Annika Logarta

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https://alogarta.tech/

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EDUCATION

University of Waterloo | Candidate for BASc in Computer Engineering, Math Minor Sep 2023 – Apr 2028
Relevant Courses: Digital Circuits and Systems, Discrete Math, Programming Fundamentals (C++)

SKILLS

Software: C, C++, Java, Python, Javascript, Bash, Simulink/MATLAB, VHDL, Linux, Keras, Git
Hardware: STM32, ESP32, Raspberry Pi, Jetson Nano, PCB design, PCBA, soldering, oscilloscope, DMM
Tools: Quartus, Altium, KiCad, LTSpice, Jupyter Notebook, React, Three.js, Node.js
Protocols: I2C, UART, SPI

EXPERIENCE

Hardware Core Member | Midnight Sun Solar Race Car Team – *Waterloo, ON* Sep 2023 – Present
- Utilized **Altium** to design battery management system carrier schematic and PCB layout to maximize battery efficiency
- Utilized multimeters and oscilloscopes to test on assembled PCBs and assess functionality
- Simulated PMOS turn-on characteristics in LTSpice and implemented a slew-rate limiter to reduce inrush current
- Calibrated MPPTs by scaling the solar input voltage to the internal ADC range to ensure accurate measurements

Firmware Developer | Waterloo Aerial Robotics Group – *Waterloo, ON* May 2024 – Present
- Developed and tested a driver in **C** to interface GNSS to an in-house autopilot system via SAM-M8Q GPS module
- Utilized **SPI** protocol and **C** on an **STM32** to convert a potentiometer's ADC values into PWM signals for motor testing
- Collaborated with cross-functional teams for weekly flight tests, gathering data and assessing drone performance

Data Scientist Intern | Marimetrics Technologies Inc. – *Remote* Jan 2024 – Apr 2024
- Designed **IoT** system with **edge computing** nodes to optimize processing of real-time data at source embedded devices
- Designed and optimized algorithms using **MATLAB** to identify patterns and trends within numerical datasets
- Developed and tested prototype functions in **C** to simplify **data conversion** processes in embedded devices
- Analyzed **UV spectroscopy** theory to produce efficient statistical methods to accurately measure water quality metrics

Web Developer Contractor | Independent – *Remote* Jul 2020 – Dec 2020
- Developed and maintained **websites** for local businesses to help maintain an online presence during the pandemic
- Utilized **HTML**, **CSS**, and **Javascript**, and guided clients through purchasing domains and web hosting servers

PROJECTS

Vital Watch | *STM32, C, I2C, USART, FreeRTOS*
- Created a wearable device to gather and store vital sign data via FreeRTOS
- Developed C code for **STM32**, transmitting sensor data to display on an LCD via **I2C** and on a computer via **USART**

Human Emotion CNN | *Python, Keras, Matplotlib*
- Trained a convolutional neural network utilizing **Keras** to identify human faces from photo input with 72% accuracy
- Classified faces into 6 basic human emotions through fine-tuning batch sizes and epoch numbers

KuMahjong | *React, Tailwind, Axios, Javascript, Vite*
- Designed and created a Mahjong website with React and Tailwind with modified mechanics to gamify memorization
- Leveraged Axios to make HTTP requests to enable dynamic rendering, ensuring accurate gameplay between 4 players

EXTRACURRICULARS

Math Team – Burnaby, BC Jun 2014 – Jun 2023
- Wrote math contests, and achieved awards such as **Hypatia School Champion** (Apr 2022) & **Euclid Honours** (Apr 2023)
- Chosen as one of the 60 national participants for the 2022 Lloyd Auckland Invitational, hosted by CEMC and UWaterloo