SEBASTIEN BLANCHET

Palo Alto, CA, USA | (408)-616-0813 | s3blanch@edu.uwaterloo.ca

SKILLS

- Advanced embedded control system modeling and design acquired from work, project and hands-on 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, MATLAB/Simulink, Python, C++/C, LabVIEW, LaTeX, Bash, Git, Linux
- Experienced with embedded microcontroller (Texas Instruments, Arduino, x86 Assembler, Raspberry Pi), FPGA, front-end web (HTML5, JavaScript, CSS, JSON) and application (Java, Swift) programming

EDUCATION

University of Waterloo — **Waterloo, ON, CAN**
Candidate for B.ASc. *3.5/4.0 GPA* — *Sept. 2013 - Apr. 2019*
Honors Mechanical/Mechatronics Engineering Co-op

EXPERIENCE

Tesla — **Palo Alto, CA, USA**
Firmware Engineering - Energy Products — *Sep. 2018 - Present*
- Programming embedded firmware in C on microcontroller running RTOS for power electronic controls
- Improving existing Java automatic code generation tools and Python regression testing frameworks
- Following SCRUM software development: Git version control, pull requests and code review

Apple — **Cupertino, CA, USA**
Controls Engineering - Special Projects Group — *Aug. 2017 - Aug. 2018*
- Developed a hardware-in-the-loop 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
- 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

Altaeros — **Boston, MA, USA**
Systems Engineering - Research & Development — *Jan. - Apr. 2017*
- Performed FEA in ANSYS and Python on a prototype of an autonomous aerostat's electromechanical system
- Utilized electronic lab equipment and LabVIEW HMI to log test data and analyze with MATLAB

Ontario Die International — **Boston, MA, USA**
Mechanical Design - Research & Development — *May - Aug. 2016*
- Designed robotic components (electrical, hydraulic) of PLC/CNC bending systems in SOLIDWORKS

Pratt & Whitney Canada — **Mississauga, ON, CAN**
Program Management - Turbofan Operations — *Sept. - Dec. 2015*
- Assured on time OEM delivery of a quality turbofan engine while meeting their expectations and needs

Linamar — **Guelph, ON, CAN**
Manufacturing Engineering - Skyjack — *Jan. - Apr. 2015*
- Worked with a team of engineers to troubleshoot production issues at an aerial work platform manufacturer

PROJECTS

Web Portfolio Development — *Personal* — *Ongoing*
- Hosting personal website to showcase portfolio via GitHub utilizing knowledge of front-end coding

Software University: Swift — *Apple* — *Aug. 2018*
- Reviewed the fundementals of object oriented programming in Swift and coded basic application

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

INTERESTS

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