Tristan Lee

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Summary of Qualifications

- Strong ability with electronics and PCB design in Altium, which was gained from design projects in Engineering Physics and UBC Rocket, as well as various personal projects.
- Proficiency in troubleshooting PCB's and prototype circuits using electrical tools including oscilloscopes and multimeters, developed in both technical and project environments.
- Developed several projects using Python and Java with several software tools such as ROS, OpenCV, and various API's, in addition to constructing firmware used to run a robot.
- Experience with designing in OnShape and Solidworks and manufacturing designs using a variety of subtractive and additive techniques.
- Excel in a team enviroment, displaying the ability to continuously contribute success, while keeping a positive, eager, and open mindset towards the task at hand.

Skills

Electrical	Altium • oscilloscope • EAGLE • Soldering • Arduino • Function generator • PCB Design
Programming	Python • Java • C/C++ • Git • Linux • OpenCV • ROS • MATLAB • PlatformIO
Mechanical	OnShape • SolidWorks • Fusion 360 • 3D Printing • Milling • Lathe • Laser cutter

Education

ENGINEERING PHYSICS
3RD YEAR
- Engineering physics is a program that strives to educate students who strive to develop leading edge technology, while also pursuing a deeper understanding for physics.
- Key courses: Signal and Systems, Electrodynamics, Quantum Mechanics, Instrument Design

Technical Experience

MANUFACTING TEST ENGINEER
ENERSYS - ALPHA TECHNOLOGIES
📅 Jan. 2022 – May 2022   📍 Vancouver, BC
- Assembled 5 PCB test stands, validated LabVIEW signal tests to specific pins using an oscilloscope, troubleshot and repaired connections and tests to ensure proper performance.
- Created Python and LabVIEW software to enable data collection and PDF conversion for PCB tests, then succesfully implemented the software into 10 different test stands.
- Constructed circuit schematics in Altium Designer and wrote test scripts in LabVIEW for PCB test stands, as well as identified test points in Altium for a variety of DC-DC converters.
- Ensured the functionality of over 60 PCB assemblies on a variety of tests stands and documented results, in addition to verifiying the functionlity of the test stand or characterizing the nature of a fault.

Project Experience

ENGINEERING PHYSICS ROBOT COMPETITION UNIVERSITY OF BRITISH COLUMBIA
📅 May 2022 – Aug 2022   📍 Vancouver, BC
- Collaborated with a group of 4 to design and manufacture an item retrieval robot that navigated a course using line following and 10kHz IR sensing, achieving 4th place.
- Designed and constructed over 10 circuits including power distribution for motors and sensors, DC motor drivers, stepper motor drivers, and microcontroller pin distribution.
- Troubleshot and tested many circuits constructed with my teammates, to ensure the presence of desired signals using an oscilloscope.
- Integrated firmware into a C++ statemachine using PlatformIO to control a linearly translating robot arm and 2 claws, as well as sense and acquire retrievable items using sonar sensors.
- Created CAD designs for the chassis and claw sections of our robot using OnShape.

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Project Experience

ENGINEERING PHYSICS MACHINE LEARNING COMPETITON University of British Columbia

📅 Sep 2022 - Dec 2022 📍 Vancouver, BC

- Worked in a group of 2 to design and create state machine architecture to control a robot using ROS Noetic on a simulated course in Gazebo.
- Implemented OpenCV in Python to capture images of license plates inside a simulated enviroment and identify characters using a convolution neural network.
- Setup data collection pipeline using OpenCV a Linux directory structure to collect over 25'000 images needed to run a data collection program using OpenCV for convolution neural network training for robot self driving.
- Managed features and working tree with my teammate using Git version control and GitHub.

UBC ROCKET AVIONICS University of British Columbia

📅 Oct 2022 - Present 📍 Vancouver, BC

- Designed an ignition circuit in Altium designer as a part of a stackable, modular flight computer, used for lighting 3 e-match stages on a competition rocket.
- Assembled components on ingition PCB's using reflow soldering techniques, then performed a variety of tests such as continuity checking for e-matches and ensuring the desired operation of opto-isolators and MOSFETs.
- Currently collaborating with a team of six to integrate each individual PCB into a complete flight computer capable of controlling and collecting data of the rocket.

Awards

PRESIDENTIAL SCHOLARS
University of British Columbia
Awarded to accomplished Canadian students.

TUUM EST EXPERIENTIAL
University of British Columbia
Awarded to students with excellent academic standing and strong personal profiles.

TREK EXCELLENCE
University of British Columbia
Awarded to top 5% of UBC undergraduate students.

Interests

Technical   Robotics • Machine learning • Spaceflight • High voltage electronics
Non-Technical   Downhill skiing • Mountain biking • Cross-country skiing • Surfing • Hiking • Powerlifting