Anthony Hana

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EDUCATION

McMaster University   **Sept 2022 - Present (Exp. Apr 2027)**
Honours Mathematics and Computer Science (B.Sc.)   *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   **June 2025 - Present**
STaBL Foundation (McMaster Start Coding)   *Hamilton, ON*
- Building and maintaining the **McMaster Start Coding** platform using **React**, **Haskell/Python**, and **PostgreSQL** to enhance performance and usability
- Developing the **Stabl.Rocks** Elm IDE with real-time collaboration and server-side compilation to support workshops for **50,000+** students
- Designing and maintaining internal tools, including deployment dashboards and automated assessment pipelines to streamline workflows, enhance scalability, and improve the overall developer experience

Coding Instructor   **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 **60**s 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