

Michael Lapshin

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Education

University of Waterloo • Master of Computer Science Sep 2025 – Aug 2027 (*Expected*)

- Researching LLM inference serving; evaluating energy efficiency of speculative decoding by profiling vLLM CPU and GPU runtime across techniques and draft models at high batch sizes, supervised by Professor Martin Karsten.

University of Waterloo • Bachelor of Software Engineering Sep 2020 – May 2025

- Minor in Entrepreneurship
- 4 Outstanding Co-op Performance Reviews

Skills

Languages	C++, Go, Python, Scala, Java	AI	Copilot with Qwen, Claude, ChatGPT
IDE Tools	VSCode, IntelliJ, Git, Postman, Vim	Design	REST API, Microservices, Distributed Systems
Databases	Cassandra, MySQL, Redis	Platforms	Docker, Kubernetes, Linux, AWS, Azure
Big Data	Kafka, Hadoop, Spark	Process	Scrum Master, Agile, CI/CD

Work Experience

Nuvation Research Corporation • Staff Software Developer (Co-op) Sep 2024 – Dec 2024

- Developed the multi-stack battery controller product in **Python**, **Docker**, and GitLab; optimized with **concurrency** and pipelining, tested via GitLab CI.
- Designed and built a new service exposing configurable read-access to **Redis** keys via a **Modbus** API.

Siemens • Software Engineering Associate (Co-op) Jan 2024 – Apr 2024

- Led a team of 4 interns as a **Team Lead** and **Scrum Master** to build a backend service ingesting and managing **billions of sensor data points** from battery manufacturing clients, enabling real-time analytics.
- Designed the **REST API** and **Cassandra** schema (partitioning, clustering) to support **horizontal scaling** across nodes.
- Developed the backend in **Go**, **Python**, and **CQL**. Containerized with **Docker**.
- Planned and prioritized development tasks. Mentored and code-reviewed junior developers.

SAP • Cloud Security Developer (Co-op) May 2023 – Aug 2023

- Designed and implemented a **Kubernetes** sidecar container to protect SAP's cloud product secrets using **Go** and **Python**.
- Owned the sidecar container product end-to-end; prototyped designs, presented trade-off analysis to stakeholders, implemented, tested, and integrated into company's **CI/CD** pipeline.

SAP • Back-End Cloud Services Developer (Co-op) Sep 2022 – Dec 2022

- Delivered production-ready features and bug fixes for the deployment orchestrator microservice of SAP HANA Cloud (**Go**, **Docker**, **Kubernetes**).

AMD (Advanced Micro Devices) • Windows Graphics Driver Tools Developer (Co-op) Jan 2022 – Apr 2022

- Redesigned and implemented an improved CLI for the AMD Graphics Kernel Driver developer tool.
- Developed 2 tool commands and 15 options in **C++17**. Used **GoogleTest** and **pytest** for unit and integration tests.

OpenText • Software QA Specialist (Co-op) May 2021 – Aug 2021

Projects

vLLM • Open Source Contributor Sept 2026

- Improved speculative decoding throughput for heterogeneous-vocabulary models by up to **71.5%** (PR #57396).

Real-time Microkernel for Train Control Jan 2025 – Apr 2025

- Developed a microkernel from scratch in **C** and **assembly** to run on a Raspberry Pi (ARM Cortex-A72) to autonomously control Märklin trains. Implemented navigation and collision avoidance algorithms.

KeepId Inc. Sep 2021 – Apr 2023

- Designed and developed a 5-service **Kubernetes** microservice architecture in **C++17** and **Scala** to encrypt and store sensitive user identity data across **Cassandra** and **Azure MySQL**.
- Decoupled identity and communication services using **Kafka** for asynchronous events and **Akka HTTP** for synchronous lookups, ensuring reliable, buffered inter-service communication.