

Pratul Deshpande

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SUMMARY

E&TC undergraduate specializing in embedded systems and software development. Proficient in Python, Embedded, and UDS with a solid foundation in Quantum Computing fundamentals and experience improving process efficiency in multinational environments.

SKILLS

Programming Languages: Python, Embedded C, C++, JavaScript, SQL

Hardware & Embedded Platforms: ESP32, Raspberry Pi, Arduino, ARM Cortex,

Web Technologies & Databases: React.js, Node.js, Flask, Docker, PostgreSQL

Tools & Software: Git, Linux, MATLAB, Simulink, Render, VS Code, PyCharm, JIra, Microsoft Excel, Teams,

Design & Simulation: PCB Design (Proteus, KiCad), Circuit Simulation (N1 Multisim)

Quantum Computing: Qiskit, IBM Cloud

Protocols: UDS (ISO 14229), OBD II, I2C, SP

PROFESSIONAL EXPERIENCE

Software Development Intern | Lear Corporation | Pune, Maharashtra | June 2025 - August 2025

- Developed and implemented scalable Python libraries to automate **24+ UDS diagnostic services**, reducing manual testing time by **60%**.
- Engineered and deployed custom python libraries using the **PySTA framework** to expand testing capabilities for multiple diagnostics test scenarios.

Technical Intern | Makewell Electronics Services | Nashik, Maharashtra | December 2024 - February 2025

- Designed and tested 3 variations of a **20-socket tray** for **ATLAS COPCO**, achieving a **98%** quality assurance pass rate and reducing client assembly time.
- Engineered, tested, and validated industrial **PLC systems**, ensuring compliance with performance and safety standards in Industrial environments.

SELECTED PROJECTS

AI based IOT System for Monitoring and predictive maintenance of Pulse Jet Bag Filters. | Ionfiltration Pvt. Ltd. | ionfiltration.pratuldeshpande.com

- Implemented an **IoT system** for industrial filters, implemented master-slave based real-time sensors to transmit data to the cloud with **98% reliability**.
- Deployed an **AI-powered React/Flask dashboard** with **92% accuracy** in anomaly detection, successfully predicting filter failures in advance.
- Deployed a containerized **PostgreSQL** solution handling **1,000+ write operations per min** while ensuring zero data loss during high-load periods.

Quantum File Guard | qguard.pratuldeshpande.com

- Developed a secure, client-side Single Page Application (SPA) for file exchange using **NIST-standardized Post-Quantum Cryptography (PQC)**.
- Implemented a hybrid cryptosystem combining **ML-KEM-768 (FIPS 203)** for quantum-resistant key encapsulation and **AES-256-GCM** for high-performance **encryption**.
- Built a responsive, research-grade user interface using **React.js**, **Vite**, and **Tailwind CSS**, featuring dynamic theming (Dark/Light mode) and mobile optimization.

Diagnostic Library Implementation in PYSTA | Lear Corporation

- Architected a comprehensive UDS based Python library supporting **24+ UDS services**, slashing test-authoring time by **60%**.
- Standardized testing procedures across multiple teams by developing a **consistent and reproducible framework**, ensuring high-quality results.

Real-Time Stress Detection System using HRV | PVG's COET&M, Pune

- Led the end-to-end development of a health monitoring system for real-time **Heart Rate Variability (HRV)** analysis and Stress prediction.
- Collected and processed data from **20+ subjects**, implementing algorithms that achieved **85%** accuracy in real world scenarios.

RESEARCH AND PUBLICATIONS

Quantum-Assisted Techniques to Optimize Modern Supply Chain Challenges | NCRICSIT | 2025

Gender-based violence in the Video Games | International Conference on Gender Equality & Women Empowerment (ICGEWE) | 2024

INVOLVEMENTS

Qiskit Advocate | IBM Quantum | Qiskit

- Selected as part of a global community of **500+** Advocates across **50+** countries, driving open-source development, education, and leadership in the Qiskit ecosystem.

General Secretary of Students Association | PVG's COET&M, Pune | Telecommunication Engineering Students Association (TESA) |

- Successfully organized **11** technical and non-technical events, engaging over **2000 students** and leading one of the most accomplished association of Institute.

National level competition Finalist | IIT Bombay | National Entrepreneurship Challenge (NEC) | E-Summit |

- Part of the **15** students from my institute to represent Ed-Cell PVG at the NEC organized by IIT Bombay.

EDUCATION

B.E in Electronics & Telecommunication | PVG's College of Engineering, Technology and Management | Pune, Maharashtra |

Higher Secondary Certificate (HSC) | Matoshri College of Management and Research Centre | Nashik, Maharashtra | 2022 | 78.83%

Secondary School Certificate (SSC) | New Era English School | Nashik, Maharashtra | 2020 | 90.20%