Job Posting:170164 - Position: F25 Machine Learning Applied Scientist (Co-op) 170164

Co-op Work Term Posted:	2025 - Fall
App Deadline	06/06/2025 09:00 AM
Application Method:	Through UBC Science Co-op
Posting Goes Live:	05/28/2025 02:28 PM
Job Posting Status:	Approved

ORGANIZATION INFORMATION

Organization	Apera AI Inc.
Address Line 1	Ste. 501- 134 Abbott St.
City	Vancouver
Postal Code / Zip Code	V6B 2K4
Province / State	BC
Country	Canada

JOB POSTING INFORMATION

Placement Term	2025 - Fall
<b> Job Title <b>	F25 Machine Learning Applied Scientist (Co-op) 170164
Position Type	Co-op Position
Job Location	Vancouver, BC
Country	Canada
Duration	8 months
Salary Currency	CAD
Salary	3600.0 per month for 0 Major List

Job Description

Role Overview

Apera AI is seeking a **Machine Learning Applied Scientist (Co-op)** to support the development of our 4D Vision Technology-used by **industrial robots** to perform fast, precise tasks in manufacturing environments.

In this role, you'll apply machine learning and computer vision techniques to real-world challenges like robotic part picking and localization in structured, high-speed applications. You'll prototype, evaluate, and improve models that are deployed on factory floors in industries such as automotive and industrial manufacturing.

Employee Value Proposition (EVP)

Purpose

You'll contribute to the intelligence behind robotic systems that perform precise, high-speed automation tasks-like part picking and placement for stamped metal components or machined assemblies.

Growth

You'll gain hands-on experience applying academic concepts to production workflows-working with internal datasets, building robust models, and learning from system behavior in real deployments.

Motivators

You'll be part of a collaborative, fast-moving team, and see your models tested in simulation and on real **industrial robots** used in customer-facing solutions.

Major Objectives

1. **Prototype and Evaluate Vision Models**

Within the first 90 days, implement machine learning models for object detection, depth estimation, or 6-DoF pose estimation. Benchmark performance using internal datasets that reflect real manufacturing conditions.
[Tools: PyTorch, internal GPU cluster, dataset tools]

2. **Translate Research into Production-Relevant Improvements**
   Identify and prototype methods from recent ML or computer vision research. Adapt them to our application domain and evaluate them against production baselines. Document findings and trade-offs.
   [Focus: Model speed, stability, accuracy under varying lighting and part geometry]
3. **Enhance Synthetic Data Generation for Model Training**
   Contribute improvements to the synthetic data generation pipeline-focusing on expanding variation in object shape, material, and pose. Help ensure the dataset supports model generalization across production use cases.

Critical Subtasks

- **Evaluate the ML Development Environment**
  In your first month, review the current training and validation tools. Identify areas for performance or usability improvements and contribute one concrete change by mid-term.
- **Collaborate Cross-Functionally and Debug Model Issues**
  Work with robotics and software engineers to understand deployment requirements and constraints. Assist in diagnosing issues with model performance observed during robotic testing or simulation, and help implement fixes or improvements.
- **Own and Deliver a Scoped ML Project**
  Lead a focused initiative such as testing a new augmentation strategy, developing a lightweight evaluation tool, or experimenting with model modifications for improved robustness. Present outcomes with metrics and insights at the end of the term.
- **Support Research on a Strategic Vision Problem**
  Join early investigations into longer-term capabilities, such as handling part occlusion or improving model behavior with similar-looking parts. Conduct benchmarking and literature review to inform future roadmap decisions.

Culture and Situation Fit

At Apera AI, we operate with startup urgency and deep technical discipline. You'll work alongside experienced engineers and scientists in an environment that values clarity, experimentation, and follow-through.
You'll thrive here if you:

- Want to apply ML to real-world problems in **industrial automation**.
- Are excited to see your work influence how robotic systems are built and deployed.
- Enjoy solving practical problems with research-informed tools.

Job Requirements

Minimum Qualifications

- Proficiency in Python and machine learning frameworks (e.g., PyTorch).
- Understanding of computer vision fundamentals (e.g., detection, segmentation, 3D geometry).
- Familiarity with model training, tuning, and evaluation workflows.
- Interest in robotics or applying ML in production-grade software.

Bonus Experience (Not Required)

- Experience with synthetic data generation or tools like Blender.
- Exposure to 6-DoF pose estimation, point cloud processing, or depth sensing.
- Experience working in Linux or Docker-based environments.
- Familiarity with AWS services used in ML development workflows (e.g., S3, EC2, SageMaker).

Citizenship Requirement N/A

APPLICATION INFORMATION

Application Procedure Through UBC Science Co-op
Cover Letter Required? Yes
Address Cover Letter to Hiring Manager