SWAMY R
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PROFESSIONAL SUMMARY

Versatile and results-oriented Full Stack Developer with a strong command of **Python** for backend development, data acquisition, and signal processing. Demonstrated success in building real-time monitoring systems, scalable APIs, and role-based web applications using **FastAPI, React.js, and PostgreSQL**. Adept at leveraging Python's ecosystem for engineering solutions—ranging from vibration diagnostics to workshop analytics—while ensuring clean UI/UX and maintainable codebases. Experienced with **Docker, Git, and modern frontend frameworks**, and passionate about solving real-world problems through technology. **Available immediately** and open to both remote and onsite opportunities.

TECHNICAL SKILLS

- **Languages:** Python, JavaScript
- **Web Development:** React.js, Node.js, Express.js, HTML, CSS
- **Backend & APIs:** FastAPI, Express.js, RESTful APIs
- **Database:** PostgreSQL, MongoDB
- **Tools & Libraries:** Docker, Dash, Pandas, NumPy, Git
- **Other:** Authentication, Role-Based Access Control, Data Acquisition, Signal Processing

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EDUCATION

Bachelor of Engineering – Computer Science
Rajarajeshwari College of Engineering, Bengaluru | 2020 – 2024
CGPA: 7.61

PROFESSIONAL EXPERIENCE

Project Associate
Central Manufacturing Technology Institute (CMTI), Bengaluru
Sept 2024 – Present

- Developed a real-time **vibration monitoring system** to detect mechanical faults.
- Integrated sensor data acquisition with backend processing using **FastAPI** and **PostgreSQL**.
- Built interactive dashboards using **Dash** to visualize fault severity and trend data.
- **Graduate Engineering Trainee**
  Central Manufacturing Technology Institute (CMTI), Bengaluru
  Aug 2024 – Sept 2024

- Supported the development of a **VB.NET-based straightness error analysis tool**.
- Collaborated with senior engineers to test and validate algorithms for precision metrology.

PROJECTS

Conditional-Based Monitoring (Vibration Analysis)
Oct 2024 – Feb 2025

- Developed a **vibration monitoring system** for rotating machinery using time- and frequency-domain features.
- Applied signal processing and feature extraction to detect faults.
- Built backend using **FastAPI** + **PostgreSQL**, with **Dash** for real-time plotting and diagnostics.

Smart Workshop Dashboard
May 2025 – Jul 2025

- Built a comprehensive **workshop management system** to monitor machine maintenance, health, and utilization.
- Used **MERN stack** (MongoDB, Express, React, Node.js) with **PostgreSQL** for hybrid data handling.
- Integrated **Docker** for containerized deployment and scalability.
- Developed real-time dashboards with charts, alerts, and maintenance schedules.

Role-Based Machine Maintenance Tracking System
Mar 2025 – May 2025

- Created a **role-based maintenance system** using **PERN stack**.
- Implemented secure **JWT authentication** and role access for Admin, Supervisor, Operator, and Guest users.
- Enabled supervisors to generate reports by machine, project, or date.

AVAILABILITY

Immediate Joiner | Open to Relocation & Remote Opportunities

ADDITIONAL

Languages: English, Kannada, Hindi