Vaibhav Vardhan

Junior 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

Research & Development Internship — *Bangalore, India*
Samsung R&D Institute India — *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 implementation, key idea: modularity to enable flexibility and extensibility for various protocols.
- Security and performance analysis of varying consensus protocols for Avalanche and Conflux blockchains.

Data-based Research Internship — *Bangalore, India*
HPF — *May 2019 – July 2019*

- Analysed and inferred computational behavioural patterns and creative regional preferences using HMM segmented and audio-visual cues segmented creative-content engagement data.
- Worked to extract emotional responses to structural story-telling incorporating TESS dataset alongside musical emotion classifiers.
- Developed analytical tools using R for direct inference from video content %age drop-off and regional engagement data.
- Model building for favorable future creative-content following trending keywords, and creative exploitation-exploration for new ideas discovery.

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.

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
[Independent Project] NCVPRIPG 2019

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

AEVB: Exploration in Variational Inference
Self Research Study: Report

Unsupervised Game-play Agent
Stamatics, Dept. of Mathematics & Statistics

Technical Skills

Programming: C, C++, Python, Octave, Matlab, R, LaTeX,
Software & Libraries: Numpy, Scikit-Learn, XGBoost, Pandas, Matplotlib, ROS, OpenCV, Gazebo, Pytorch, Tensorflow, Keras, Git

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*

- Handled all the finances, activities and events organized by the bicycling society.

Student Guide: Counselling Service

- 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	**Rank 1 in International Benchmark Tests (Mathematics), ACER**,	*ACER (IBT)*