

Karl-Alexandre Michaud

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

EDUCATION

University of Toronto

Honours Bachelor of Science, Double Major in Computer Science, Mathematics

Toronto, Ontario, CA

Sep 2023 – Present

- **Relevant Courses:** Software Design, Systems Programming, Data Structures, Algorithms

EXPERIENCE

Software Developer

University of Toronto, Department of Computer Science

May 2025 – Present

Toronto, Ontario, CA

- Designing and maintaining core features of **PythonTA**, a static code analysis tool used by **35,000+** students since 2016, using **Python** and **Astroid**
- Shipped a **new** configurable error-handling feature in PythonTA, greatly enhancing user flexibility
- Developed comprehensive unit tests using **Pytest** to ensure reliability and correctness for **3900+ annual users**

PROJECTS

AI Video Generator | C, Python, Deepseek API, Whisper

May 2025

- Built an AI-powered **video generator** in C, **automating** short-form video creation through script generation, text-to-speech, subtitle syncing, and media merging
- Architected a **modular pipeline** of 5 standalone CLI tools, enabling seamless data flow via Unix pipes
- Developed a custom HTTP client to query the DeepSeek API for dynamic script generation

Recyclobot (DeltaHacks 11) | Swift, SwiftUI, Python, Firebase, GPT-4 API

Jan 2025

- Built an AI-powered **waste management system** for real-time waste classification, promoting recycling habits
- Delivered a fully functional prototype within **24** hours, combining hardware, AI, and software into a unified system
- Deployed a functional iOS application that processes waste data and delivers personalized sustainability tips and insights to users

Talk To a Club | Java, Maven, JUnit, Firebase

Nov 2024 – Dec 2024

- Led the development of an interactive **social app**, simplifying club discovery and engagement for UofT students
- Implemented critical use cases and engineered scalable entities, showcasing back-end expertise
- Optimized **data pipelines** for Firebase cloud storage, ensuring efficient and reliable data retrieval
- Improved software quality by writing **45%** of unit tests and conducting code reviews
- Created and maintained technical documentation, enabling future users to easily navigate and integrate the API

NFC Security System | Python, JavaScript, HTML, CSS MySQL, Bash

Sep 2022 – Mar 2023

- Led a team of **4** to develop a key card security system, improving safety awareness for **200+ students**
- Managed project timelines, coordinated team meetings, and optimized workflows, ensuring successful completion
- Invited to present the project at **CESI Engineering School** in Paris, delivering a technical presentation to **50+ students and faculty**
- Designed and managed a remote MySQL database, ensuring scalability and efficiency

LEADERSHIP AND INVOLVEMENT

Event Coordinator

University of Toronto, STEP UofT Student Club

Aug 2024 – May 2025

Toronto, Ontario, CA

- Led event planning during the club's founding year, organizing **5 events** with **15+ attendees**
- Accelerated club growth by onboarding **25+ new members** through strategic communication and collaboration
- Secured **5 UTSL Club Award nominations** in our inaugural year by improving event logistics and delivering engaging events

TECHNICAL SKILLS

Languages: Python, Java, C, TypeScript, Swift, HTML, CSS, SQL, Shell, MIPS Assembly

Frameworks: Node.js, Next.js, SwiftUI, Maven

Libraries: React.js, Pytest, JUnit, Astroid

Developer Tools: Git / GitHub, MySQL, Firebase, Linux, OpenAI / DeepSeek API, Whisper