Christian Malherbe

5th Year Engineering Physics
Christian.david.malherbe@gmail.com
www.christianmalherbe.com

Education

The University of British Columbia **September 2018 – May 2023 (expected)**
Engineering Physics, BASC 4th Year Average: 84.4%

Skills

Electrical Altium Schematic and PCB design, Digital communication protocols, LT Spice, PSim, Microcontrollers, NI Multisim, VHDL for FPGAs, Oscilloscope, Function generator, Spectrum analyzer, SMT soldering and reworking
Computer Python, C, C++, Java, Git, GitHub, MATLAB, Linux, ROS

Technical Work Experience

Electrical Engineering COOP
Tesla, Palo Alto **May 2022 – Present**

- Layout of 4 layer test boards involving CAN signaling, isolated power supplies, op-amp filters and more using Altium Designer.
- In the process of redesigning a PCBA affect by the part shortage for future use in a Tesla industrial energy product.

Electrical Engineering COOP
Johnson and Johnson MedTech, Santa Clara **May 2021 – Dec 2021**

- Designed, tested and debugged electronics used in and for the development of a six arm surgical robot.
- Used Altium Designer to design schematics and layouts for PCBs used in product and test fixtures, such as a 4 layer in-rush limiter board and a 4 layer LED display board with RS-422 communication.
- Conducted formal internal engineering reports to bring up and assess functionality of designs involving eFuses, voltage regulators, MCUs, I2C, CAN and EtherCAT communication, motor drivers, and more using industry standard lab equipment.
- Investigated issues surrounding conducted and emitted radiation using RF current clamp and 10 meter scans in an RF chamber and implemented design changes accordingly.
- Developed a test jig to study capacity, state of health, state of charge, and understand life time degradation of batteries used in CAN controlled BMS system for robot UPS.

Instrumentation Engineer COOP
Precision Nano-Systems, Vancouver **January – May 2020**

- Designed a PC operated jig for automating the process of testing liquid pump load capacity. Developed a robust Python script with an in-depth UI for communicating with pumps over RS-485 serial communication, and for collecting, analyzing and displaying pressure data.

Technical Project Experience

GaN FET Characterization – UBC, Vancouver **September- April 2022**

- Designed a 650V optical-fiber-driven high-side-isolated double pulse tester for characterization of novel GaN FETs as part of a university capstone project.
- Schematics and PCB layouts created using Altium Designer. Circuit simulated using PSIM and LTSpice.

Engineering Physics Robotics Competition – UBC, Vancouver **July – August 2020**

- Designed and built a fully autonomous robot which used sonar, infrared detection and light reflectance sensing to locate and retrieve cans for recycling
- Electrical system included H-bridge motor driver, IR detection and filtering circuit, power conditioning and voltage regulation for sensors, motors and other loads. Mechanical design involved a four bar linkage mechanism for raising and tilting a platform. Software in C++ on an STM32 “Blue Pill” board used PID control and interpreted data from multiple sensors for guiding robot.
- Robot placed 4th overall out of 16 teams competing.