

# Luke Leh

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## EDUCATION

**Cornell University**, Ann S. Bowers College of Computing and Information Science

May 2025

Bachelor of Arts in **Computer Science**, **GPA: 3.565**

Ithaca, NY

**Coursework:** Distributed Systems, Computer Networks, Systems Security, Operating Systems, Functional Programming, Data Structures & Algorithms, Machine Learning, Information Networks (Graduate-level), Object-Oriented Programming

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## TECHNICAL SKILLS

**Languages:** Python, C++, Go, Java, C#, JavaScript, SQL, Objective-C, HTML/CSS, PyTorch

**Systems/Cloud:** AWS, Azure, Docker, Kubernetes, Redis, MongoDB, GitHub Actions, Firebase, FastAPI

**Specialties:** WebRTC, Unity, Godot, SDL | **Spoken:** English, Chinese, Malay (Native), Japanese (Intermediate)

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## EXPERIENCE

**PETRONAS Digital** | *Azure OpenAI, Cognitive Search, Azure Functions, Kafka*

May 2024 – May 2025

Software Engineering Intern

Kuala Lumpur, Malaysia / Remote

- Built distributed ingestion and embedding pipelines with Azure Functions and Kafka to index FAQs, SOPs, and technical docs powering a real-time Retrieval-Augmented Generation (RAG) platform used by 700+ employees.
- Optimized system reliability and scale to handle concurrent queries with <200ms p95 latency and >99.9% uptime through caching, logging/monitoring, and serverless scaling.
- Improved user-facing search accuracy by 25% through contextual ranking on embeddings.
- Partnered with operations to measure adoption, revealing 550+ hours/month saved and a 10% lift in self-service resolution.

**Cornell Development in Games** | *Unity, LibGDX, Java, C#*

Aug 2023 – May 2025

Project Lead / Gameplay Engineer

Ithaca, NY

- Directed a 20-member cross-disciplinary student team through semester-long agile sprints, coordinating design, art, and engineering to deliver 3 original 2D titles (1 showcased at PAX East).
- Implemented real-time concurrent systems (multi-threaded pathfinding, predictive aiming, spline-based movement) with optimized collision handling and object pooling, validated through stress testing to maintain smooth runtime performance.
- Automated build and deployment workflows using GitHub Actions & Gradle, doubling iteration speed from prototype to playtest and reducing integration issues across the team.
- Built in-game telemetry and debugging tools (Dear ImGui), to improve observability and accelerate QA feedback cycles.

**Environmental Data Governance Initiative** | *Python, SQL, Typescript, React, Docker*

Sep 2022 – May 2024

Fullstack Developer

Ithaca, NY

- Re-engineered a legacy R pipeline in Python/Docker, cutting runtime 15%, and built cron-based workflows to auto-generate 300+ daily environmental compliance reports with accuracy and regulatory alignment for NGO partners.
- Designed backend ingestion and transformation layers to serve JSON endpoints, enabling sub-2s interactive geospatial filtering for NGO partners' Streamlit map platform.
- Developed responsive React/TypeScript UI components for an internal organization archive, improving load times by 30% via lazy loading and schema-driven rendering while applying accessibility best practices.
- Wrote automated test cases to validate concurrent workflows, improving reliability and reducing regression risks at scale.

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## PROJECTS

**Trigger Happy (Audience Favorite Award)** | *C++, SDL, Objective-C, WebRTC*

- Built a cross-platform WebRTC controller for multiplayer games, delivering sub-80 ms input latency and ensuring reliable peer connections through Dockerized STUN/TURN servers for NAT traversal and seamless session recovery.
- Designed a modular SDL scenegraph with reusable UI and gameplay systems, supporting platform-agnostic rendering.
- Integrated cross-platform haptics controller, enabling synchronized tactile feedback across iOS and Android systems.

**Searchless Chess with Transformers** | *PyTorch, FastAPI, Redis, Python*

- Reimplemented DeepMind transformer chess model and served inference through FastAPI with Redis caching.

**TED Finds (CS4300 Hall of Fame Award)** | *Python, HTML, CSS, Flask, NumPy*

- Implemented an IR web app serving 4.5k+ TED Talks with sub-150ms query latency via SVD-compressed embeddings.

**CS 5430 Systems Security Final Project** | *Go, Bash*

- Built a key-value store in Go, with ACLs, Argon2id hashing, and custom key exchange, protected via Dolev–Yao modeling.