

SEBASTIEN BLANCHET

Cupertino, CA, USA

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- SKILLS**
- Advanced embedded control system design acquired from project and hands-on laboratory experiences
 - Exceptional critical thinking and problem-solving skills allowing for complex engineering analysis
 - Highly motivated and organized self-starter with a strong attention to detail and work ethic
 - Outstanding oral and written communication to share creative ideas fluently in both English and French
 - Able to thrive and lead in a team or work independently in a dynamic deadline driven environment
 - Proficient in iWork, SOLIDWORKS, MATLAB/Simulink, Python, C++, C, LabVIEW, L^AT_EX, Bash
 - Experience with PLC/SCADA/HMI systems, embedded microcontroller programming (TI, Raspberry Pi, Arduino, x86 Assembler), Xilinx FPGA, Linux, ECAD tools

EDUCATION **University of Waterloo**

Candidate for B.ASc.

Honours Mechanical Engineering: *3.3/4.0 GPA*

Waterloo, ON, CAN

Sept. 2013 - Present

EXPERIENCE **Apple Inc.**

Controls Engineering: Special Projects Group (SPG)

Cupertino, CA, USA

Aug. 2017 - Present

- Developed a hardware-in-the-loop system for the validation of power electronic control algorithms
- Designed system harness to interface HIL with PCBA from schematics and hardware specifications
- Programmed LabVIEW HMI for communication between RTOS controller and FPGA models
- Implementation of MATLAB/Simulink models in C firmware on embedded MCU, digital filters
- Control system plant model emulation on FPGA
- Hardware communication protocols serial, Ethernet, SPI PXIe I2C etc.. UART
- Assured robustness of control architecture with verification of safety-critical diagnostics algorithms
- Debug and bring-up of high voltage PCBAs safely with in-house test racks, electronic lab equipment and NI instrumentation
- Employed Agile software development with Atlassian tools and Git to track firmware bugs and fixes

Altaeros Energies

Systems Engineering

Boston, MA, USA

Jan. - Apr. 2017

- Performed FEA in ANSYS and PYTHON on prototype of worlds first commercial autonomous aerostat
- Coordinated with vendors and ControlEng SERVOfsoft to size all control system components (servos, drives)
- Utilized electronic lab equipment, sensors and LabVIEW HMI to gather test data and analyze with MATLAB

Ontario Die International Inc.

Research & Development

Kitchener, ON, CAN

May - Aug. 2016

- Designed robotic components (electrical, hydraulic) of PLC/CNC bending systems in SOLIDWORKS
- Automated tedious SOLIDWORKS tasks with the API SDK in VBA and C++ in MS Visual Studio IDE
- Performed hands-on Q&A HMI testing, machined components, fabricated assemblies with power/hand tools

Pratt & Whitney Canada

Operations Program Management Analyst

Mississauga, ON, CAN

Sept. - Dec. 2015

- Assured on time OEM delivery of a quality turbofan engine while meeting their expectations and needs
- Developed Excel VBA programs allowing for improvements in methods of business metric preparation

Skyjack Inc.

Manufacturing Engineering

Guelph, ON, CAN

Jan. - Apr. 2015

- Worked with a team of engineers to troubleshoot production issues at an aerial work platform manufacturer

PROJECTS **Ball & Beam Lab**

ECE481: Digital Control Systems

Aug 2017

- Designed LabVIEW HMI, performed system ID, implemented/tuned digital controller on NI cRIO FPGA

Drum Rhythm Arduino Hack Personal: WIT Hackathon

Mar. 2017

- Utilized the IDE and serial COM with MATLAB to develop real-time monitoring of drumming pattern

Wind Turbine Pitch Actuator ME360: Control Systems

Dec. 2016

- Studied time/frequency domain responses to assure closed loop stability of PI Simulink model in MATLAB

DC Motor Control System ME360: Control Systems

Oct. 2016

- Implemented real-time PID control and tuned system with a hardware-in-the-loop Simulink simulation **design**

Dune-Buggy Repairs

Personal

Aug. 2016

- Replaced carburetor, coils and armature of personal dune-buggy upon troubleshooting **diagnostics**

INTERESTS

- Further developing skills while gaining new exposure to software, real-time controls and electronics
- Repairing off road vehicles, DIY Arduino projects, socializing with friends and playing intramural sports