

Anray Liu

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Education

University of Ottawa, Honours B.Sc. in Computer Science (Co-op)

Fall 2023 – Winter 2027

- GPA: 3.9/4.0
- Relevant courses: Data Structures and Algorithms, Computer Architecture, Databases

Experience

Co-op Cloud Engineer

May 2025 – August 2025

Statistics Canada

- Designed and developed an open-source **Kubernetes microservice** using **Go** for real-time idle storage detection and deletion, **reducing cloud expenses by \$20,000**.
- Implemented and debugged **CI/CD pipelines** with **GitHub Actions** to automate tests, security scans, builds, and pushes to Azure Container Registry and Docker Hub, increasing team productivity by 25%.
- Delivered applications to **Azure Kubernetes Service** with **Docker images** and **ArgoCD**, enabling zero-downtime deployment and best practices with **RBAC** policies and rollback strategies.
- Ensured high communication and efficiency standards with **agile development** by actively contributing documentation and presentations to sprint stand-ups.

Mathematics Research Intern

May 2024 – August 2024

University of Ottawa

- Researched visualization methods for optimal transport theory (most efficient way to move one mass distribution to another) as sole undergraduate student with professor and team of 15+ researchers.
- Created a customized simulation and visualization library using **Python**, NumPy, and **Java**, enabling research team to present findings using an automated method, **reducing preparation time by 90%**.

Projects

Pyvidplayer2 API

July 2023 - Present

<https://github.com/anrayliu/pyvidplayer2>

- Cross-platform, open-source **Python** library for video processing and playback, with **38,000+ downloads**, 60+ stars, and 2+ years of active maintenance.
- Leveraged **Git** and **GitHub** extensively to collaborate with **open-source developers**, resulting in 27 version updates, automatic PyPI deployment pipelines, and specialized hardware acceleration with **NVIDIA CUDA**.
- Implemented **96% test coverage** and maintained detailed documentation to ensure library quality.

Personal Development Lab

April 2025 - August 2025

- Created a home server from scratch by assembling hardware, configuring **networking** rules and VPNs, and using **virtual machines** and **Docker** containers to host 15+ data and development services.
- Deployed a network-attached-storage system and **Jenkins** CI/CD to automate data processing, **increasing personal development productivity by 30%**.
- Utilized ZFS and software RAID to achieve data redundancy and increase server **uptime to 96%**.

Personal Portfolio

July 2025 - Present

<https://www.anrayliu.ca>

- Developed a JetBrains-inspired, high-performance personal portfolio using **C++**, **WebAssembly**, HTML/CSS, and **JavaScript** to share projects and work experiences.
- Implemented backend with **Flask**, **PostgreSQL**, and BLOB storage, allowing real-time content updates, configured **DNS** settings with Cloudflare for custom domain.

Skills and Certifications

- **Languages:** Python, Go, C++, Java, JavaScript, HTML/CSS, Bash
- **Skills:** Kubernetes, Docker, Azure, Linux, ArgoCD, Git, GitHub/GitLab, WebAssembly, Jenkins, GitHub Actions, Flask, PostgreSQL, Jira, CMake, Cloudflare
- Canadian Computing Contest Certificate of Distinction, Senior Level, awarded in 2023 for placing top 25%