Sean Ghaeli

seanghaeli.com

Email : sghaeli@alum.ubc.ca
Mobile : +1-604-724-8939

Education

University of British Columbia — *Vancouver, BC*
BASc, Engineering Physics; GPA: 3.9/4.0: Ranked #4 in Applied Science in Final Year — *2019 – 2024*

Professional Experience

Amazon Web Services — *May 2025 - Present*
Software Engineer

- Distributed task scheduling and task execution at scale. Apache Airflow core contributions
- Enabled generalized callback execution within task executors, providing visibility and flexibility to respond dynamically during task runtime.

Ma Robot AI — *Winter 2025*
Robotics Software Engineer — *Advised by Mo Chen (CIFAR AI Chair)*

- Brought up the robot's on-board perception stack, enabling self-contained perception and planning.
- Implemented multi-camera SLAM on ROS2, enabling zero-shot deployment in new environments and laying the groundwork for shared world models across multiple agents.

UBC Robotics and Control Lab — *Summer 2023*
Machine Learning Researcher

- Trained a novel transformer model using medical reports incorporating custom embeddings and masked language modeling for ultrasound analysis. Achieved an R^2 score of 0.96 on our test set, state-of-the-art for our task. Info.
- Brought up a scalable AWS backend for real-time model deployment, integrating S3 for data storage, ECR for containerized models, Lambda for automatic validation, and EC2 Spot instances for dynamic scaling. Code.

Kardium — *Fall 2022*
Software Systems Engineer

- Re-architected the object-oriented codebase for processing ensembles of heart catheter data, optimizing Matlab's tensor indexing to reduce key function runtime from a bottleneck to negligible. This re-architecture became the foundation of the team's monorepo, used daily by all 10 members.

UBC Quantum Devices Group — *Summer 2020*
Physics Researcher

- Designed a low-noise amplifier PCB to detect electron tunneling. Wrote SPICE models to simulate gain and stability at cryogenic temperatures. Used Python scripts to comprehensively test performance. Info.
- Built a custom ADC using off-the-shelf components to precisely measure amplifier output with 18-bit resolution and 15 MHz sampling rate. Wrote C++ firmware to integrate device with cryogenic chamber.

Projects

Reinforcement Learning Ball Balancing Controller — *Sep 2022 - Apr 2024*

- Developed a self-resetting real-world reinforcement learning control system for ball-on-wheel balancing. Demo.
- Automated a training pipeline in ROS+Gazebo for sim2real transfer and implemented RL algorithms like PPO.
- Led mechanical design: created CAD model, sourced parts, and assembled final system.

Conditional Generative CNN for Zero-Shot Image Classification — *Spring 2024*

- Trained a PyTorch CNN architecture with class embeddings, enabling conditional image generation. Report.
- Applied the CNN model to zero-shot image classification using Bayes theorem, obtaining 80% testing accuracy.