

SHWETA CHAVAN

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EDUCATION

Carnegie Mellon University (*GPA: 3.90/4.00*)

Masters of Artificial Intelligence Engineering - Electrical and Computer Engineering

Pittsburgh, PA

Dec 2024

Relevant Coursework: Multimodal ML, AI Pipelines, Trustworthy AI, Full Stack ML, Modern Computer Architecture

University of Mumbai (*GPA: 9.46/10.00*)

Bachelor of Technology in Electronics and Telecommunication

Mumbai, India

May 2023

Relevant Coursework: Data Compression and Encryption, Image and Video Processing, Big Data Analytics, Database Management

SKILLS

Programming: Python, C++, Arduino, OpenCV, MATLAB

ML Frameworks, Pipeline, Visualisation Tools: PyTorch, TensorFlow, AWS, GCP, SOLIDWORKS

Geospatial & CV Applications: LiDAR, RADAR, RGBT, RGBD and Image Data Processing, Sensor Fusion

ML Workflow Optimisation: Edge Deployment, Feature Engineering, ML Evaluation

EXPERIENCE

Magna International, New Mobility

Computer Vision & ML Engineer | [Link](#)

Pittsburgh, PA

Mar 2025 – Oct 2025

- Crafted ADAS perception systems for an L4 self-driving autonomous delivery bot for pedestrian detection via various sensor modalities
- Developed a **multi-sensor perception** pipeline integrating RGB, monocular (depth anything)/ stereo camera, thermal imaging with clustering + Kalman **tracking & segmentation**, generating a video that eliminates background noise & highlights ROI with pedestrians
- Worked closely with product managers, and technical leads to deliver proof-of-concept through trade-studies and iterative prototyping

Velo AI | AI-driven autonomous bike safety device

ML Software Engineering Intern | [Link](#)

Pittsburgh, PA

May 2024 – Aug 2024

- Collaborated on **Bird's Eye View representation** (BEV) for custom LiDAR data using **spatiotemporal Transformers**
- Spearheaded the partnership with Ann Arbor for the Personal Identification Information disposal initiative via pretrained **PyTorch Object Detection** with **computer vision**, deploying **ONNX** models on R-Pi & using OpenStreetMap (OSM) for analytics on bike lanes
- Devised a runtime feature that optimized inference by up to 70% by disabling redundant AI processing through edge-case detection
- Initiated migration of camera data to **Protocol Buffers** (protobufs), reducing serialization overhead & cloud-based video retrieval

Arya | Miniature Canister Satellite Technology

Team Lead | [Web](#) | [DR](#)

Mumbai, India

Mar 2020 – Jul 2023

- Led 30-member team to 12th globally in NASA-sponsored CanSat 2021-22, developing satellite tech, meeting 97% of mission goals
- Implemented servo-based **stabilization** for the Adafruit 3202 camera, creating a gimbal-like mount for improved video capture
- Conducted trade study for **sensor-fusion** configurations (temp, pressure, camera, gps, voltage, rotation), system integration, iterative prototyping in SOLIDWORKS, and GUI development for **visualizing real-time sensor data** for a Canister Satellite (CanSat)

Neo-Thermal AI Innovations LLP

Computer Vision and Machine Learning Intern | [Link](#)

Mumbai, India

Jul 2021 – Aug 2021

- Developed a thermal exercise tracker to monitor activity of targeted muscles using PyQt5 GUI, OpenCV libraries and FLIR Lepton 3.5
- Built a thermal diabetes detector using **Segmentation Detectron2** on images collected by field work, with a 97% detection accuracy

Phemesoft IBM

Python Developer Intern | [Link](#)

Mumbai, India

Jul 2022 – Sept 2022

- Designed and deployed a Library Management System (UI) with user role-based access control (RBAC) using **tkinter** and **MySQL**
- Integrated **Tableau** dashboard to visualize user analytics, RFID based checkouts and an **NLP chatbot**, boosting efficiency by 95%

Teaching Assistant, CMU

ML Teaching Assistant | 18-763 | 11-663

Pittsburgh, PA

Jul 2024 – May 2025

- Mentored 120+ students build E2E ML pipelines (**PySpark, PyTorch, SQL, Kafka**) focusing on data scalability & edge ML deployment

ACADEMIC PROJECTS

LLaMA-Powered Multi-Agent Recruitment Pipeline

Sep 2025 – Nov 2025

- Built a lightweight, **LLaMA 3.2**-powered hiring assistant using a multi-agent setup that reads resumes, matches candidates to roles, and delivers candidate evaluation that makes use of local **LLM** inference, structured **JSON extraction**, and a Streamlit UI

Reinforcement Learning Agent for Snake Game | [Link](#)

Nov 2024 – Jan 2025

- Extracted shipment data to automate filling customs forms using **LLMs** via Open AI API, **OCR**, pinecone **db** for **vector embeddings**

Jupiter: Automating pipelines with LLMs

Apr 2025 – Jun 2025

- Trained a Reinforcement Learning agent using **Linear QNet** with epsilon-greedy strategy in a custom Snake game, (~30 avg score in 400 episodes) while balancing **exploration and Q-value based exploitation**, path finding & reward maximizing collision avoidance

Gen AI based-data augmentation

Jan 2024 – Jun 2024

- Leveraged **GLIGEN** diffusion model (Gen AI) to robust Image classification using **LoRA**, similar to a **GAN** architecture
- Fine-tuned **ResNet** models with synthetically generated multi-modal datasets obtained by adversarial training, achieving 30% improving model generalization to unseen variations and reduced reliance on large-scale, manually labelled datasets

Fine-Tuning LLM for Sentiment Analysis

Dec 2023 – Jan 2024

- Fine-tuned **LLM (BERT)** with domain-specific tokenization on the IMDb dataset for sentiment analysis, with 92% accuracy
- Deployed on AWS Lambda for real-time predictions and used **Grad-CAM** for explainability in model classifications

CERTIFICATIONS & PUBLICATIONS

- A comparative study on Diabetic Retinopathy Detection and Classification - IEEE in June 2023, *ISBN: 978-1-6654-6504-5*
- Pets' Smart Vest - Spark, National Level Journal in March 2022, *ISBN: 978-93-5593-448-2*
- Off-Grid Wi-Fi Comm System with RPi and App - Spark, State Level Journal in March 2021, *ISBN: 978-93-5437-739-6*
- 4-year IBM Artificial Intelligence and Machine Learning Certification, 2019-2023 (*GPA: 9.48/10.00*)