

# Emilien Breton

## EXPERIENCE

**Hack the Hill**  
DEVELOPMENT COORDINATOR — DEVELOPMENT TEAM

November 2022 — Present  
University of Ottawa

**Zeptile Software**  
SOFTWARE ENGINEER — WEB3

October 2022 — Present  
Remote from Ottawa

**uOttawa CS Club**  
CLUB EXECUTIVE

June 2022 — Present  
University of Ottawa

- Collaborated with two other executives to brainstorm, organize and schedule a dozen small-scale events in Ottawa by giving talks and organizing workshops for over 100 students
- Designed internal Notion workspace, improving short-term planning by providing single central platform to capture meeting minutes and track task progress

## PROJECTS

**Personal Website**

A PORTFOLIO FOR SHARING VARIOUS PROJECTS  
JavaScript • HTML • CSS • Markdown • Next.js

- Designed and implemented appealing UI and optimized UX using Google Search Console resulting in over 5000 unique visitors a month
- Leveraged Cloudflare caching system and optimized site-wide accessibility resulting in Lighthouse score consistently over 95%

**Stack-Based CPU**

AN ASSEMBLER AND EMULATOR FOR A CUSTOM STACK-BASED CPU ARCHITECTURE  
Rust • Assembly

- Designed and implemented stack-based emulator in Rust that supports 44 CPU instructions and graphics through 32x32 grayscale display buffer
- Developed basic assembler to resolve labels and convert Assembly source files into custom binary machine code
- Proved custom instruction set Turing complete through implementation of Conway's Game of Life from scratch in Assembly language

**DBLess Password Manager**

A HASH-BASED, DATABASE-LESS PASSWORD MANAGER  
Python • JavaScript • HTML • CSS • Next.js

- Devised custom cryptographic procedure based on SHA-256 to deterministically generate passwords on demand instead of encrypting them
- Built cross-platform PWA with Next.js that loads 2FA tokens, generates passwords and copies them to user's clipboard for convenience

**Legacy Protocol**

SUBMISSION FOR DEFI THE CONVENTIONAL 2022  
JavaScript • React • Rust

- Won first place in Finance category of Canada's largest DeFi hackathon along with 2500\$ prize as part of 3-member team
- Built MVP smart contract backend from scratch in Rust with no prior experience in Web3, all within tight 36-hour timeframe
- Collaborated with Terraform Labs to officialize our protocol and secure additional funding prior to Terra Luna collapse

More on GitHub and in Portfolio

## EDUCATION

**University of Ottawa**  
BSC WITH HONOURS IN COMPUTER SCIENCE

Dropped out after first year  
November 2020

- Admission scholarship — 95%+ average

## CONTACT

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## SKILLS

**Programming Languages**  
Python • JavaScript • Rust • C++

**Development Tools**  
Linux • Neovim • Git • GitHub

**Frameworks**  
React • Node.js • Next.js • Express.js

**Other Technologies**  
HTML • CSS • JSON • YAML • Markdown • LaTeX • C • Assembly • Raspberry Pi • Arduino • VS Code • Figma • Notion

## OTHER

**Languages**

French	Native
English	Native
Spanish	Intermediate
Russian	Elementary

**Interests**  
Electronics • Robotics • 3D Printing • Mathematics • Drone Building • Finance & Investing • Productivity • Music