Rutu Bhanderi

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Education

Symbiosis Institute of Technology, Pune - Expected June 2026
B. Tech in Computer Science Engineering, CGPA – **7.85**

Anandalaya School – Completed May 2022
Stream: PCM with Computer Science, 10th Board: **96.4%** | 12th Board: **85%**

Skills

Languages: Python, JavaScript, C++, HTML, CSS, MySQL
Frameworks & Libraries: FastAPI, Flask (familiar), React.js, Node.js, Express.js, Scikit-learn, Pandas, XGBoost, Chart.js, jsPDF
Databases: MongoDB, MySQL, Supabase, Firebase
Tools & Platforms: Git, Postman, Arduino IDE, Power BI, Excel, WebSocket (via FastAPI), JWT
Cloud & Deployment (Familiar): Google Cloud Platform (GCP), RESTful API deployment
Coursework: Data Structures and Algorithms, OOPS, Agile Methodology, Computer Networks, Operating Systems, Databases (RDBMS), Discrete and Financial Mathematics, Sensors and Microcontrollers

Projects

NetSift - Real Time NIDS [GitHub]

- **Developed** a **real-time** Network Intrusion Detection System using a **hybrid CNN-LSTM model**, achieving **95% accuracy** on the **CICIDS2017 dataset** for detecting **DoS**, **DDoS**, and other **attacks**.
- Implemented **low-latency** packet capture and **prediction** with **Scapy** and **FastAPI**, processing up to **50 packets** via **WebSocket streaming**.
- **Designed** a **user-friendly** React frontend with **Chart.js visualizations** and **jsPDF reports**, improving **accessibility** for non-expert users.
- **Optimized model** with **SelectKBest feature reduction** (**79 to 50 features**) and **data augmentation**, yielding a **weighted F1-score** of **0.95**.

Supply Chain Analysis [GitHub]

- **Analyzed** 18,000+ supply chain records to **identify trends** in *sales, discounts,* and *profit* using **Python** (*pandas, seaborn*).
- **Reduced** dataset size by **30%** through **feature selection** and **null-value handling**, improving analysis clarity.
- **Developed Power BI dashboard**(*bar, pie, line charts*) to **visualize product performance** and shipping delays.
- **Delivered actionable insights** that improved business **decision-making visibility** by **40%**.

Dynamic Pricing System - Reinforcement Learning [GitHub]

- Developed a **dynamic** pricing framework using **DQN** and **A2C** on the UCI Online Retail dataset, targeting revenue **optimization** and customer **engagement**.
- Increased revenue by up to **5.96%** with DQN compared to A2C by learning higher-value pricing **strategies** across key products.
- Achieved up to **26.79%** higher purchase rates with A2C, demonstrating stronger customer **responsiveness** and engagement.
- Evaluated both models over multiple episodes, with A2C yielding up to **1.67%** higher average reward, fine-tuned via **grid search**.

Parkinson's Disease Prediction [GitHub]

- Developed a **classification model** to predict **Parkinson's disease** based on medical features.
- Models used: **XGBoost**, **Random Forest**, **KNN**, and **Naïve Bayes**
- Evaluated models using **accuracy**, **precision**, **recall**, and **AUC-ROC analysis**
- Achieved **87% accuracy** with **XGBoost**, outperforming other models.

Arduino-Based Street Light Automation [GitHub]

- Used **IR sensors**, **LEDs**, and **PWM** for dynamic lighting based on **vehicle presence**.
- Achieved up to **80% energy savings**, reducing costs and extending light lifespan.
- Replaced traditional lamps with **energy-efficient LEDs**, minimizing emissions.
- Automated control reduced manual effort and **optimized urban infrastructure**.

Report Generation Website – Report GenX [GitHub]

- Built a **full-stack web app** for an NGO to manage **volunteer reports**.
- Integrated **user authentication** and **role-based access control** (admin/volunteer).
- Enabled **create, view, edit, print** functionality for reports using **RESTful APIs**.
- Ensured seamless **frontend-backend communication** and **optimized DB queries**.

Real Estate Marketplace – MERN [GitHub]

- Developed a **full-stack real estate web application** using the **MERN stack (MongoDB, Express.js, React, Node.js)** to streamline property listing, search, and communication.
- Built a **responsive UI** with **React.js** and managed complex state using **Redux**, enhancing user interactivity and navigation.
- Implemented **secure authentication** with **JWT (JSON Web Token)** and integrated **Firebase/Supabase** for **real-time data handling** and backend scalability.
- Integrated an **AI-powered chatbot** using **Botpress** to provide conversational support and improve user engagement.

Certifications/Publications

- Published paper: "**Efficient Illumination: Arduino-Based Street Light Automation for Energy Savings**" – **IEEE ICETCI '24**
- **Google Cloud Engineering Certification** – Google
- **Supervised Machine Learning: Regression and Classification** – DeepLearning.AI
- **Introduction to Cyber Security** – Cisco Networking Academy