

# Andy Li

☎ +1 (647) 819-8828 ✉ [andy.li@uwaterloo.ca](mailto:andy.li@uwaterloo.ca) 🔗 [linkedin/andyli11](https://www.linkedin.com/in/andyli11) 🐙 [github/andyli11](https://github.com/andyli11) 🌐 [andyli.app](https://andyli.app)

## EDUCATION

University of Waterloo | BAsC Computer Engineering

May 2025

## EXPERIENCE

### CambioML YC23 (vision LLMs)

Sep. 2024 – Dec. 2024

Software Engineer Intern | Python, TypeScript, AWS (S3, SQS, DDB, Lambda, API Gateway) San Francisco, CA

- Refined vision language model (VLMs) for 10ms text extraction, image captioning, and visual question answering.
- Redesigned the AWS CDK to resolve ETL pipeline bottlenecks, accelerating deployment speeds by 3.5x.
- Improved client workflows by developing a SDK with full access to AnyParser's toolkit in 3-5 lines of code.
- Solidified development pipelines using pytest, pre-commit hooks, GitHub Actions, and AWS CodePipeline tests.

### German Aerospace Center (\$1.3B funded research facility)

Jan. 2024 – Apr. 2024

Software Engineer Intern | Python, Flask, Pandas, SQL Stuttgart, BW

- Created a cooling model in Python to minimize energy usage on trains, saving 1.85 GWh/year (200 homes).
- Visualized heat transfer components (sensible, latent, total) by designing stacked bar charts in Matplotlib.
- Pre-processed and labeled simulation weather data from 100+ sensors in the Vienna Climatic Wind Tunnel.
- Integrated A\* search on self-driving EV charging units in parking lots, improving energy efficiency by 15%.
- Built and presented the charging unit prototype to 200,000+ attendees at the Hannover Messe Technology Fair.

### Cineplex (Canada's largest cinema chain)

Jan. 2023 – Apr. 2023

Software Developer Intern | C#, Java, Spring Boot, Selenium Toronto, ON

- Engineered a MFA system for employees using Spring Boot and Keycloak, enforcing OpenID Connect protocol.
- Automated the full testing pipeline (unit, integration, e2e) using Robot Framework, saving 10+ hours weekly.

### Tehama (cybersecurity for enterprises)

May. 2022 – Aug. 2022

Software Developer Intern | Bash, Jenkins, Linux, AWS (EC2, VPC, CloudFormation) Ottawa, ON

- Streamlined developer onboarding by creating Dockerized environments, reducing setup time by 95%
- Automated AWS infrastructure setup for EC2 instances and VPCs using Bash and CloudFormation.
- Engineered a logging pipeline utilizing Elasticsearch, Fluentd, Kibana, and Grafana to handle 1M+ daily logs.

### Micromart (smart markets)

Sep. 2021 – Dec. 2021

Software Engineer Intern | React, Angular, TypeScript, MySQL Toronto, ON

- Implemented Stripe payment authentication for Smart Market access and automated invoicing after exiting.
- Developed a YOLOv5-based camera system achieving 99.5% tracking accuracy for user selected items.
- Reduced average Kiosk session times by 33% with guided display notifications using TypeScript and React.

## PROJECTS

### 🐍 Deep Neural Network for Semantic Segmentation | PyTorch

- Built and trained an 8-layer DNN from the VOC Segmentation Dataset using an encoder-decoder architecture.
- Implemented data augmentation and optimized feature extraction by leveraging ResNet34's pretrained weights.

### 🐉 Operating System From Scratch | C

- Engineered a real-time executive (RTX) OS in C on the Intel DE1-SoC board using ARM DS IDE.
- Integrated first-fit dynamic memory allocation and priority-based FIFO scheduling with task preemption.
- Designed system calls to create, terminate, yield, set priority, and get information about tasks.
- Developed a mailbox API for inter-task communication and an UART interrupt decoder for user communication.

## TECHNICAL SKILLS

**Languages:** Python, C, C++, C#, JavaScript, Java, Scala, Go, Rust, SQL.

**Tools/Frameworks:** GCP, Kubernetes, Apache Spark, Kafka, gRPC, GraphQL, Postgres, MongoDB, Node, Git.

**Concepts/Coursework:** Data Structures & Algorithms, Multi-threading & Concurrency, Distributed Systems, Networks, Systems Design, Cloud Computing, Programming for Performance, Compilers, Computer Architecture.