BAKNEL JAMES MACZ

COMPUTER ENGINEERING

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Available For 4, 8, 12, 16 Month Co-Op Terms Beginning Summer 2021

Key Skills

- **Programming**
  - C
  - Python
  - C++
  - Java
  - JavaScript
- **Hardware**
  - Verilog
  - I2C
  - SPI
  - Microcontroller programming
- **Tools/Software**
  - Git
  - Quartus
  - ModelSim
  - FreeRTOS
  - Linux

Technical Projects

- Member of UBC Orbit, satellite design team (launch scheduled late 2021)
  - Part of the team designing the On-Board Computer
  - Designed I2C, SPI firmware in C, and implemented on a TMS570 MCU running FreeRTOS
  - Hardware configuration done using HALCOGEN

- 16-bit RISC (reduced instruction set) computer
  - CPU built from first principles on an FPGA programmable board
  - Designed an ALU, registers, and datapath for a pipelined CPU
  - Using Verilog HDL and Quartus for synthesis, route and place on FPGA
  - CPU runs subset of AMD x86 Assembly

- Various robotics projects
  - raspberry pi 4 running Debian Linux and using Python
  - Arduino Nano using C++
  - controlled stepper and servo motors as well as various sensors
  - distance sensors, light sensors, GPS, accelerometers and gyroscopes

Experience

- **Server Lead,** Tap and Barrel Shipyards 2018-2020
- **Shift Supervisor,** Starbucks 2015-2017
- **Guard Manager,** Fort York National Historic Site 2011-2015

Education

- University of British Columbia
  - Bachelor of Applied Science, **Computer Engineering**
  - 3rd year CO-OP student, degree expected 2023