VAIBHAV DASHARATHE

Bengaluru, Karnataka, India

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AI Full-Stack Engineer with 3+ years of experience in web development and AI. Proficient in React.js and Next.js, skilled in machine learning, and experienced in building scalable, efficient, and user-friendly applications.

Experience

Tata Elxsi   **Jul 2024 − Present**
Senior Engineer - Full-Time   *Bengaluru, India*

- Developed a scalable **Next.js** Application to provide a centralized dashboard for monitoring and managing multiple **GPU**/data resources, offering granular role-based-access controls enhancing security and improving **efficiency by 25%**
- Worked collaboratively with the Unity team, ensuring seamless integration of features and tasks, while contributing to the development of **Large Language Models (LLMs)** to enhance AI capabilities within the project and use-cases.
- Conducted in-depth **research** on Large Language Model (LLM) architectures. Implemented **RAG pipelines** to enhance **LLM** performance and accuracy, Leveraging innovative techniques to achieve more precise and faster responses.

Tata Elxsi   **Jul 2022 − Jun 2024**
Engineer   *Bengaluru, India*

- Implemented a high-performance **gRPC** framework to facilitate communication between **Unity** and a **Python** back-end, utilizing **Jupyter** and **Docker**, enabling the exchange of complex data structures and **real-time** updates.
- Implemented **Behavior Trees** Approach to automate the finite machine's instructive tasks having access to LLMs.
- Integrated **ChatGpt** with prompt-making **React** App offering speech recognition and translating from multiple languages, Converting given instruction into robotic actions for planning the execution on real-world robots.

Tata Elxsi   **Aug 2021 − May 2022**
Machine Learning Intern   *Bengaluru, India*

- Comparative study done on different path Planning Algorithms suitable for Autonomous Vehicle Driving in Indoor and Outdoor Environments, Coded (in C++ and python) and **Optimised** for same.
- Trained Custom Segmentation model on Recorded Video footage to detect footpaths for **Last Mile Delivery Robots**.
- Designed end-to-end (**Warehouse To Delivery Location**) path planning algorithm in **C++** to deliver in min time.
- Implemented Multi-Robot Cloud Architecture on **Kubernetes** to test Cluster network communication for robots.

Projects

Multi-GPU Monitor and Management System | *Next.js, MongoDB, Node, Python, FastApi*   **Feb 2024 − Nov 2024**

- Developed an Application for monitoring and managing multiple high-end GPU resources for **large User base**.
- Leverage features like slot booking, **project management**, and GPU reservation to optimize resource utilization and streamline workflow along with the hierarchical access control to ensure secure and controlled access to GPU resources
- Monitor GPU usage in real-time, log detailed performance metrics and Visualize historical data through interactive graphs to identify trends and anomalies. Generate actionable insights to improve performance and resource efficiency.

Natural Language to robotic actions | *React.js, Node, Python, ROS*   **Oct 2023 − Mar 2024**

- Converts instructions taken from React.js Application via **text or audio format** into robotic actions by planning the execution of a given task using a set of robot and AI skills that are available to the robot.
- Uses robust pipeline that generates behavior trees using LLMs to manipulate the robot in a reliable way. Ideated and prepared whole pipeline which involved **prompt engineering**, RAG implementation, parameter tuning and execution.

Technical Skills

Languages: **C/C++/C#, Python, HTML/CSS, JS, Typescript, GoLang**
Full-Stack: **Next/React.JS, Nest.Js, Electron, Express, MongoDB, NodeJs, DJango, FastAPI**
Technology: **Docker, Git, Linux, Kubernetes, gRPC, OpenCV, GCP, Deep Learning (Pytorch/Tensorflow), Generative AI (Prompt Engineering, RAG), Natural Language Processing(NLP), Vector Database**

Education

Vishwakarma Institute of Technology, Pune   **Aug 2018 - Jun 2022**
Bachelor of Technology (B.Tech) (CGPA of 7.94)   *Pune, India*

Achievements

- Secured **Top 10** Position over 450+ Teams across All India in **E-Yantra Robotics Competition 2021 by IITB.**
- Solved **300+** Data Structure and Algorithm problems across platforms [**Leetcode, CodeChef, GFG**]

Side Projects

Admin-Io | *React.js, NodeJS, MongoDB and Express, Netlify* | 🔗 Preview **Jun 2020 – Present**
- Multi-Functional Dashboard App for Writing stories, Automating Events, Developing Fictional Characters, Managing Tasks, Tracking and notifying minor/major/important memories and logging/monitoring of periodic tasks and Events
- Integrated Ultimate Search Feature to get all types of relatable content with details and insights in a single search.
- More than 3 years into the development and Implemented 100+ Utilities in one App so far.

MusicAi | *React.js Node.js Electron Windows* | 🔗 Code **Jun 2023**
- React and Electron-based Windows Application for auto-generating personalised Mashup songs Or Infinite loop songs
- Automatically Extract Vocals only regions from songs and Demixes song in upto 4 channels Vocals, Bass, Drums, Others

CodeBase | *React.js, NodeJS, MongoDB and Express, Vercel* | 🔗 Live | 🔗 Code **Feb 2022**
- Codebase helps users to save multiple solutions for the same problem with different space-time Complexity Or Approach
- Users can Update problem description/solutions with text editor and features like syntax Highlighter and Text Search.

Whatsapp Bot | *Puppeteer, Google Custom Search Api, google Cloud* | **Oct 2022**
- Search Google images in chat and get **chatGpt (turbo 3.5)** response on WhatsApp groups with just one text message.
- Real-Time MongoDB connection to WhatsApp. Get Access to data stored in MongoDB servers Or upload using chat.

Certificates/Courses

- Generative AI - Working with large Language Models - **LinkedIn-2024**
- Learning Next.js (2022) - **LinkedIn-2022**
- Natural Language Processing with Pytorch - **LinkedIn-2022**
- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning - **Coursera-Aug 2020**
- Google AI — Explore ML Completion Certificate -**DSC VIT,Pune Dec 2019**

Portfolio Links

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