

Jordan Leis

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Summary

- **Cansbridge Fellow** (\$10,000), selected for technical excellence and global engagement, actively seeking industry experience in **Asia** and applying this background to research-driven AI roles in Asia.
 - **2+ years of hands-on experience in Python**, with applied work in **TensorFlow** and **PyTorch** building and evaluating reinforcement learning agents, simulation environments, and agentic AI systems.
 - Currently working as a **Machine Learning Engineer at Health Canada**, designing and evaluating LLM-based systems with an emphasis on reliability, experimentation, and real-world constraints in a research setting.

Skills

Machine Learning & AI: PyTorch, TensorFlow, Large Language Models (RAG, multi-agent systems, evaluation)

AI Systems & Infrastructure: LangChain, FastAPI, multi-LLM pipelines, model routing and evaluation

Cloud & Deployment: Google Cloud Platform (Vertex AI), Microsoft Azure (Azure AI Foundry)

Experience

Machine Learning Engineer (Research), Health Canada (PMRA) – Ottawa, ON September 2024 – Present

- Designed and implemented an end-to-end **retrieval-augmented generation (RAG)** pipeline for scientific regulatory documents, enabling structured querying over long-form PDFs exceeding **300+ pages**.
 - Built a document ingestion and preprocessing system in **Python**, integrating **OCR, table extraction, semantic chunking, and vector indexing** to preserve scientific context across heterogeneous document formats.
 - Developed and executed systematic evaluation experiments to characterize **hallucination rates and retrieval failure modes** across varying context lengths and prompt strategies, reducing incorrect model outputs by **30%**.
 - Deployed and orchestrated multi-model inference workflows using **GCP Vertex AI** and **Azure AI Foundry**, implementing model routing and usage monitoring to balance response quality against inference cost.

Technical Project Manager, Wat.AI Research Group – Waterloo, ON

May 2025 – Present

- Led end-to-end design and delivery of a reinforcement learning simulation environment in **Gymnasium (Python)**, modeling coupled subsystems with continuous state/action spaces across 14+ operational scenarios.
 - Defined system architecture and realism requirements, integrating real-world stochastic inputs via the **NASA POWER API** to evaluate policy robustness under historical and perturbed weather conditions.
 - Guided reinforcement learning experimentation and implementation using **TensorFlow**, overseeing agent design (A2C, SAC, DQN), reward formulation, and convergence analysis across **dozens of training runs**.
 - Established reproducible training pipelines with structured hyperparameter sweeps and checkpointing, improving training stability and sample efficiency by over **20%** across evaluated scenarios.
 - Managed and coordinated an **11-member interdisciplinary research team**, aligning environment design, experimentation, and analysis while remaining hands-on with core RL development and technical reviews.

Research Assistant (Co-op), National Research Council of Canada – Ottawa, ON

May 2025 – August 2025

- Led the end-to-end design of a plenum chamber experiment to measure volumetric airflow through flat-roof ventilation systems, translating informal industry testing practices into a new **CSA standard**.
 - Implemented a **PID-controlled pressure balancing system** in **NI LabVIEW**, achieving stable operating conditions within $\pm 5\%$ **pressure tolerance** and decoupling experimental validity from apparatus geometry.
 - Built structured data collection and storage workflows using a **SQL-backed database** to manage long-running experimental trials and ensure traceability across **multi-week test campaigns**.
 - Analyzed experimental datasets using **Excel** and **Python (NumPy, Pandas)** to generate plots, identify airflow and thermal performance trends, and support interpretation of results for senior researchers.

Education

University of Waterloo – Candidate for B.ASc in Electrical Engineering

September 2023 – May 2028

- Recipient of the Cansbridge Fellowship (\$10,000), Inter Pipeline Discovery Award (\$8,000) and Alexander Rutherford Scholarship (\$2,500) in recognition of academic excellence, leadership, and research potential.

Projects

Evaluating Decision-Making Generalization in RAG Agent Architectures

Waterloo, ON

- Co-authored a research paper evaluating **retrieval-augmented generation (RAG)** agent architectures for generalized decision-making across multiple domains; invited to present the work at **CUCAI 2025** (view paper).
 - Designed and compared hierarchical and multi-agent architectures with raw versus reflective memory strategies within a controlled experimental framework to optimize decision making.
 - Ran over **400 simulated games** of Monopoly and Werewolf to measure win rates and strategic consistency across architectures, extended best agents to political analysis using human evaluation with **50+ participants**.

Galactic Explorers — Swarm Robotics (SwarmHacks, 2nd Place)

Waterloo, ON

- Designed and deployed a multi-robot swarm system using **ROS (ROS1)** on the Hero2 platform to collaboratively explore an unknown environment, identify resources, and coordinate task execution.
 - Implemented perception-driven behaviors using onboard cameras for **color-based object identification**, enabling robots to sort and transport resources to designated zones.