VAIBHAV TAYAL

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EDUCATION

B.Tech in Computer Science -Mukesh Patel School of Technology, Management and Engineering	CGPA: 3.4/4.0	2022-Present
Senior Secondary (CBSE)	Percentage: 90%	2021- 2022
Secondary (CBSE)	Percentage: 89%	2019-2020

PROFESSIONAL SUMMARY

- A versatile software developer with strong expertise in full-stack web development, backend systems, and cloud infrastructure.
- Experienced in building scalable applications, managing databases, and utilizing cloud services.
- Proficient in containerization and dedicated to integrating innovative technologies, with a passion for UAVs and their practical applications.
- Seeking opportunities to contribute to dynamic projects in a collaborative environment

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TECHNICAL SKILLS

- **Programming Languages**: C/C++, Python
- **Development**: HTML, CSS, JavaScript, React, NextJS, NodeJS, Tailwind, Prisma, PostgreSQL, NextAuth, Monorepo, Terborepo
- **Data Structures and Algorithms**

- **Database Management System**
- **Deployment:** AWS (Cloudflare, S3, EC2) , github deployment
- VSCode, Docker, Anaconda, Mongoose , Express ,JWT

PROJECTS

- **Salary Management System[GitHub]**   2024
  (Vue.js, JavaScript, Flask, MySQL)
  - Developed a comprehensive Payroll software system to manage employee information and automate salary processes for micro businesses .
  - Implemented dynamic salary bifurcation and bonus calculation, allowing for flexible percentage-based allowances like HRA and other bonuses.
  - Enabled administrators to define and adjust salary structures easily, enhancing the efficiency and accuracy of payroll management across the company.

- **Payment Wallet System[GitHub]**   2024
  (Node.js, Express, Mongoose, JWT, React, Tailwind)
  - Developed a user-friendly payment wallet with features for signup and signin, enabling users to access a dashboard with a friend list for sending and receiving dummy money.
  - Implemented secure authentication and authorization using JWT tokens to ensure user data protection.
  - Built the backend for efficient data handling and the frontend for a seamless user experience.

- **Blogify - Blogging Platform**   *2024*
  (React, Cloudflare Worker, TypeScript, Zod, Prisma ORM, PostgreSQL, JWT)
  - **Frontend:** Developed an intuitive and responsive UI using React, providing users with a seamless blogging experience.
  - **Backend:** Built with Cloudflare Worker, ensuring a fast and scalable serverless environment for the application.
  - **TypeScript and Type Inference:** Leveraged TypeScript to ensure type safety and enhance code reliability across the frontend and backend.
  - **Validation and Security:** Implemented Zod for strict validation, ensuring data integrity, and JWT **authentication** for secure user management.
  - **Database:** Employed Prisma ORM for efficient database operations with PostgreSQL, including connection pooling for optimal performance.
  - **Features:** Includes user authentication, post creation, editing, deletion, and comment functionality, similar to Medium's core features.

- **<u>Automated Tree Counting for Sustainable Agriculture using Hexacopter</u>** *2024*
  (Mechanical Design, Electronics, UAV Systems, Jetson Nano, YOLO v5s, Python)
  - Led the mechanical and electronic integration for the hexacopter, ensuring smooth communication between the Jetson Nano and camera for real-time data processing.
  - Optimized camera resolution for precise imagery and improved tree detection using a YOLO v5s model.
  - Developed and fine-tuned the YOLO v5s model, ensuring accurate tree detection and efficient UAV operation.
  - Enhanced system reliability and reduced costs by streamlining the UAV's performance for effective agricultural management.

- **<u>Inventory Management System (Dronelog)</u>[GitHub]** 2023
  (Python, Mission Planner , Node.js , ROS , OpenCV)
  - Developed an advanced inventory management system that detects missing items, significantly enhancing overall warehouse efficiency.
  - Used a quadcopter, Raspberry Pi, and camera, focusing on precise indoor positioning to ensure accurate location tracking within a warehouse.
  - Utilized ArUco markers and ROS for bin identification and QR code scanning for generating detailed

- **<u>Aerial Medical Delivery System - VTOL Aircraft</u>** 2023
  (Mechanical Design, Electronics, VTOL Integration, Mission Planner, Python)
  - Led the mechanical design and electronics integration for a VTOL aircraft designed to deliver emergency medical supplies between Dhule and our college.
  - Designed and assembled propulsion systems, flight control mechanisms, and power management for reliable operations.
  - Integrated sensors, motors, and ESCs for seamless communication and stable flight control.
  - Collaborated with the team to ensure optimal performance and adherence to milestones for timely medicine delivery.

<u>Positions of Responsibility</u>
- Captain of UAS Team (drone club of our university) 2024-present
- Technical Head of Ambiora, the annual fest of college 2023

<u>Achievements</u>
- Among top 5 national teams at IIT Bombay Techfest in DroneLog competition. 2023
- Secured 3rd position among 25+teams in Pune AISSMS Drone Racing Competition 2023
- Won 2nd prize in SVNIT Annual Technical Fest for autonomous drone racing. 2023