Djordje Kokot

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Education

Mechatronics Engineering Co-op (B.Eng.) *Sept. 2020 - Apr. 2024*

- McMaster University, Hamilton, ON, Canada
- McMaster President's Award Scholarship, Dean's Honour List, CGPA: 3.7

Completed Courses

- Data Structures and Algorithms
- Embedded Systems Design
- Signals and Systems
- Software Development
- Electronics and Instrumentation
- Operating Systems

Skills

Programming: C/C++, JavaScript, Python3, ARM Assembly, MATLAB/Simulink, and Git.

Engineering: AutoDesk Inventor, SolidWorks, and NI Multisim.

Projects

OpenCV Live Facial Detection *Dec. 2022*

- Developed a Facial Detection app through the use of Python 3.10, with the OpenCV 2 and NumPy libraries to display a live camera feed of a user's webcam with a bounding box over their face and eyes.
- Detection of Faces and Eyes were accomplished through the use of the OpenCV's Haar-cascades.

Pacemaker Project *Sept. 2022*

- Developed back-end control for pacemaker circuitry using STM32 microcontroller, Simulink, and FRDM-K64F board.
- Using a combination of Simulink, C++, and State flow to develop the logic for the pacemaker. Then sensing circuitry, GPIO pins, and UART Serial transmission with a GUI, to allow users to save pacemaker configurations with 8 different pacing modes for their artificial heart.
- Facilitated version control through the use of Git.

Temperature-Sensing Cooling System *Apr. 2022*

- Developed and integrated a STM32 microcontroller to simulate a smart CPU air cooler.
- Implemented logic to gradually modulate fan speed depending on environment temperature using embedded C/C++, A/D conversion to interpret sensor voltage, and PWM to control analog fan using digital microcontroller.

Student Number Finite State Machine *Dec. 2021*

- Determined the minimum required counter bits and memory bits to cycle through an FSM which would loop through my student number on a seven-segment display; utilized J~K flipflops and logic gates.
- Minimized logic chip use via truth tables and 3D K-mapping, resulting in simpler circuitry and fewer gates used.

Experience

Team Member | Maction Potential *Apr. 2021 - Present*

- Using Neurotech and EMG sensors, created a blink-controlled car project to present at the 2023 NTX student showcase.
- Developed a circuit using a HC-05 Bluetooth module to allow for the transmission of data from a Brain-Computer Interface to a blink-controlled car.

1P13 Teaching Assistant | McMaster University *Sept. 2022 – Dec. 2022*

- Using my knowledge to assist a multi-disciplinary engineering course teaching students the fundamentals of Python, Autodesk Inventor CAD, and Materials Science.
- Evaluating Python programs, Autodesk Inventor parts, and Simulations of 40-50 students every week.