Jordan Carlson

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Hardware Test Engineer

An outcome-driven engineer with inventive system testing strategies, seeking work to apply my skills to developing leading-edge research technology.

Areas of Expertise

- Electronics design and testing
- Electromechanical design and integration
- Mixed-signal electronic circuitry
- Schematic and PCB design
- Sensitive component, fine-pitch soldering
- EDA (Altium+) and CAD (Solidworks+)
- Data processing and analysis
- Statistics and feature extraction
- Waveform capture and power analysis
- Low to high-level coding and scripting
- Stringent and cohesive documentation
- Unit testing and quality assurance

Education

- **B.Eng** – Co-op Electrical Engineering - 2022 — University of Victoria, BC
- **EIT Certification** - Pending final approval — Engineers and Geoscientists BC

Work Experience

System Developer/Integration Engineer – Salyx Medical 2021-2025

- Led a long-term compact vital signs monitoring system development team to achieve proof-of-concept for medical-grade accuracies through state-of-the-art hardware applications and high precision new research implementation.
- Prioritized debugging strategies for open-source embedded systems' optimization of resources, processing speed, power, sensitive sensor integration, and output modularization.
- Utilized data processing and visualization to validate and improve the grade of measurement certainties for accurate advertising and to prepare for clinical test trials.
- Managed Agile projects, code version control, and technical documentation.

Embedded Software Developer/Tester – Carmanah Technologies 2022-2023

- Headed unit-testing intricately engineered systems for a safety-critical crosswalk system MVP.
- Developed a solar crosswalk system simulation with a measurement and automation device to examine long-term, continuous system behaviours.
- Integrated electronics design with signal processing and algorithm usage to optimize feature extraction of long-term waveform characteristics between multiple, synchronous inputs.
- Collaborated with software engineers, product development managers, and the system cloud maintainer to develop test strategies for their integrated software infrastructures.

- ⇢ Created and implemented efficient troubleshooting tactics with three embedded software developers, two product design managers, two hardware specialists and a cloud maintainer.
- ⇢ Produced a complex algorithm to test large datasets for system stability and reliability.
- ⇢ Created, tested, and optimized a Python application to set permanent ROM values during MVP manufacturing automatically.
- ⇢ Debugged app-controlled Bluetooth, OpenThread and Losant MQTT IoT embedded networks, including firmware updates.
- ⇢ Utilized Python scripting to continuously program an RS-232 power source for automated testing along with Tera Term serial communication.

Embedded Software Developer – Ergonomyx Technologies Inc. 2020-2022

- ⇢ Managed a new start-up's feature development for electromechanical IoT devices from MVP completion to several production waves, verifying product stability and reliability.
- ⇢ Wrote approved grant applications from applied development processes.
- ⇢ Granted a patent for the Ergonomyx smart workplace fitness ecosystem.
- ⇢ Developed tests for UL safety inspection and certification.
- ⇢ Minimalistically integrated Bluetooth, Wi-Fi, MQTT, AWS IoT Core cloud connectivity, and the proprietary Ergonomyx API's over-the-air firmware updates feature with RTOS in C and C++.

Lead Hand – Precision Well Servicing 2015-2018

- ⇢ Led five-person crews to complete physically demanding, technical operation procedures.
- ⇢ Coordinated the team throughout extensive days and nights, optimizing production time while advancing safety protocols and fortifying positive attitudes within the team.
- ⇢ Serviced new projects, often daily, that each produce an average of $1 million daily revenue.

Technical Specialties

- ⇢ Embedded, control, and power systems design and integration
- ⇢ Servo and stepper motor control firmware with embedded linux, C, and C++
- ⇢ Schematics and PCB EDA and testing
- ⇢ Signal processing (filtering, amplification, feature selection and extraction)
- ⇢ Object-oriented (Python, C++, Java and JavaScript) systems and scripting
- ⇢ Low-level (C, ARM and Tensilica, assembly and register level) programming
- ⇢ Git version control (with Gitlab, Bitbucket, Gitkraken, Sourcetree, and CLI)
- ⇢ Data collection with various input protocols (JSON strings, type-packed bytes, and firmware protocols such as i^2C, UART, and SPI)
- ⇢ Data processing and analysis (using Pandas, numPy, sciPy, Keras, and SciKit-Learn)
- ⇢ Data visualization for intuitive analysis (Matplotlib and MATLAB)
- ⇢ Project management (Agile with Jira, linked Confluence, and WeKan)

Personal Interests

- ⇢ **Independent Projects:** Implementing prospective hardware, SoCs, and software frameworks. Combining design, CAD, EDA, system integration, and project management to inspire new, effective development paradigms (see the portfolio at the link at the top of this resume).
- ⇢ **UVic Rocketry Club:** Controls and instrumentation: This included development in LabView, PCB design for avionics using Altium, engine valve control in a hybrid propulsion prototype, SoC controls, and low-cost, reliable wireless networks.
- ⇢ **Island Health's Code Hack 2020 and the following bid proposal:** Researched, conducted interviews, and wireframed an app utilizing Island Health's current web infrastructure to personalize health records. Then, co-led the team in curating a technical RFP response.