# Yatiesh Mehta └ +1 (437)-808-2718 | yatiesh.mehta@uwaterloo.ca | ♥ GitHub | In LinkedIn

#### EDUCATION

## University of Waterloo, Waterloo, ON

BMath in Statistics and Combinatorics & Optimization

• Received the University of Waterloo President's Scholarship of Distinction

#### EXPERIENCE

## **MLOps Engineering Intern**

Fractal Analytics

- Built an internal LLMOps dashboard using Streamlit, LangFuse and Pandas, 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
- Collaborated on a cross-cloud **Pricing Intelligence Tool** with advanced features such as collaborative project workspaces, budget guardrails, AI-powered recommendations via Ollama and Groq, based on usage patterns

## Software Engineering Intern

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-40, and **Pinecone** to query user uploaded textbooks
- Optimized efficiency in retrieval and response times with Langchain by 62% through 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

LiDAR-Augmented Object Detection 🗹 | Python, PyTorch, OpenCV, Numpy, CUDA Mar 2025 – Apr 2025

- Fine-tuned a YOLOv8n model on BDD100K for real-time object detection, achieving low-latency inference optimized for edge deployment
- Projected LiDAR point clouds into camera image space using calibration matrices to generate dense per-pixel depth maps
- Integrated OC-SORT tracking with LiDAR-augmented depth to compute real-world object velocities via frame-to-frame displacement analysis
- Achieved <80 FPS end-to-end inference by optimizing YOLOv8 and tracking modules with CUDA acceleration, improving throughput by 128%

Minimalisp: A Minimalistic Lisp Variant  $\square$  | C, Valgrind, GDB

- Built a Lisp interpreter in 5K LOC of C with custom parser, REPL, lexical scoping, and user-defined structs • Implemented core matrix operations (inversion, multiplication, transpose, determinant) using handwritten
- dense linear algebra routines in C, with a focus on correctness and memory safety
- Optimized runtime performance by **64%** through a custom **arena pool allocator** profiled using **Valgrind**
- Built a custom garbage collection scheme with scoped arenas, allowing bulk reclamation of temporary objects post-evaluation, eliminating per-object deallocation overhead, and reducing memory overhead by 32%

AstroPi Competition C Python, Matplotlib, APIs, Git

- 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



Jan 2025 – Apr 2025

May 2024 – Sep 2024

Jun 2024 – Aug 2024

Nov 2022 – Feb 2023