

LUCIA SUN

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EDUCATION

University of Toronto

Sep. 2021 – Apr. 2026

Bachelor of Applied Science in Engineering Science | Specialization: Machine Intelligence

SKILLS

Programming Languages: Python, C, C++, SQL, MATLAB, PowerShell, JavaScript

Libraries & Frameworks: PyTorch, YOLOv8, TensorFlow, JAX, scikit-learn, Keras; NumPy, pandas, matplotlib

Big Data & Distributed Computing: Apache Spark, Hadoop

Tools & Platforms: Visual Studio 2022, Visual Studio Code, Git, Microsoft 365, Power Automate, Azure Logic Apps; Jira, Apple Radar, Confluence; Microsoft Teams (basic Graph API)

Databases: RDBMS (MS SQL Server, MySQL)

AI Acceleration: AMD Ryzen AI (NPU) optimization (PyTorch threading/CPU utilization tuning)

PROFESSIONAL EXPERIENCE

Software Engineer Intern (Python, C++, Project Management, AI Optimization)

May. 2024 – Aug. 2025

AMD | Markham, ON

- Managed Apple's Boot Camp Software Graphics Driver project and resolved 20+ critical **Jira and Apple Radar** tickets, enabling the successful release of four Windows 10 Boot Camp driver updates in September and December 2024, and June and August 2025
- Took the lead in conducting regression testing, issue triage, and code/workaround analysis in **C++** to clear critical blockers for Radeon software updates; ran CVE (security) exposure backports and verified fixes via smoke tests across 40 configurations
- Evaluated and Optimized YOLOv8 deployment on AMD Ryzen AI (NPU) in **Python** and **C++**: reduced CPU utilization during Python-based inference by 90% through runtime debugging, and contributed to decoupling YOLOv8 inference from camera capture frame rate in C++ to enable smooth video streaming.
- Developed testing scripts in **Python** for failure reproduction and test automation, reducing manual testing time by 50%

IT System Development Intern (Python, Automation)

May. 2023 – Aug. 2023

Bank of Canada | Ottawa, ON

- Automated the processing of permission management and recording requests for all Microsoft Teams meetings across the bank using **Python**, **Power Automate**, and **MS Azure Logic Apps** on Microsoft Azure Platform
- Solution has already processed over 50 requests, and will become a permanent fixture in the bank's operations
- Impacted 2400+ bank employees as this innovation reduced request resolution times from multiple business days to less than a day; this led to an 80% increase in time efficiency when handling recording requests

IT Developer Intern (SQL, SharePoint)

May. 2022 – Aug. 2022

Black & McDonald Limited | Markham, ON

- Designed a **Power BI** reporting solution to show trends of employee logins to JD Edwards ERP system through developing **SQL queries** and creating Microsoft SSIS ETL Packages to load business data from Oracle database to SQL Server
- Solution supported the company decision-making process by providing insights into the number of licenses that can be reduced, leading to the company achieving cost savings by optimizing the allocation of licenses
- Collaborated with the Marketing teams to develop MS Teams training materials and "Design & Implementation" documents for newly developed SharePoint sites, aiding 5000+ employees in navigating the firm's shift to cloud-based operations

PROJECT EXPERIENCE

ML Developer: UTMIST AI Chatbot ([Github](#)) (Python, FastAPI, LlamaIndex, Qdrant)

Oct. 2024 – Present

University of Toronto Machine Intelligence Student Team

- Developed an AI chatbot to handle student inquiries, promote University of Toronto Machine Intelligence Student Team (UTMIST) events, and guide users in learning ML/AI concepts
- Trained **RoBERTa** intent and constraint classifiers with a semi-supervised pipeline, enabling action planning via a custom Action Recommender – chatbot decides when to provide recommendation and to ask for more information from the user
- Implemented RAG using **Qdrant** for vector search, combining chat history (mem0) and user constraints to retrieve relevant ML resources from the club's database
- Extended from Discord to the web by creating an OpenAI-compatible **REST API** and integrating with **Open WebUI**

- Managed response synthesis with **OpenAI API** (GPT-3.5/4 family), composing retrieval outputs, state, and constraints into grounded final answers.

Undergraduate Thesis: Modeling Career Trajectories in Computing (Python, NLP, Transformer) *Sept. 2025 – Present*

University of Toronto

- Working with an UofT Professor to design an NLP and causal inference pipeline to analyze multi-year Reddit user histories, extracting key career events (internships, got an interview, university graduation, etc.) to model their impact on tech career outcomes
- Implementing a custom sequence Transformer Model with pretrained embeddings and counterfactual simulation to estimate causal effects of career decisions on predicted employment outcomes
- Built data collection pipelines using Reddit's official API (PRAW), enabling large-scale retrieval of longitudinal user data for analysis

Engineering Capstone: AI Conversational Agent for Market Intelligence (Python, JavaScript, SQL) *Sept. 2025 – Present*

University of Toronto, Polaris Intelligence Inc.

- Collaborating with Polaris Intelligence to design and prototype an AI-powered assistant that enables media agencies to query demographic, psychographic, and consumer spending data in plain English.
- Developing features for NLP, variable mapping, and automated generation of visualizations (tables, maps, ranked lists).

ML Developer: Image Super Resolution of Human Face Images ([Github](#)) (Python, PyTorch) *Jan. 2024 – Apr. 2024*

University of Toronto

- Utilized GANs to enhance the resolution of human facial images, upscaling from 512x512 to 1024x1024 pixels and achieving a Peak Signal-to-Noise Ratio of 25.66 dB, outperforming many prior implementations
- Developed and optimized a GAN architecture with a focus on pixel shuffling and residual scaling, which improved image detail while addressing challenges related to limited GPU resources and training duration

ADDITIONAL EXPERIENCE

Organizations: Member of Society of Women Engineers, Academic Director of Quantitative Finance Lab

Languages: English, Mandarin

Hobbies and Interests: Acrylic/Oil Painting, Piano, Skiing, Anime

Relevant Courses: Algorithms & Data Structures, Statistics & Probability, Operating Systems, Deep Neural Networks, Relational Databases, Computer Architecture, Machine Learning Algorithms, Data Mining