Lachlan Cuskelly
Electrical Engineering Student

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Detail oriented and hardworking electrical engineering student, passionate about integrated circuit design and FPGA development. Looking to pursue a career in the electronics/semiconductor industry and apply my knowledge of Verilog and FPGAs within the context of the latest technologies.

Skills

FPGA for Prototype development	Embedded Systems	C
Electronics Lab Experience	Oracle SQL	Python
Altium Designer	Matlab	Verilog

Work History

2020-06 - 2020-08 **Student Engineer**
Cenovus Energy, Calgary
Developed an oracle database system and Microsoft .NET/C# front end application to replace existing excel based workflow. The system is now part of Cenovus' official software centre.

Projects

2020-07 - 2020-08 **Interactive MIPS 32-bit Single Cycle Processor on FPGA**
Studied and implemented a 32-bit RISC processor based on the MIPS microarchitecture. Maximum operating frequency is 50Mhz on an Intel Cyclone 10. Connected to an interactive display which allows for variable clock frequency, monitoring of up to 8 different internal signals and 8-bit dip switch input.

2019-12 - 2020-01 **Password System on Cortex-M3 Dev Board**
Designed in C, using a state machine. A lock code of up to 10 digits programmed through the push buttons available on the board and can be unlocked once the correct code is entered. Corresponding LED colours and buzzer frequencies indicate successful code entry, incorrect code, and code programming.

2019-12 - 2020-09 **Avionics Power Management Board**
Designed custom PCB board using Altium designer for Student Organization for Aerospace Research (SOAR) at Calgary. The PCB board allows for automatic switching between primary and secondary batteries. Also provides safety features for sensing over temperature and over current.

2018-12 - 2019-02 **Planar Magnetic Loudspeaker**
Designed and soldered a custom analog crossover based on driver frequency and phase nonlinearities. Quasi ribbon driver made from mylar film. Performed frequency response measurements (150Hz-14Khz +/- 3dB) and verified with listening tests.

Education

2018-09 - Current
Bachelors of Electrical Engineering
University of Calgary
3.710 GPA, Dean's List 2019/2020
Minor in Digital Engineering

Extracurriculars

FPGA Design Team

Student Organization for Aerospace Research (SOAR), Avionics Division

Embedded in Embedded Program