

NIKOLA ZUPANCIC

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EDUCATION

Queen's University

Bachelor of Applied Science; Computer Engineering

Kingston, ON, Canada

September 2021 – April 2025

- **Relevant coursework:** Computer Architecture, Data Structures, Algorithms, Object Oriented Programming, Microprocessors and Embedded Systems, Operating Systems, Computer Networks, Database Management Systems
- **Awards:** Dean's List 2022-2023

EXPERIENCE

QSET Member

September 2023 - Current

- Working within the Onboard Computer (OBC) subteam on the Queen's Space Engineering Team to develop software for a CubeSat
- Participated in idea generation and the design process of the structure for the software that will run on the CubeSat
- Developed a driver for a Real Time Clock using the i2c protocol in C++ on linux
- Currently working on interfacing an stm32 with an external microSD card reader

PROJECTS

Personal Website

September 2023 – Present

- Created a personal website built with **Hugo** to showcase projects, my resume and contact info
- Deployed on Cloudflare pages via Github
- Utilized: Markdown, Hugo, Git, Cloudflare
- Link: nikzu.dev

GameBoy Emulator | Github: <https://github.com/c-ola/cassowary-gb>

June 2023 – Present

- Developed a program that emulates Gameboy games on desktop platforms
- Exercised bit manipulation to decode and execute cpu instructions on emulated registers, memory and i/o devices
- Emulated interrupts generated by input and output hardware, including display, timer and joystick interrupts
- Emulated a pixel processing unit that decodes bytes in VRAM into pixels that are displayed using SDL2
- Utilized: Rust, SDL2, Git

Single Board Computer Server

July 2023 – Present

- Configured a rockpro64 to run **docker** on **debian** to host a NAS
- Used a VPN to allow for remote access from other networks

Patient Cancer Screening Service

November 2023

- Achieved 2nd place at the Queen's Engineering Competition for Programming
- Worked as a team of 4 to develop a service that could determine if a patient should be screened for cancer or not based on symptoms
- Wrote a frontend using **HTML**, **Tailwind CSS** and **React**
- Wrote a backend in **Python** using **Flask** to process a users symptoms through a Support Vector Machine to predict likelihood of lung cancer

ACADEMIC PROJECTS

Engineering Design Project

January 2022 - April 2022

- Classified handwritten digits using ML algorithms (**CNN**, **KNN**, **SVM**) with an accuracy of 97%
- Created a GUI in python using TKinter to guess drawn handwritten digits using specified ML algorithms

Mechatronics Project

Jan 2021 – Aug 2021

- Lead my group in designing a path finding rover for a University Course
- Wrote C++ code for **Arduino** to path find, pick up a flag, and detect obstacles

TECHNICAL SKILLS

Languages: C/C++, Rust, Python, Java, Javascript, Assembly, Bash/Shell, HTML/CSS, VHDL, SQL

Libraries: SDL2, Raylib, React, Flask, OpenGL

DevOps: Git, Github/Gitlab, Docker

Tools: Linux, QEMU/KVM, Cloudflare, Android SDK

Hardware: Arduino, FPGAs, SBCs, Soldering