizations for country-wise databases in the central Azure Data Lake.
- Automation for PMI payment plan with integrated GUI automation and feedback using python multi-process deployment over the network.

Research & Development Internship

Samsung R&D Institute *May 2020 – July 2020*

- Worked on permissioned-DAG-based blockchains and time-behaviour study of smart contracts.
- Development of discrete-event blockchain simulator, with attacks and miner-strategies; modularity to enable extensibility for protocols.
- Security and performance analysis of varying consensus protocols for Avalanche and Conflux blockchains.

Data-based Analytics Internship

HPF *May 2019 – July 2019*

- Worked to extract emotional responses to structural story-telling incorporating TESS dataset alongside musical emotion classifiers.
- Analysed and inferred computational behavioural patterns and creative regional preferences using HMM segmented and audio-visual cues segmented creative-content engagement data.

Key Projects

IEEE ICRA DJI RoboMaster AI Challenge

Prof. Laxmidhar Behera, Dept. of Electrical Engineering

- Working on game-theoretical analysis by using policy-gradient based RL simulations with actor-critic procedure for combat strategy development.
- Arena spatial analysis with enemy pose & orientation estimation in real-time using overhead monocular cameras.
- Circularly symmetric arena mission-planning with LiDAR SLAM, a factor-graph localization stack, and orientation detection, demonstrating results on ROS-backend Gazebo simulations, as well as in the real world.

Weighted Progressive Second Price Auction for Resource Allocation

Prof. Swaprava Nath, Dept. of Computer Science & Engg., Term Paper

- Proposed a modified progressive second price (PSP) auction with weighted bids for improved dynamic allocation of an infinitely-divisible resource.
- Simulated and demonstrated the superiority of the proposed strategy with the downlink Cell Free Massive-MIMO system (beyond-5G networks) for dynamic spectrum allocation and usage-based pricing.

Indoor Localization Using Sensor Fusion

Autonomous Indoor Drone, Flipkart Grid 2020

- Development of indoor drone: designed an indoor UAV for automated warehouse management in GPS denied scenario, developed sensor fusion software pipeline, generated Gazebo simulation of localization and flight control.

Indian Driving Dataset Lite Challenge

NCVPRIPG 2019

- Being among the top submissions, was awarded a travel grant to attend the NCVPRIPG-2019 conference.

Positions-of-Responsibility

Senior Member: Team ERA *2020-21*

- Participants in international robotics competitions, currently working on autonomous combat bots.

Manager, Web and Technology: Policy Conclave *2019-20*

- Lead the team responsible for entire technology incorporation, web-development and web-event planning.

Co-ordinator: Bicycling Society *2019-20*

- Co-responsible for all the finances, activities and events organized by the bicycling society.

Student Guide: Counselling Service *2019-*

- Mentoring six junior students through, but not limited to the course of their life on campus.

Scholastic Achievements

2018-2020	**Academic Excellence Award**,	*IIT Kanpur*
2018	**All India Rank 1346 among 0.15 million students**,	*JEE Advanced*
2018	**All India Rank 1786 among 1.5 million students**,	*JEE Mains*
2017	**KVPY Fellowship (National Science Fellowship Program), Dept. of Science & Technology**,	*Govt. of India*
2014-2016	**Rank 1 in International Benchmark Tests (Mathematics), ACER**,	*ACER (IBT)*