Bilal Yousuf Mohammad

Projects

September 2019 – December 2019

Montreal, Canada

Facial Recognition

Developed a facial classification and recognition system in Python using OpenCV and machine learning libraries.
Calculated and compared the respective recognition rates of using HoG or Linear Binary Pattern to extract SIFT feature descriptors versus applying a Principal Component Analysis based approach.

September 2019 – December 2019

Montreal, Canada

Discrete Audio Amplifier with Negative Feedback

Designed, simulated and validated a general purpose operational amplifier by combining an active load differential stage, buffer stage and class AB output stage.
Improved the stability of the circuit by performing frequency compensation and added a feedback loop by implementing a non-inverting configuration.

September 2018 – April 2019

Montreal, Canada

Artificial Muscle Actuators

Researching and designing 'helical dielectric elastomer actuators' that temporarily change shape when a current is passed through it – thereby simulating muscle movements.
Designed and built a multi-stage high voltage amplifier which altered the input signal from an Android device to be compatible with the actuators.

January 2019 – April 2019

Montreal, Canada

Microprocessors

Manipulated the HAL drivers to configure an STM32 micro-controller unit to play user generated sounds by converting digital signals into analog and implementing a timer in C.
Utilized the HAL drivers to read, convert and display the temperature of the core of the STM32 board by implementing analog to digital conversion drivers in C.

September 2017 – December 2017

Montreal, Canada

Musical Synthesizer

Programmed an FPGA board to function as a musical synthesizer with additional I/O features using Assembly Language.

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Seeking

An position in the electrical engineering discipline where I can best contribute and apply the product design and development experience I have acquired through a diverse array of academic projects.

Education

McGill University – B.Eng (Electrical Engineering)
September 2015 – April 2020

Technical Skills

Programming	Python, C, Java, Assembly Language, HTML, CSS, Latex, MATLAB
Equipment	Teradyne FLEX Test System, STM32 ARM Cortex MCU, FPGA Board, NI ELVIS-II Workstation, Oscilloscope, Microscope
Software	Simulink, LTSPICE, COMSOL, LabVIEW

Courses Taken

Microelectronics | Mixed-Signal Test Techniques | Computer Vision | Numerical Methods | Microprocessors | Computer Organization | Digital Logic | Human-Computer Interaction | Communication Systems and Networks | Control | Electromagnetic Wave Propagation | Fundamentals of Power Engineering | Signals and Systems

Languages

English	Fluent
Urdu	Fluent
French	Beginner

Certifications

WHIMS Lab Safety Training

Laser Safety Core Training