

Karl-Alexandre Michaud

karlthedeveloper.tech | linkedin.com/in/karlmichaud | github.com/Karl-Michaud

EDUCATION

University of Toronto

Toronto, Ontario, CA

Honours Bachelor of Science, Computer Science (Focus in Computer Systems), Mathematics Sep 2023 – Jun 2027

- **Relevant Coursework:** Data Structures & Algorithms, Operating Systems, Parallel Programming (concurrency, multithreading, profiling), Software Engineering, System Design (Java)

EXPERIENCE

Software Engineer Intern

May 2026 – Present

Boost Collective (Startup)

Toronto, Ontario, CA

- Engineered and maintained scalable full-stack platforms serving **50k+ independent artists**, developing services and data pipelines processing **1M+ streaming data points** using **TypeScript, React, Supabase, and Stripe**
- Optimized a high-traffic landing page ahead of a major paid-ad campaign by reducing **LCP time by 62%** and decreasing transferred image bandwidth by **85% (3.2 MB to 462 KB)** to improve site speed and user retention
- Resolved a critical checkout synchronization issue affecting flows handling **15k+ monthly transactions**, eliminating **duplicate database writes** and improving system reliability under concurrent purchase events

Software Engineer

Sep 2025 – Present

saycamel.com

Toronto, Ontario, CA

- Built and scaled a full-stack event discovery platform serving **950+ users** and **5.3k+ monthly visitors**, connecting students to **1400+ UofT clubs** and **240+ weekly events** using **React, JavaScript, and Supabase**
- Engineered end-to-end **ticketing and payment infrastructure** using **Stripe**, implementing **webhook-driven** purchase flows, Supabase **Edge Functions**, and database triggers for reliable real-time payment processing
- Led a team of 3, **owning** the club dashboard development and **collaborating** with cross-functional teams to design and deploy **end-to-end features**, supporting **100+ prospective clubs** and **increasing engagement by 28%**

Software Developer (Markus, PythonTA)

May 2025 – Apr 2026

University of Toronto, Department of Computer Science (Prof. David Liu)

Toronto, Ontario, CA

- Engineered and maintained **MarkUs (OSS)**, a scalable web application supporting **10k+ daily users**, using **Ruby on Rails, React, PostgreSQL, and Docker** with **CI/CD pipelines** for reliable and secure deployment
- Developed and maintained **backend services and technical documentation** for **PythonTA (OSS)**, a static code analysis tool used by **35k+ students** in UofT courses since 2016, leveraging **Python** and **Astroid**
- Built **automated testing infrastructure** using **Pytest, Rspec, and Jest** within **GitHub Actions CI/CD pipelines**, improving reliability and maintainability of production systems

PROJECTS

CExpress | C, Shell, Make, Homebrew, Git

karl-michaud.github.io/CExpress/

- Created **CExpress**, a lightweight, high-performance **HTTP server / microservice framework** for **C** that enables rapid prototyping and development of **RESTful APIs** with minimal overhead
- Implemented **HTTP/1.1 request parsing, dynamic routing**, and low-level **TCP socket programming**, emphasizing efficient memory usage and high-performance network communication

AI Video Generator | C, Python, Shell, FFmpeg, Deepseek API, Whisper, Git

www.youtube.com/watch

- Engineered an **AI video generation pipeline** in **C**, automating script generation, TTS synthesis, subtitle burning, and media merging using **FFmpeg, Whisper**, and integrating the **DeepSeek API**
- Architected a multi-process Unix pipeline of 5 standalone CLI services communicating through **Unix pipes** and process orchestration

Recyclobot – DeltaHacks 11 | Swift, Python, Firebase, OpenAI API, Git

devpost.com/software/recyclobot

- Built an AI-driven **waste management system** with **real-time object detection** and sustainability insights
- Developed back-end **microservices and data pipelines**, integrating OpenAI API and Firebase cloud database
- Delivered a functional **iOS app + hardware prototype**, ranking **top 12 overall** and **top 3 environmental**

TECHNICAL SKILLS

Languages: C, Python, Java, TypeScript/JavaScript, Ruby, SQL, Shell, Swift, HTML/CSS, Makefile

Frameworks / Libraries: React, React Native, Rails, Node.js, Next.js, SwiftUI, Maven, Pytest, JUnit, Astroid, Rspec

Developer Tools: Git, Docker, CI/CD (GitHub Actions), Linux, PostgreSQL, Supabase, Stripe, Jira