

Emilien Breton

EDUCATION

University of Ottawa

BSc WITH HONOURS IN COMPUTER SCIENCE,
DATA SCIENCE OPTION

September 2021 — Expected December 2025

Polyvalente Saint-Francois

IB MIDDLE YEARS PROGRAMME, SECONDARY SCHOOL DIPLOMA

September 2016 — June 2021

PROJECTS

Personal Website

A PORTFOLIO FOR SHARING VARIOUS PROJECTS

JavaScript • HTML • CSS • Markdown • NextJS • Git

- Designed and implemented appealing UI and optimized UX resulting in over 750 unique visitors a month
- Utilized caching system and optimized site-wide accessibility resulting in Lighthouse score consistently over 95%

AI Image Compressor

A NEURAL NETWORK THAT LEARNS TO COMPRESS SPECIFIC CATEGORIES OF IMAGES

Python • Tensorflow • Keras

- Implemented web scraper and image preprocessor optimized with numpy to generate millions of training samples in less than 5 minutes
- Created and implemented custom algorithm within autoencoder structure to allow for variable compression ratio with no overhead
- Supervised training process and tweaked settings leading to results of superior quality than JPEG compression when in favorable circumstances

IB Personal Project

DESIGN AND BUILD OF A RACING DRONE

May 2020 — February 2021

- Strategically put in place a dozen deadlines for the year-long project allowing for submission of final report days before any other student
- Designed project roadmap based on thorough understanding of possible complications resulting in only one major setback caused by defective parts

Stack-Based CPU


ASSEMBLER AND EMULATOR FOR A CUSTOM STACK-BASED CPU ARCHITECTURE


Rust • Assembly

- Wrote emulator that supports stack operations, 16-bit program ROM access and simple graphics through 128-byte 32x32 grayscale display buffer
- Wrote assembler that supports labels and macros allowing for efficient debugging along with human-friendly syntax and abstractions
- Proved custom instruction set Turing complete through implementation of Conway's Game of Life from scratch in Assembly language


January 2022

CONTACT


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PORTFOLIO

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TECHNOLOGIES

Programming Languages

JavaScript • HTML • CSS • C++ • Python • Rust

Frameworks

React • NextJS • NodeJS • Express

Development Tools

Linux • Bash • Git • Github • VS Code • Vim

Other Skills

Markdown • LaTeX • JSON • C • Notion • Fusion 360 • Cura • Figma • Raspberry Pi • Assembly • Arduino

LANGUAGES

English *advanced*

SECOND LANGUAGE

French *advanced*

MOTHER TONGUE

Spanish *intermediate*

SIMPLE CONVERSATIONS

github.com/Bricktech2000/Resume