Karl-Alexandre Michaud

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EDUCATION

University of Toronto   Toronto, Ontario, CA
Honours Bachelor of Science, Double Major in Computer Science, Mathematics   *Sep 2023 – Jun 2027*
- **Courses**: Software Design, Systems Programming, Data Structures, Algorithms, Computer Architecture (Intro)

EXPERIENCE

Software Developer   Sep 2025 – Present
saycamel.com   *Toronto, Ontario, CA*
- Contributed to a **student-led social platform** with **500+ active users** in **beta**, connecting students with 1000+ UofT clubs and 240+ weekly campus events, using **Next.js (React), Node.js (JavaScript)**, and **Supabase**
- Led a team of 3 to develop the club dashboard and **collaborated** with cross-functional teams to design and deploy **end-to-end features**, supporting **100+ prospective clubs** and projected to **increase engagement by 20%**

Software Developer   May 2025 – Present
University of Toronto, Department of Computer Science   *Toronto, Ontario, CA*
- Designed and maintained core features of **PythonTA**, a static code analysis tool used in UofT introductory courses to automatically check code style and logic for **35,000+ students** since 2016, leveraging **Python** and **Astroid**
- Optimized performance by **reducing import time by 9.98%** through **analytical problem-solving** and **troubleshooting**, improving efficiency for **3900+ annual users**
- Reduced **undetected runtime failures** by extending error-detection with a static checker for infinite loops

PROJECTS

CExpress | *C, Shell, Make, Homebrew*   Sep 2025
- Created **CExpress**, a lightweight open-source **HTTP server / microservice framework** for **C** that enables rapid prototyping and development of **RESTful APIs** with minimal overhead
- Implemented key features such as **dynamic routing**, **HTTP/1.1 request handling**, and low-level **TCP socket programming**, showcasing expertise in **network programming** with an **optimized memory footprint**
- Delivered **cross-platform compatibility** (Linux, macOS) and streamlined installation via a **Homebrew** formula

AI Video Generator | *C, Python, Shell, FFmpeg, Deepseek API, Whisper*   www.youtube.com/watch
- Engineered a fully **autonomous video generation pipeline** in **C**, coordinating script generation, TTS synthesis, subtitle burning, and media merging using **FFmpeg**, **Whisper**, and **DeepSeek API**
- Architected a **multi-process pipeline** of 5 standalone CLI programs communicating through **Unix pipes**

Recyclobot – DeltaHacks 11 | *Swift, SwiftUI, Python, Firebase, OpenAI API*   devpost.com/software/recyclobot
- Built an AI-driven **waste management system** with **real-time object detection** and sustainability insights
- Delivered a functional **iOS app + hardware prototype** in **24 hours**, ranking in the **top 12 overall** and **top 3 environmental** categories among **600+ participants** through rapid, iterative development

Talk To a Club | *Java, Maven, JUnit, Firebase*   github.com/Karl-Michaud/Talk-To-a-Club
- Led the development of an interactive **social app**, streamlining club discovery and engagement for UofT students
- Deployed and maintained **back-end microservices and data pipelines**, managing **Firebase Cloud** database
- Optimized API response times by **38%** through targeted query restructuring and efficient request handling

LEADERSHIP AND INVOLVEMENT

Event Coordinator   Aug 2024 – May 2025
University of Toronto, STEP UofT Student Club   *Toronto, Ontario, CA*
- Led **event planning** during the club's founding year, organizing **5 events** with **15+ attendees**
- Onboarded **25+ new members**, driving club growth through strategic **communication and collaboration**
- Secured **5 UTSL Club Award nominations** in our inaugural year by improving event logistics

TECHNICAL SKILLS

Languages: Java, C, Python, JavaScript, Swift, HTML, CSS, SQL, Shell, MIPS Assembly, Makefile
Frameworks / Libraries: Node.js, Next.js, SwiftUI, Maven, React.js, Pytest, JUnit, Astroid, Spring Boot
Developer Tools: Git, GitHub, CI/CD, MySQL, Firebase, Linux, OpenAI API / DeepSeek API, Whisper