Parv Patodia

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EDUCATION

Northeastern University   San Jose, CA
Master's in Artificial Intelligence   *Sep. 2025 – May 2027(Expected)*

Nanyang Technological University   Singapore
Bachelor's in Mechanical Engineering, Minor in Computing & Data Analysis   *Aug. 2020 – May 2024*

PROJECTS

Meditrack – Medical Equipment Monitoring Tool | *Python, React, PostgreSQL, VLMM*   Sep 2025 – Present
- Developed a full stack medical equipment tracking and analysis tool combining FastAPI, React, and VLMM-based object detection.
- Integrated semantic understanding and real-time analytics for asset identification and predictive maintenance.
- Deployed REST APIs and optimized backend performance for faster data retrieval and visualization.

Federated Learning for Real-World Applications | *Python, ML Model, Git*   Sep 2025 – Oct 2025
- Built a federated learning framework for distributed model training on non-IID datasets with differential noise.
- Evaluated convergence efficiency and accuracy trade-offs between centralized and decentralized systems.

Smart Mental Health Chatbot | *NLP,Neural Network, PyTorch, spaCy*   Jan 2024 – May 2024
- Built an NLP pipeline (tokenization, vectorization, model training) using spaCy, PyTorch on Google Colab.
- Achieved 77% intent-recognition accuracy, improving response selection with additional rule-based matching.
- Integrated LLM-like conversational design and model evaluation for response precision.

Condition Monitoring for Automated Mobile Robot | *PINN, ReLU, MATLAB, C++*   Sep 2023 – May 2024
- Built a physics-informed neural network (PINN) for torque estimation in a PMSM, using forward propagation with ReLU activation.
- Developed real-time telemetry acquisition system in MATLAB RS-485, parsing and visualizing multi-frame data streams.
- Built a GUI to display streaming signals and store historical logs, enabling faster fault detection and issue triage.

EXPERIENCE

Senior Officer (Infrastructure Track)   July 2024 – June 2025
United Overseas Bank   *Singapore*
- Monitored the UOB TMRW mobile-banking platform using GENEOS, reducing incident blind spots by 30%.
- Partnered with DevOps to conduct scalability checks on AWS/VMware, improving production reliability under peak loads.
- Partnered with cross-functional teams to align technical improvements with business objectives.

Autonomous Vehicle Test Engineer   June 2023 – Aug 2023
Venti Technologies   *Singapore*
- Designed and executed A V test cases for lane-change and path-recognition modules and validated updates with Rviz simulations.
- Collected and analyzed LiDAR data at edge cases, strengthening evaluation of perception models.
- Improved validation workflow using Git and Jira, reducing test cycle time by 15%.

Advanced Manufacturing Consultant   July 2022 – Dec 2022
TUV SUD Asia Pacific   *Singapore*
- Drafted automation solution roadmaps with emphasis on Mobile Industrial Robots (MiR) and Industry 4.0 readiness.
- Coordinated with technology partners to assess workflows and implementation feasibility for clients in Italy, Spain, and Abu Dhabi.

TECHNICAL SKILLS

Languages: Python, JavaScript, C++, SQL (Postgres), HTML/CSS, MATLAB
Frameworks: React, PyTorch,Neural Networks, FastAPI, TypeScript, Federated Learning
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, PyCharm, AWS(E2,S3,CloudWatch, Strands)
Libraries: Pandas, NumPy, scikit-learn, Matplotlib, spaCy, Keras, Flower,Chart.js, Node.js