Miguel Manguerra

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Profile

A fifth-year computer engineering student with extensive electronics product development experience. In his most recent co-op with Starfish Medical, he was exposed to the rigorous product development process necessary in medical applications. By leading a team at Ergonomyx technologies, he developed a soon to be released IoT office equipment product. As co-founder of the UVic Environmental Engineering Club (UVEEC), he oversees the design of the electronics for the club's pilot project, an Unmanned Surface Vessel (USV).

Education

University of Victoria, *Fifth Year Bachelor of Engineering (Computer Engineering)*
Sep 2018 – Aug 2023 | Victoria, Canada

Relevant Skills

- Highly advanced experience in designing Printed Circuit Boards in Altium and KiCAD.
- Accomplished at drawing, understanding, and organizing complex electrical schematics.
- Adept in soldering and troubleshooting electronics problems with multimeters, oscilloscopes, and function generators.
- Experience solving challenging electrical design problems while staying within real world constraints.
- Rapid problem-solving skills that involve quick thinking and excellent research skills.
- Procured a wide variety of components and PCBs from Digikey, Mouser, JLCPCB and, PCBWay.
- Developed custom firmware for STM32F0 and ESP32 microcontrollers using Eclipse and PlatformIO.
- Proficient in C, C++, CAPL, and Python.
- Extensive experience modelling and 3D printing prototype designs in Solidworks and Fusion 360.

Professional Experience

Electrical Engineering Co-op, *Starfish Medical*
Sep 2022 – Dec 2022 | Victoria, Canada

- Designed and built custom PCBs for a variety of medical devices.
- Analyzed analog and digital circuits using electronics lab equipment.
- Developed documentation in accordance with requirements of ISO 13485 and IEC 60601.
- Performed experiments to determine the most appropriate path forward to developing a reliable and safe medical device.

Electronic Prototype Engineering Co-op, *Ergonomyx Technologies*
Sep 2020 – Aug 2021 | Victoria, Canada

- Led a team of four to develop and prototype a universal smart desk controller that can control any type of existing motorized sit stand desk.
- Designed a USB-A charging PCB that could charge a smart phone or an iPad from the power generated by a user's pedaling.

Product Designer - Software, *Dometic (formerly SeaStar Solutions)*
Jan 2020 – Apr 2020 | Vancouver, Canada

- Performed system level testing on electronic systems with complex CAN networks.
- Analyzed data recorded on CAN buses using Vector's CANalyzer.

Community Involvement

University of Victoria Environmental Engineering Club, *Electrical Team Lead*
Sep 2021 – Sep 2022 | Victoria, Canada

- Designed a Smart Power Board that monitor and control four different power lines.
- Led the design of the USV's plethora of electronics, including the Central Controller Board, and its custom built 6S 9P battery.

Projects

Some of Miguel's current projects include an underwater acoustic pinger and an open source programmable DC electronic load. In his spare time he maintains, upgrades, and improves his own 3D printers. For more information about his projects visit his project portfolio at the link attached:

References

Available upon request