

# Anthony Hana

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## EDUCATION

### McMaster University

Exp. April 2027

Mathematics and Computer Science

Hamilton, ON

- **Extra Curriculars:** McMaster Start Coding, MGDC (McMaster Game Dev Club), Volleyball / Soccer Intramurals
- **Courses:** Software Development, Data Structures & Algorithms, Natural Language Processing, Numerical Linear Algebra, Mathematical Modeling, Databases, Computer Architecture

## EXPERIENCE

### Software Architect

Incoming

STaBL Foundation (McMaster Start Coding)

Hamilton, ON

- Set to develop and maintain the **McMaster Start Coding** web platform; a layered design that pairs a **React** front-end with a **Haskell/Python** services tier and **PostgreSQL** data layer, improving load time and efficiency
- Will develop and maintain the **Stabl.Rocks** Elm IDE, a server-side compile pipeline and real-time collaboration modules that streamline functional-programming workshops for **500+** students per term
- Expected to organize and deliver hands-on coding workshops and develop supplementary internal tools deployment dashboards and automated assessment pipelines to enhance program reach and operational efficiency

### Coding Workshop Mentor

Jan 2025 - Present

STaBL Foundation (McMaster Start Coding)

Hamilton, ON

- Introduced students to functional programming using **Elm** and **Haskell** during McMaster's Reading Week outreach, emphasizing pure functions, immutability, and declarative syntax
- Utilized the **Stabl.Rocks** environment to teach program structure, function composition, and user-defined types, helping students build foundational understanding of functional logic and visual computation
- Guided students in creating interactive animations by mapping coordinates and geometric shapes onto Cartesian planes, reinforcing mathematical reasoning through code

## PROJECTS

### MacPad: macOS Native Text-Editor | 🌐 | Swift, SwiftUI, AppKit, Swift Concurrency, UniformTypeIdentifiers

- Developed high-throughput asynchronous file I/O for **plain-text** and **RTF** documents, delivering near-instantaneous (<100ms) load/save times and a lightweight, freeze-free editing experience
- Features dynamic theming, atomic save routines, unsaved-change indicators, and state-restoration to ensure seamless native UX and robust **data-loss** prevention
- Engineered multi-encoding text handling with automatic format detection and lossless conversion across **18+** encodings (UTF-8, ASCII, etc.) with guaranteed document integrity

### HEALense AI - SpurHacks 2025 | 🌐 | 🌀 | Cloudflare, Gemini API, Typescript, React, Javascript, Tailwind CSS

- **Multimodal** fullstack app: upload a photo, query **Gemma 3**, receive answers highlighted directly on the image/chat
- Built a TS Cloudflare Worker backend that routes chat, caches in **KV**, stores images in **R2**, logs history in **D1**
- Streams user **image + prompt** payloads to the **Gemma 3** AI via gemini api and relays structured responses to clients

### Website Portfolio: anthonyhana.com | 🌐 | 🌀 | React, Tailwind CSS, Javascript, Node.js, Vite

- Personal portfolio that showcases my **projects**, **skills**, and **experience** through smooth animations and responsive design

### Real-Time Transit Visualization Platform | 🌐 | Python, JavaScript, HTML, CSS, Flask, GTFS Protocol Buffers

- Built a **real-time** transit visualization app, parsing **GTFS** RT protocol buffers to display bus locations, routes, and stops
- Designed a modular **JS** frontend (map, route, bus, stop) and Python backend to process static and real-time transit data from Hamilton's public transit system, with **RESTful API** to allow **60s** update intervals

## TECHNICAL SKILLS

**Programming:** Python, Typescript, Java, Swift, C, JavaScript, R, SQL, Elm, C#, Haskell

**Technologies:** PyTorch, Node, React, Flask, .NET, Angular, MATLAB, Pandas, Numpy, Pillow, AppKit, RESTful API

**Tools and Platforms:** Jupyter, Jira, RStudio, Overleaf, DataGrip, SAS OnDemand, Git/Github, Docker, Xcode, Figma