Aniket Mishra

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Experience

Founder and Software Engineer November 2025 – Present
NotExo.earth (Website)

- Started an independent research initiative **applying machine learning to open-access satellite data** to advance planetary science and exoplanet research.
- Built Python workflows to align and **cross-calibrate magnetic-field measurements** from two Mars-orbiting spacecraft, accounting for instrument differences to support integrated analysis.
- Developed Python **data-filtering methods** to identify suitable solar-wind observations based on physical-model constraints, time-window aggregation, minimum sample counts, and signal variability.
- Built an **interactive visualization tool** to explore spacecraft observations, **model predictions**, data coverage, and uncertainty, while evaluating combined-spacecraft data against a single-spacecraft baseline to **reduce median observation gaps from 3.56 to 2.12 days.**

Technologies: Python, NumPy, Scikit-Learn, SPICE, Go, Docker, Google Cloud, PostgreSQL

Software Engineer June 2025 – Present
Total Life Vancouver, BC (Remote)

- Developed an **asynchronous Go data-processing engine using goroutines**, buffered channels, and worker pools to process high-volume record streams, improving throughput by **25%.**
- Architected a **distributed Pub/Sub framework** integrating webhooks, external APIs, and notification systems, **reducing records requiring manual handling by 31%.**
- Automated synchronization between cloud databases and CRM platforms, **integrating HubSpot and Stripe webhooks** and reducing monthly **pipeline errors by 6%.**

Technologies: Go, React, HubSpot, Stripe, PostgreSQL, JavaScript, CSS, HTML, Datadog, GORM, Gin

Software Engineer (Contract) September 2024 – December 2024
vrCAVE Edmonton, AB

- Optimized low-level hardware state management and **multithreaded** C++ execution, eliminating a 5-second frame stall and **reducing average frame latency by 7%.**
- Implemented **state synchronization** across distributed hardware clients, reducing multiplayer latency spikes by 20% as verified through Unreal Engine profiling.
- Refactored legacy code using design patterns and delegates to improve maintainability, **automated testing**, and multi-client stability.

Technologies: C++, Unreal Engine

Creator and Maintainer December 2024 – Present
FissionMunk (Python Simulation Library) (PyPI)

- Designed and published a reusable 2D nuclear-fission simulation **library** built on Pymunk, translating reactor and particle-behaviour concepts into **computational models** for educational experimentation.
- Implemented numerical simulation logic with **NumPy and WebSocket-based JSON streaming** to expose simulation states to external clients for **real-time visualization.**
- Established automated quality checks and release workflows using pytest, Poetry, and GitHub Actions, **maintaining 100% automated test coverage.**

Technologies: Python, Pymunk, NumPy, Pytest, Poetry, PyPI, GitHub Actions

Software Developer Intern May 2022 – August 2022
G2V Optics Edmonton, AB

- Developed solar-tracking functionality for aerospace ground-testing systems, **calculating solar irradiance** from geographic coordinates, elevation, and time.
- Automated Raspberry Pi setup and **Apache configuration** on Linux with Bash, reducing setup time from approximately 30 minutes to under 10 minutes.

Technologies: Python, React, Flask, Bash/Shell, GitHub Actions

Software Developer Intern January 2022 – April 2022
AI Shading Calgary, AB

- Implemented **real-time sensor-data streaming** using WebSockets, Tuya SDK, and OpenWeather APIs, reducing dashboard update **latency from 250 ms to 150 ms.**
- Used **Datadog monitoring, error profiling, and log analysis** to identify and resolve recurring bugs, reducing runtime issues by **16%.**

Technologies: Java Spring Boot, SQL, React, JWT, REST APIs, WebSockets

Education and Professional Development

Bachelor of Science with Specialization in Computer Science September 2019 – June 2024
University of Alberta Edmonton, AB

- GPA: 3.7/4.0

AI Career Accelerator Program (AICAP) Participant May 2026 – Present
Alberta Machine Intelligence Institute (Amii) Edmonton, AB

- Engaged with current machine learning research through seminars and discussions with graduate students, professors, and fellow ML enthusiasts.
- Participated in professional development workshops focused on strengthening interpersonal skills and professional growth.

Technical Skills

Languages: Python, C++, C, Go, Java, SQL, JavaScript/TypeScript, Bash/Shell

Frontend: React, Next.js, HTML/CSS

Backend, Data & Cloud: FastAPI, REST APIs, GORM, Gin, WebSockets, PostgreSQL, Docker, Google Cloud Platform (Cloud Run, BigQuery)

Scientific Computing & ML: NumPy, SciPy, Matplotlib, scikit-learn, SPICE Toolkit, numerical simulation

Engineering Tools & Practices: Git, GitHub Actions, CI/CD, pytest, Poetry, Datadog, automated testing

Awards and Achievements

- **Dean's Honor Roll, University of Alberta** (2021 – 2024). Academic recognition for strong performance throughout my undergraduate studies.
- **International Student Scholarship, University of Alberta.** Awarded in recognition of academic achievement.
- **Second Place, HackED 2023, University of Alberta.** Developed a real-time sentiment analysis application using a RoBERTa model to help computer science students interpret the emotions and tone expressed in text.
- **First Place, Schulich Hacks 2023, University of Calgary.** Developed an environmental conservation project using YOLO for automated waste classification and segregation.
- **Participant, Hack the North 2023, University of Waterloo.** Received a scholarship covering attendance and accommodation at Canada's largest hackathon.

Leadership and Community Involvement

- **President, Ada's Conference, University of Alberta:** Organized conference-preparation sessions, coordinated student mentorship, managed teams, and oversaw travel and funding for students attending computing conferences, including Grace Hopper Celebration and CanWIC.
- **Executive, University of Alberta Outdoors Club:** Helped organize outdoor activities across Edmonton and surrounding areas, including hiking, skating, and other recreational events.
- **University of Alberta Rowing Team:** Competed in the Dino Sprints regatta and indoor rowing competitions.
- **DemoCamp Presenter:** Demonstrated FissionMunk, a Python physics library, and a RoBERTa based sentiment analysis project developed at HackED to students and industry professionals.

Certifications and Training

- **AI Career Exploration, Alberta Machine Intelligence Institute (Amii).** Explored AI and machine learning career paths and opportunities.
- **Google Advanced Data Analytics, Google.** Training in data analysis, statistical methods, and machine learning.
- **The Process and Lifetime of a Space Mission, Arizona State University.** Explored the lifecycle of a space mission, from planning and design to operation.
- **Amateur Radio Operator, Innovation, Science and Economic Development Canada.** Certified in amateur radio operation, communication procedures, and regulatory requirements.

Languages

English (C2); French (A2).