

Yatiesh Mehta

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EDUCATION

University of Waterloo, Waterloo, ON

Aug 2023 – Jul 2028

BMath in Statistics and Combinatorics & Optimization

- Received the University of Waterloo President's Scholarship of Distinction
- Awarded Term Distinction and an Excellent Academic Standing for Fall 2023 term

EXPERIENCE

AI Engineering Intern

Jan 2025 – Apr 2025

Fractal Analytics

- Built an internal **LLMOps dashboard** using **Streamlit** and **Langfuse**, aggregating **Azure**, **AWS**, and **GCP** usage to compute **25+ FinOps KPIs** and leveraging **matplotlib** to power **10+ real-time graphs**
- Designed a modular **agentic workflow** with **4+ autonomous agents** to support dynamic visualization, KPI alerts, and custom dashboard generation
- Engineered a cross-cloud **Pricing Intelligence Tool** with advanced features such as spec matching, budget guardrails, **AI-powered recommendations** via **Ollama** and **Groq**, based on usage patterns

Software Engineering Intern

May 2024 – Sep 2024

Navneet Education Ltd.

- Directed the backend development for an AI-powered learning platform using **Django Rest** with **JWT** authentication to secure the API endpoints
- Constructed a **RAG pipeline** leveraging **Langchain**, **GPT-4o**, and **Pinecone** to query user uploaded textbooks
- Optimized efficiency in retrieval and response times with Langchain by **62%** by adding metadata filtering and fine-tuning chunking parameters
- Managed file storage and retrieval using **AWS S3** buckets and hosted the platform and **MYSQL** database on separate **AWS EC2** instances, ensuring scalability and reliability

PROJECTS/COMPETITIONS

Road Object Detection System 📁 | *Python, PyTorch, OpenCV, Numpy*

Mar 2025 – Apr 2025

- Developed a **multi-modal 3D object detection pipeline** by fusing **YOLOv8** outputs with **LiDAR point clouds** from **KITTI** and **BDD100K** for depth-aware perception in autonomous driving
- Implemented real-time **multi-object tracking** with **OC-SORT** and estimated object **velocities** via temporal fusion of detections and LiDAR data
- Projected 3D LiDAR to 2D image space using **camera calibration matrices**, enabling accurate **depth estimation** and fused object detection
- Standardized datasets with mismatched schemas by converting labels to **YOLO format**, resolving class conflicts and applying data augmentations
- Enabled both **LiDAR-augmented** and **image-only** modes with tools for overlaying fused **2D/3D detections**

Minimalisp: A Minimalistic Lisp Variant 📁 | *C*

Jun 2024 – Aug 2024

- Engineered a full **Lisp interpreter** in C, with custom functions, data structures, scoping, and built-in operations
- Developed an **interactive REPL** with a **custom parser**, enabling both prompt-based execution and evaluation from **.minisp** files
- Designed and implemented a *Dou Dizhu game engine*, utilizing Minimalisp to script game logic and bot behavior, showcasing the interpreter's versatility and integration into complex systems

AstroPi Competition 📁 | *Python, Matplotlib, APIs, Git*

Nov 2022 – Feb 2023

- Collaborated in a team of five to successfully pass all four phases of the **European Space Agency's** competition
- Engineered and launched an advanced robotics system to the **International Space Station** enabling real-time collection of over **1,000** data points on NDVI, gas emissions, and magnetic intensity
- Built an **NDVI calculator** and **edge detector**, to optimize data processing for further environmental analysis
- **Developed and trained AI models** to classify satellite imagery such as types of agriculture, land, ocean, and cloud with over **96%** accuracy, elevating precision in observation endeavors
- Analyzed, processed, and graphed **11,500** data points from an IMU on the ISS using a Coral AI accelerator

TECHNICAL SKILLS

Proficient languages: Python, C/C++, Bash, Racket, SQL

Familiar languages: Unreal Engine, Scheme, SQL, JavaScript, HTML, CSS, DAX, Arduino

Dev Tools: Git, Linux, Django, Django Rest, Pandas, Numpy, TensorFlow, Docker, VS Code