Viktor Neshikj

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Experience

Vetus - Maxwell
Auckland, New Zealand

Embedded Systems Intern
Oct 2023 - Present

- Independently developed a control module for anchoring systems on small to medium-sized vessels. My design added many features including motor lockout at low voltage, fault detection/debugging, and a CAN section for communication to other devices while keeping costs low.
- Designed and implemented a testbench to drastically speed up assembly and testing of the control module.
- Formally tested electronics and firmware. Documented the design and created manuals with instructions for assembly and testing. Simplified the PCB ordering process by automating manufacturing and assembly and wrote detailed documentation about the procedures.

Extracurricular Activities

University of Auckland
Auckland, New Zealand

Mentor
2023 - Present

- Tutor students in both **part I and part II** in approaching problems involving circuit analysis, embedded design, and programming.
- Act as a mentor and personal coach for students, helping motivate them, develop skills, set guidelines, and track their goals.

Rotary National Science and Technology Forum
Auckland, New Zealand

Participant
Jan 2019

- One of 160 students selected nationally to attend the Forum.
- Learned about the most recent developments in science, mathematics and technology, gaining an insight into university life.

Projects

Portfolio
https://viktorneshikj.xyz
2023 - Present

- As an exercise to widen my skills in development, I taught myself **React** and **JavaScript** to build a portfolio for showcasing my projects.
- Taught myself wireframing using **Figma** and developed the outline based on **Google Material Design** guidelines, creating an aesthetic portfolio.

Inductive Drive RC Car
https://github.com/vneshikj/Inductive-Drive-RC-Car
2024

- A wirelessly powered RC car developed in a pair. It features a custom-designed IPT pick-up regulator and DC-DC converter.
- Designed and tuned a secondary pick-up coil for harnessing power from the track through inductive coupling. Designed and implemented a buck converter, including the addition of a compensator, resulting in clean power output with minimal noise across all varying loads.
- Simulated and verified the designs using **Plexim**. Implemented the buck inductor based on magnetics design principles and also implemented over-voltage protection to protect the RC car.

Pathfinding Robot - Cypress PSoC 5
https://github.com/JamesNZL/compsys301-pathfinding-robot
2023

- A self-navigating robot developed in a team, utilising a **PSoC 5** microcontroller.
- Designed analogue circuitry using photodiodes, tested using **LTspice**.
- Brainstormed and developed sensor constellation and layout.
- Designed and verified the PCB for the analogue circuitry using **Altium**.

AI Based Sign Language Interpreter
https://github.com/vneshikj/ASL-Interpreter
2023

- Developed an AI-based model to interpret American Sign Language in **Python** using **PyTorch**.
- Followed an MVC design pattern and developed the UI in **Python** using **PyQt5**.
- Collaborative project with two other individuals.

Inductive Energy Monitor
https://github.com/vneshikj/Energy-Monitor
2022

- An embedded systems project monitoring the real time energy consumption of an inductive appliance.
- Designed and tested a custom PCB in **Altium** for signal sensing and conditioning.
- Developed firmware in **C** for an **ATmega328PB** for digital signal processing and data transmission through UART.
- Led a team of four in an agile environment with weekly progress checkups.

Education

University of Auckland
Auckland, New Zealand

Bachelor of Engineering (Honours) in Computer Systems, GPA: 7.5
Jan 2021 - Present

Skills

Programming Languages: C, Python, Java, VHDL, MATLAB, R, LaTeX, Markdown, Javascript, CSS, HTML.
Technologies: Altium Designer, Quartus Prime, LTspice, PSoC Creator, Proteus, Git, GitHub, Figma, React.