

Seiya Nozawa-Temchenko

Electrical and Computer Engineering | University of British Columbia

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SKILLS

ARM Assembly | C/C++ | HTML/CSS | LaTeX | Python | Verilog/SV | German | Japanese | Russian

Altium Designer | AutoCAD | LTspice | MATLAB/Simulink | ModelSim | Quartus Prime | RSLogix

EXPERIENCE

Electrical Engineering

Jul. 2023 - PRESENT

UBC Thunderbikes (University Design Team) | Vancouver, BC

- Developed a 100V battery pack for an electric racing motorcycle and participated in the Formula Lightning Race 2024 in California.
- Designed an STM32-based relay system, managing switches for safe transitions between ignition, operation, and charging states; programmed in C.
- Fabricated I/O wire harnesses for battery modules to interface with the BMS.
- Implemented CAN bus protocols to interface the BMS with the display, enhancing safety with real-time diagnostics and error messages.
- Finalized PCB design with Altium, reviewing connections and soldering components for assembly.
- Developed a MATLAB-based racing simulation to analyze track performance.

Control System Engineering

May 2024 - Aug. 2024

BBA Consultants (Internship) | Vancouver, BC

- Designed wiring diagrams and schematics for BC Hydro's Vancouver Island Terminal project using BlueBeam and AutoCAD.
- Developed Python scripts to automate organization in M-Files and Excel.
- Tested RSLogix ladder logic on PLCs for Valmet's Tailcutter project, involving sensor/alarm control.
- Configured and tested a data logger system on PLCs for the Soo River Dam.

Maintenance Engineering

Sep. 2023 - Apr. 2024

IKO Industries (Internship) | Ashcroft, BC

- Automated repetitive tasks using Python, increasing efficiency by 3600% with scripts analyzing 4+ years of data.
- Managed PLCs using RSLogix, integrating sensors, cameras, and lights.
- Submitted design proposals to using Autodesk Inventor to address worker safety and machinery efficiency.
- Integrated two 20-ft Vertical Lift Modules by reviewing electrical and mechanical schematics and drawings.
- Estimated monthly material processing from quarry blasts using GPS coordinates in AutoCAD modeling.

Power Engineering

Sep. 2022 - Jun. 2023

UBC Sailbot (University Design Team) | Vancouver, BC

- Contributed to Project Raye, an 18-ft autonomous, unmanned sailing mission from Victoria, BC to Maui, HI.
- Designed rudder motor controller to meet mechanical and software requirements
- Programmed and tested solar panels, batteries, PCBs, and power systems; rewiring and fixing all post-launch issues.

Solar Power Sales Consultant

May 2021 - Jul. 2021

SunPower | Boise, ID

- Forecasted annual savings by comparing clients' kWh usage to their annual hours of usable sunlight.
- Promoted and sold solar panels to 97 homeowners, adapting pitches based on real-time observations.
- Executed sales plans, contributing to over \$300,000 in revenue growth.

TECHNICAL PROJECTS

Website Portfolio Project

Dec. 2023 - Aug. 2024

Personal

- Developed a responsive portfolio website using HTML, CSS, and JavaScript, providing a comprehensive overview of professional experience and projects.
- Implemented dynamic content using JavaScript, such as interactive elements and animations, for user engagement and experience.
- Leveraged media queries in CSS to ensure the website is fully responsive, maintaining usability across different screen sizes, from mobile phones to desktops.
- Deployed the website using GitHub Pages, ensuring easy access and continuous improvements.

IBM Maximo Automation Scripts Suite

Oct. 2023 - Feb. 2024

IKO Industries

- Developed 6 Python scripts to automate daily checks, data extraction, and reporting tasks, enhancing operational efficiency with Maximo.
- Utilized Selenium for automating status checks, reducing manual labor by 3600%.
- Incorporated xlwings to enable data interactions with Excel for data visualization.
- Customized scripts to detect and correct data discrepancies, handle exceptions, and perform searches.
- Automated the correction of task hours, improving asset management record-keeping accuracy using the last 4+ years of data.

FPGA Communication Model to Reduce Noise

May 2023 - Jun. 2023

ELEC 391 | University of British Columbia

- Developed a communication system that reduced noise, verified using Simulink before Verilog-based implementation on Intel's De1-SoC.
- Implemented a MATLAB script to convert WAV files to MIF files, ensuring 16-bit sound fidelity.
- Designed parallel Hamming encoders for error correction, utilizing XOR gates for codeword creation.
- Integrated QPSK modulator and demodulator with raised cosine filters, using MATLAB-generated lookup tables for precise pulse generation.
- Utilized Quartus ROM for key components, including a raised cosine transmission, a matched filter, and an AWGN.
- Achieved a clear sound output with a bit-error rate of $10E-5$, verifying system success.

Precision Breadboard Thermometer

May. 2022 - Jun. 2022

ELEC 291 | University of British Columbia

- Developed a thermometer circuit with a Wheatstone bridge, achieving $\pm 0.1^{\circ}\text{C}$ accuracy.
- Implemented comparator op-amps, XOR gates, and 555 timers for temperature-based fan control.
- Designed an instrumentation amplifier with voltage regulators and diodes for circuit protection.
- Programmed an Arduino, ensuring accurate and responsive temperature measurement and control.
- Simulated and debugged the circuit in MultiSim to optimize performance.

FPGA RISC Machine Processor

May. 2022 - Jun. 2022

ELEC 291 | University of British Columbia

- Built a Turing complete processor in Verilog; simulated on the De1-SoC and synthesized on Quartus.
- Engineered a dynamic datapath with ALUs, MUXs, shifters, and a CPU for efficient binary data operations.
- Employed DFFs for register programming, forming the foundational layer of the design.
- Dedicated 30-50 hours weekly to master digital logic circuits and debug complex Verilog code using Modelsim waveforms.