Jack Beckett

3rd YEAR ELECTRICAL ENGINEERING CO-OP STUDENT

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Third-year electrical engineering student at the University of Victoria with a minor in Business. Proven experience in microcontroller programming and small circuit design with experience in PCB design and manufacturing. Proficient in C/C++, Java, MATLAB and EXCEL. Resourceful and analytic methods to identify and solve problems quickly, both in the field and in the office. Strong interpersonal skills, takes initiative, and engages effectively and respectfully with management, production, clients, and coworkers in team settings.

EDUCATION

Major: Bachelor of Engineering, Electrical (BEng), University of Victoria (Expected Completion: Aug 2020)
Minor: Business (Completed 87% Average)

TECHNICAL EXPERIENCE

- Proficient in C/C++, Java, MATLAB, EXCEL; knowledgeable in Python, Assembly, VHDL
- Desktop application development using GameMaker Studio 2 written in GML (GameMaker Language)
- Experience in ARM microprocessor architecture and embedded systems programming in C and Assembly
- Working knowledge of AutoCAD to design 3D models
- Design and manufacturing experience of dual-layer PCBs modeled in KiCad EDA including board populating
- Practice using HDL simulators (Xilinx ISE Simulator and Verilog) to replicate and validate FPGAs with test bench code written in VHDL

RECENT PROJECTS AND ACHEIVEMENTS

STM32 Signal Processor (Completed Dec 2018)

- Firmware written in C
- Measure an analog voltage from a potentiometer using a DAC
- Converted signal back into a digital signal to drive a 555 timer
- Output the calculated resistance and frequency to an LCD via the SPI

Personal Portfolio Website (Completed Sept 2018)

- Built using HTML and CSS from online template
- Showcases and highlights personal projects and professional experience to date

Electrification Desktop Application (Completed June 2018)

- Developed using Gamer Maker Studio 2; programming in GML
- Interactive tool to showcase the difficulties when transitioning to electric vehicles in a large commercial fleet
- Players must balance costs with environmental scores while ensuring all bus routes have been assigned
- Gained valuable skills in refactoring code, debugging, function optimization, and systematic problem-solving
- All version control through GitHub

Microcontroller Alarm Clock (Completed Aug 2017)

- Controlled by an STM32F407 microcontroller with firmware written in C
- Dual-layer PCB designed using KiCad EDA, board populated by hand-soldering
- Audio amplifier circuit used LM386 operational amplifier with a 10k potentiometer for a gain of 0-20 and included a feedback filter for reducing audio distortion

Runner-Up for the Engineering Associates Work Term Report Excellence Award (Completed Apr 2017)

- Nominated for co-op work term report with The Strongman Group titled: Solar Photovoltaic Grid-Tie System Design for 1885 Marine Drive; Awarded to top co-op work term report in engineering at UVic

PROFESIONAL EXPERIENCE

Engineering Student Assistant – Electrical, TransLink (Apr 2018 – Aug 2018)

- Assisted Fleet Maintenance Engineering in diagnosing and resolving issues onboard the fleet vehicles
- Extensive hands-on training of the CAN bus system, hybrid battery packs, radio communications system, GPS monitoring system, Compass pay system, and more
- Developed a desktop application called the *Road to Electrification* for the 2018 CUTA conference
- Assisted in the commissioning of the new New Flyer CNG 40' buses and the Nova Hybrid 40' buses

Electrical Engineering Co-op, Fisheries and Oceans Canada (Sept 2017 – Apr 2018)

- Inspected and reported on construction progress of the Offshore Fisheries Science Vessels (OFSV), concentrating on the vessels' power generation and distribution systems and communication networks
- Provided technical feedback to Seaspan's Engineering, Project Management, and Production teams
- Dynamic and fast-paced work environment with extensive hands-on work onboard the three vessels
- Work often included handling sensitive information; reliability security clearance obtained for position

Solar Energy Analyst Co-op, The Strongman Group (Jan 2017- Apr 2017)

- Drafted preliminary roof-mounted solar photovoltaic system layouts with accompanying single-line wiring diagrams of three-phase grid-tie systems in AutoCAD 2017
- Work term report nominated for Engineering Associates Work Term Report Excellence Award

INTERESTS AND HOBBIES

AUVIC Engineering Club (Sept 2018 – Present)

- Developing an autonomous underwater vehicle that can perform a variety of tasks on a closed course
- My roles have included populating the power control board and debugging the I2C sensor communication issues on the power board

3D Printing

- Fused filament printing using my Monoprice Maker Select V2.1 3D printer
- Printer upgraded with z-brace, z-axis extensions, filament spool holder, 120mm power supply unit fan,
- Built a custom-made enclosure for the printer to keep a consistent temperature while printing which allows for higher temperature materials such as ABS and PETG

Outdoors

- Hiking, mountain biking, road cycling, skiing