

Jacob Mattie

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Building and operating **distributed software** and **embedded systems** that interface with sensors, devices, and **industrial control** hardware in production environments.

Controls & Embedded

Docker
EPICS
ESP32
JavaScript
MATLAB
PLC Systems
Python
Raspberry Pi

Data & Telemetry

ETL Pipelines
HTTP
JSON
REST APIs
SQL
UART
WiFi

Distributed Backend

Bash
Celery
Django
Gunicorn
Redis

Infrastructure & Ops

CI/CD
Docker
Git
Linux
Nginx
SSH
systemd

BSc. Mathematics, 2022, Simon Fraser University

Work Experience

Investment Analyst: Data Architecture & Backend Systems

Aligned Capital Partners / River Wealth

Vancouver, BC

11/2024 - Ongoing

Q: What data exists that might let us predict stock growth and market behaviour?

- Engineered **data ingestion** workflows across multiple methods (HTTP requests, file-based feeds, web scraping), using stateful retries and validation checks to handle unreliable upstream sources.
- Fully provisioned and maintained headless **production Linux infrastructure** from bare-metal deployment through service orchestration (systemd, Nginx, Gunicorn).
- Built Python-based reporting systems that **automated data monitoring** workflows, reducing company-wide labour load by 20% and mitigating potential for human error.

Test Technologist

IBC Technologies

Burnaby, BC

6/2022 - 9/2023

Q: How can we safely optimize heat transfer from a boiler's combustion chamber?

- Automated hardware validation processes through IoT ESP32 microcontrollers and PLC systems, streaming test data into **cloud-connected repositories** for analysis and report generation.
- Led certification and **validation of hardware/software systems** for boilers under Canadian and U.S. regulations, triaging issues and coordinating cross-team resolution to enable market release of two products.
- Built an embedded **ESP32 control system** for an assembly station lift, adding a laser-based obstruction sensor as a safety override to technician controls, resulting in a 15% throughput increase.
- Built high-throughput data analysis workflows in MATLAB for multi-million-point datasets, **reducing test validation time by 85%**.

IT Technician (Internship)

BC Cancer Research Centre (BCCRC)

Vancouver, BC

09/2018 - 01/2019

Q: How much digital freedom can we grant researchers without compromising network security?

- Managed user access controls and permissions within a segregated research network, enforcing data isolation and **cybersecurity** policies across multiple user groups.
- Managed, diagnosed, and resolved **TCP/IP-based** network connectivity issues across a segmented domain environment, including endpoint user access and inter-device communication.
- Assisted in network recovery during facility-wide outage caused by a malware incident, supporting administrators in restoring connectivity and validating **system integrity** across endpoints.

Volunteering

Automation Technologist

TRIUMF - Canada's Particle Accelerator

Vancouver, British Columbia
05/2025 - Ongoing

Q: What modern technological advances have resolved longstanding engineering problems?

- Contributed **technical foundations** for 3 scientific publications (in preparation) on EPICS implementation in nuclear physics laboratories.
- Delivered a containerized **EPICS deployment pipeline** using Bash, enabling a reproducible control-system environment intended to support experimental automation workflows for staff and students.
- Coded a control driver for an undocumented **stepper motor**, merging hardware wiring, driver design, and Python interface for automated and repeatable experimental control.

Laboratory Assistant

Beaty Biodiversity Museum - Vertebrate Lab

Vancouver, British Columbia
09/2025 - 11/2025

Q: What creature is this?

- Performed necropsies on animal carcasses, gathering tissue samples and recording specimen health data.
- Sought information from entomologists and botanists to identify animal stomach contents and improve specimen data depth.
- Acted as caretaker to dermestid beetle colonies during their cleaning of skeletons.

Employee Committee: Engineering Representative

IBC Technologies

Burnaby, British Columbia
03/2023 – 09/2023

Q: How can we improve workplace culture?

- Planned, purchased for, and implemented a company-wide plant giveaway, which was met with tremendous warmth from staff.
- Organized, set up, and facilitated monthly company lunches, feeding over 200 employees.

Certifications

Class 5 Driver's License

03/2026 - 03/2031

ICBC

Nuclear Energy Worker

09/2025 - 09/2030

Canadian Nuclear Safety Commission