SEBASTIEN BLANCHET ⬤ 🔗 🌐 ✍

📖 Cupertino, CA, USA 📱 (669)-241-8438 ✈ s3blanch@edu.uwaterloo.ca

⇅ SKILLS

- Advanced embedded control system modeling and design acquired from project and hands-on lab experience
- 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/Office, SOLIDWORKS, MATLAB/Simulink, Python, C++/C, LabVIEW, LaTeX, Bash
- Familiar with PLC/SCADA/HMI systems, embedded microcontroller programming (Texas Instruments, Arduino, x86 Assembler), FPGA, Linux, front-end web development (HTML5, CSS, JavaScript)

🎓 EDUCATION

University of Waterloo **Waterloo, ON, CAN**
Candidate for B.ASc. *3.3/4.0 GPA* Honors Mechanical *Sept. 2013 - Apr. 2019*
Engineering Co-op Program

💼 EXPERIENCE

Apple Inc. **Cupertino, CA, USA**
Controls Engineering, Special Projects Group *Aug. 2017 - Aug. 2018*
- Developed a HIL system to validate power electronic control algorithms
- Emulated and optimized high-fidelity discrete plant models on 32-bit Xilinx FPGA for low latency μs control
- Deployed LabVIEW HMI for deterministic communication between PC, PXIe RTOS controller and FPGA
- Flashed microcontroller via JTAG, serial and Ethernet with the latest software builds for bring-up of PCBAs
- Employed Agile software development with Atlassian tools and Git to track firmware bugs and fixes
- Applied DSP theory to convert continuous Simulink filters to discrete firmware in C for data acquisition
- Implemented automated testing Python frameworks for continuous integration and software regression
- Designed system harness to interface HIL and PCBA from electrical schematics and NI hardware datasheets

Altaeros Energies **Boston, MA, USA**
Systems Engineering *Jan. - Apr. 2017*
- Performed FEA in ANSYS and Python on a prototype of an autonomous aerostat's electromechanical system
- Coordinated with vendors and ControlEng SERVOsoft to size all control system components (servos, VFDs)
- Utilized electronic lab equipment and LabVIEW HMI to log test data and analyze with MATLAB

Ontario Die International Inc. **Kitchener, ON, CAN**
Research & Development *May - Aug. 2016*
- Designed robotic components (electrical, hydraulic) of PLC/CNC bending systems in SOLIDWORKS
- Automated tedious SOLIDWORKS tasks in VBA and C++ with the API in MS Visual Studio IDE
- Performed hands-on Q&A HMI testing, machined components, fabricated assemblies with power/hand tools

Pratt & Whitney Canada **Mississauga, ON, CAN**
Operations Program Management *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. **Guelph, ON, CAN**
Manufacturing Engineering *Jan. - Apr. 2015*
- Worked with a team of engineers to troubleshoot production issues at an aerial work platform manufacturer

✍ PROJECTS

MIT Open Courseware Self-Study *6.006 Introduction to Algorithms* *May 2018*
- Covered complexity, sorting algorithms, graphs, and dynamic programming in Jupyter Python notebooks

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*
- Coded firmware in C and communicated over UART to MATLAB for real-time monitoring of vibration

Wind Turbine Pitch Actuator *ME360: Control Systems* *Dec. 2016*
- Studied time/frequency domain responses in MATLAB for closed-loop stability of PI controlled Simulink

Mining Safety Device *ME380: Engineering Design* *Nov. 2016*
- Developed a 3D printed enclosure to protect internal Arduino and sensors of severe underground environment

DC Motor Control System *ME360: Control Systems* *Oct. 2016*
- Designed PID control in Simulink for a DC motor; implemented in real-time with QUARC C code generation

Dune-Buggy Magneto Repair *Personal* *Aug. 2016*
- Diagnosed fuel system ignition issue then replaced coil and armature of solid-state system

Embedded Robot Design *GENE121: Digital Computation* *Apr. 2014*
- Coded a C++ algorithm, designed and assembled a robot to perform a color sorting and movement operation

🚲 INTERESTS

- Further developing skills related to firmware, electronics, machine learning and artificial intelligence
- Repairing off-road vehicles, DIY electronics, hockey, golf, swimming and socializing with friends