DIVYANSHU PRAKASH

Codeforces | Codechef | Leetcode | Github
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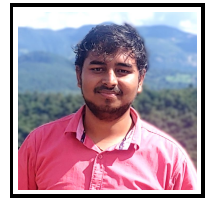
Education

Indian Institute Of Technology (IIT), Bhilai	**CGPA - 8.75**
*B.Tech(**Honors**)-Mechatronics Engg. (**Minor- Computer Science Engg**)*	*October 2022 - May 2026*

R.P.S. School, Nalanda, Bihar, India	**Grade - 92%**
Senior Secondary Education	*May 2020 - April 2022*

Technical Skills

Languages: C++ (Proficient), Python(Proficient), C, SQL
ML/AI: NumPy, Pandas, Matplotlib, Scikit learn, OpenCV, Computer Vision
Hardware: Raspberry Pi 5, ESP32, ESP8266, Arduino,Sensors
Platforms & Tools: ROS, Solid edge, Gazebo, Fusion360, Git, Docker, Linux, VS Code
Core Skills: Data Structures and Algorithms, Machine Learning, Deep Learning, Object-Oriented Programming (OOP)

Internship

Embedded system Intern - IBITF IIT Bhilai — Certificate   **May 2024 – July 2024**

- **Automated System for Recognition and Packaging of Purchase Items (Fruits and Vegetables)**
- Developed an **embedded computer vision system** for real-time recognition of over **50+ fruit and vegetable types**, enabling automated checkout in grocery stores.
- Implemented dataset segmentation and annotation using **SAM AI and DINO AI**, followed by training a **YOLOv8 model**, achieving **86% accuracy** in object detection.
- Deployed the system on **Raspberry Pi 5**, integrating a **high-resolution camera** for item recognition, a **weight sensor** for price calculation, and a **thermal printer** for generating purchase receipts.
- Designed a **user-friendly GUI** using Python's Tkinter for seamless interaction, ensuring efficient transaction processing.

Projects

Nurse Bot: Autonomous Mobile Robot for Navigation and Assistance   *Dec 2024 - Present*

- Developing an autonomous mobile robot on Raspberry Pi 5 using ROS for real-time mapping and navigation.
- Simulated the IIT Bhilai Health Center in Gazebo for testing SLAM and motion planning.
- Integrated LiDAR, IMU, and depth cameras for localization, obstacle avoidance, and shortest path computation using A* and Dijkstra's algorithm.
- Implementing an ML model for object detection to enhance environment perception.
- Utilizing motors with optical encoders for precise motion control and odometry feedback.

Smart Room Guard: IoT-based Environmental Monitoring System   **GitHub**   *Dec 2023 - Mar 2024*

- Designed and implemented an IoT-based environmental monitoring system using ESP32 microcontroller, integrating DHT11 for temperature and humidity sensing, and MQ-series gas sensors for real-time hazardous gas detection.
- Developed an automated emergency response mechanism employing relay modules to unlock gates during critical events, enhancing safety protocols for enclosed environments.
- Configured cloud-based data visualization and analytics on ThingSpeak platform, enabling real-time monitoring, alert notifications, and comprehensive reporting of environmental parameters.

Achievements ad Activities

- **Specialist(1569)** rated at Codeforces.
- Achieved a **3-star (1717)** rating, ranking in the top 0.86% of active users in India on Codechef.
- Team Leader in Inter IIT Tech Meet 2024, Mid Prep 1 (Dream 11 ML model prediction)
- Participated in Dark Pattern Buster Hackathon 2023 - (**Certificate** ↗)
- Secured 4th rank in the Ingenuity Individual Programming Contest at the college level.

Leadership / Extracurricular

Team Leader | *Mid Prep 1, Inter IIT Tech Meet 2024*   **Dec 2024**

- Led a team of 6 to develop a Dream11 solution, engineered GRU & XGBoost models (95% accuracy), and crafted React-Flask UIs for model insights and live predictions.

Core Member | *Ingenuity, Competitive Programming Club*   **May 2024 - Present**

- Led a bit manipulation workshop (50+ students, 90% satisfaction), mentored 200+ in Competitive Programming, and organized 10+ workshops/contests to foster CP culture.

Core Member | *Openlake, Opensource Development Club*   **May 2024 – August 2024**