

Parv Patodia

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EDUCATION

Northeastern University

Master's in Artificial Intelligence

San Jose, CA

Sep 2025 – May 2027

Nanyang Technological University

Bachelor's in Mechanical Engineering, Minor in Computing & Data Analysis

Singapore

Aug. 2020 – May 2024

PROJECTS

Laksh.ai – Biomechanics Analysis Platform | *Python, MediaPipe, RTMPose, YOLOv8* Dec 2025 – Present

- Built a computer vision pipeline for basketball jump-shot analysis using markerless pose estimation and ball tracking to extract biomechanical metrics.
- Designed a pluggable pose architecture integrating MediaPipe and RTMPose to generate a canonical 12-joint schema for kinematic analysis.
- Generated an 8D kinematic fingerprint matched against NBA player profiles via ChromaDB vector search with LLM-generated coaching feedback.
- Implemented injury-risk indicators including knee valgus, landing mechanics, and upper-extremity load derived from pose trajectories.

Vision Transformer for Urban Change Detection | *PyTorch, Transformers* Jan 2025 – Present

- Implemented a Vision Transformer from scratch in PyTorch for bi-temporal change detection using Sentinel-2 satellite imagery.
- Built patch embedding, positional encoding, multi-head self-attention, and transformer encoder blocks without pretrained modules.
- Built a Siamese encoder architecture with a segmentation decoder for urban growth detection.
- Produced segmentation change maps and evaluated performance using IoU, F1, Dice, precision, and recall against CNN baselines.

TaskRoute – LLM Provider Optimization Engine | *Python, Multi-Agent Systems* Jan 2025 – Feb 2025

- Built a decision service recommending optimal LLM providers based on task type, budget constraints, and optimization objective.
- Designed a scoring system combining provider pricing, switching costs, and reliability risk penalties.
- Simulated a multi-agent marketplace where autonomous agents selected providers under budget and market shocks.

EXPERIENCE

Graduate Teaching Assistant, Foundations of AI Jan 2026 – Present

Northeastern University

San Jose

- Led weekly office hours for 30+ students on model reasoning, debugging, and ML evaluation concepts.
- Designed assignments and project learning plans covering dataset selection, model design, and result interpretation.

Senior Officer, Site Reliability Engineer July 2024 – June 2025

United Overseas Bank

Singapore

- Monitored production banking infrastructure using GENEOS and improved incident visibility by 30%.
- Partnered with DevOps to run scalability checks across AWS and VMware systems under peak loads.

Autonomous Vehicle Test Engineer June 2023 – Aug 2023

Venti Technologies

Singapore

- Designed validation tests for lane-change and perception modules using RViz simulation and LiDAR data analysis.
- Improved validation workflow using Git and Jira, reducing testing cycle time by 15%.

TECHNICAL SKILLS

Languages: Python, JavaScript, C++, SQL (Postgres), HTML/CSS, MATLAB

Frameworks: PyTorch, FastAPI, React, Transformers, Neural Networks

Developer Tools: Git, Docker, Google Cloud Platform, VS Code, PyCharm, AWS E2, S3, CloudWatch

Libraries: Pandas, NumPy, scikit-learn, Matplotlib, spaCy, Keras, Flower, Chart.js, Node.js