VAIBHAV DASHRATH MOHITE | 20ME10092

MECHANICAL ENGG.(B.Tech 4Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2024	B.TECH	IIT Kharagpur	8.90 / 10
2020	HSC	Global Public School & Junior College	85.38%
2018	SSC	Boys' Town Public School	96.60%

INTERNSHIPS

Software Development Engineer Internship | Amazon, Hyderabad **[May 2023 - June 2023]**

Project: One-stop portal to trigger automation tests, remote access to physical devices, and Dashboards for Alexa Voice Services Quality Assurance team
- Designed and implemented a workflow to keep track of the status of Alexa-enabled devices used for automation by utilizing **DynamoDB** and **SSM** Agent
- Reduced latency of video streaming in Virtual Devices Lab from **4 seconds to 1 second** by replacing **KVS** only streaming with **WebRTC** based streaming
- Stored execution time of automation test runs and regularly updated the average execution times using **AWS EventBridge Scheduler** and **AWS Lambda**
- Asynchronously updated device status using **SNS** and **Lambda** functions and automatically sent emails to the users using **SES** on completion of test runs

Software Development Internship | 9Island Technologies, Bangalore **[Nov 2022 - Feb 2023]**

Project: Vaisnava Marriage Bureau - an active open-source matrimonial website to assist devotees of ISKCON organization get married to the right partner
- Integrated Terms of Service feature in a **django** based Matrimonial website using the **django-tos** package to facilitate auto-update of the terms of service
- Added **unit tests** to test the django application using **pytest** package, generated dummy data using **factory** and added pagination to profile search page
- Implemented a user activity timeline feature using the **django-activity-stream** package and integrated an image-cropper tool using the **cropper-js** library

PROJECTS

Adversarial Attacks on ML Models | Bachelor's Thesis Project | Guide: Prof. Ayantika Chatterjee **[May 2023 - Present]**

- Conducted in-depth review of research papers on adversarial attacks like **Universal Adversarial Perturbations** and defense algorithms like **NEO-defense**
- Translated theoretical knowledge into practical skills by successfully implementing an adversarial **backdoor attack** on a dog-cat classifier(neural network)
- Validate the effectiveness of universal perturbation vectors generated by the **deepfool** algorithm in the encrypted domain using the **concrete-ml** library

AI-Enabled Chess Game | Self Project **[July 2023 - Aug 2023]**

- Built a **JavaScript** based chess game with move validation, **Object Oriented Programming** based game state, and implemented rules for game results
- Implemented the **play-with-computer** feature by using the **minimax algorithm** to estimate the next best move and optimized it using **alpha-beta** pruning
- Utilized **Express.js** framework for creating APIs for functionalities like registration and authentication based on jwt and utilized **MongoDB** as a database
- Added **real-time** updates of moves played during the game by leveraging the **web socket** protocol implemented using the Node.js based **socket.io** library

ApnaInsti | Developers' Society, IIT Kharagpur **[Dec 2022 - Jan 2023]**

- Developed an Institute-wide **Android** Application using **React Native** for managing extra-curricular activities of a community of more than **10,000** students
- Increased **accessibility to information** by bringing details of events, opportunities, news, halls, departments, faculties, and issued certificates in one app
- Designed the **database schema** for the project involving multiple applications and built the **API schema** for efficient flow of data between app and server
- Built APIs for Buy & Sell Portal and Facilities Portal using **django-rest-framework**, used **AWS EC2** as web server and **AWS RDS (PostgreSQL)** for database

COMPETITION/CONFERENCE

Sigmoid Data Science Hackathon | Sigmoid | Bronze **[Aug 2022 - Oct 2022]**

Objective: Develop a robust pipeline for forecasting the demand for multiple products from various categories in the Consumer Packaged Goods industry
- Excelled in a highly competitive hackathon that spanned three stages and secured an impressive **third position** out of more than **150** participating teams
- Utilized **Fast Fourier Transform** to smoothen the data with outlier treatment and performed warehouse based segmentation to build individual models
- Performed time series forecasting with an ensemble of models which included Facebook's **Prophet, Transformer,** and **TBATS**, achieving a **WMAPE** of **0.26**

Convolve - A ML/AI Hackathon for the Future | Cisco | First in Demand Forecasting Category **[Dec 2022 - Jan 2023]**

Objective: Forecast demand for products from different business units and plan inventory levels for the next quarter avoiding delays in order fulfillment
- Trained different time series models like **Holt-Winters**, **SARIMAX**, **Exponential Smoothing**, and Facebook's **Prophet** separately for individual Product IDs
- Stacked the results obtained by each model into an **XGBoost meta-learner** to build a robust predictive model which reduced the **SMAPE** score by **23%**
- Developed and deployed a website using **Django** where the users can use individual Product IDs and months for getting predictions up to the next year

Website Hackathon | Technology Students' Gymkhana, IIT Kharagpur | Gold **[Dec 2021 - Jan 2022]**

Objective: Develop a one-stop solution to manage all the co-curricular and extra-curricular activities under the purview of Technology Students' Gymkhana
- Led a team of 11 members to win the podium in multiple categories and achieved the prestigious **First Position** among more than 15 participating teams
- Built a **React.js** website served through APIs made using **django-rest-framework** along with **jwt** based authorization and email verification through **OTP**
- Incorporated innovative features like Bill Reimbursement Portal, Grievance Portal, real-time Notifications, and an Admin Panel for content management

SKILLS AND EXPERTISE

Programming Languages: C | C++ | Python | JavaScript | SQL **DBMS:** MySQL | PostgreSQL | MongoDB | Redis* **Software tools:** Git | Linux | Docker | AWS
Frameworks & Libraries: Django | Flask| DRF | Pytest | Selenium | OpenCV | Numpy | Pandas | Scikit-learn | React.js | React Native | Express.js [*familiar]

COURSEWORK INFORMATION

University: Machine Learning Foundations and Applications (AI42001) | Programming and Data Structures (CS10003) [incl. lab] | Linear Algebra (MA11004)
MOOCs: Machine Learning | Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization | Convolutional Neural Networks

POSITIONS OF RESPONSIBILITY

Development Head | Developers' Society, IIT Kharagpur **[Aug 2022 - May 2023]**

- **Co-founded the Developers' Society**, IIT Kharagpur to assist the technology needs of the student community and foster a software development culture
- Created a **Societies' Portal** enabling the societies to post events on the ApnaInsti App and guided juniors to develop an Admin Panel for the ApnaInsti App

Associate Manager | Entrepreneurship Cell, IIT Kharagpur **[Dec 2021 - June 2022]**

- Built a website for campus ambassadors, incorporating a **leaderboard** that updated automatically on registration with a referral code of the ambassadors
- Contributed to various tech projects of E-Cell such as the **StartIn 12.0** portal, **EAD-LSM** website, and **Global Entrepreneurship Summit** registration portal

EXTRA CURRICULAR ACTIVITIES

- Contributed to the **paradime.io** event of **Inter IIT Tech Meet 11.0** as a dev team member and participated in Inter-Hall Rangoli and Inter-Hall Hockey

!Self declared by the student, CDC could not verify the relevant documents