

Benjamin Liu

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EDUCATION

University of Waterloo

Bachelor of Applied Science in Computer Engineering, Honours

Waterloo, ON

Sept. 2021 – May 2026

EXPERIENCE

Optical Component Test Engineering Intern

Ciena Canada ULC.

January 2025 – Present

Quebec City, QC

- Re-engineered an automated RF/DC test stack (*MATLAB, C#*) for coherent driver modulators (*CDM*) production lines
- Created a SciPy-based time domain reflectometry (*TDR*) toolkit to qualify new CDM RF-packaging suppliers
- Migrated tunable-laser production to a new hardware stack (optical spectrum analyzers, network and switching) and built software to auto-adjust test parameters across stations
- Increased WaveLogic 5E coherent driver modulator yield from *35% to over 95%*, adding approximately *\$1.5M CAD per month*

Quantitative and Technical Analyst

NN Life Japan Ltd.

Sept. 2023 – May 2024

Shibuya, Tokyo

- Developed *Azure Pipelines* and *SQL* scripts to improve automation for account databases
- Developed a new version of the Anti-Money Laundering Automation System in *Python* with (*sqlalchemy, pandas, numpy*) and utilized data from the *Dow Jones Developer API*
- Prototyped an internal data research and documentation tool utilizing *React* and *Python* which replaced a long outdated tool suite
- Presented to the board and gained approval for use throughout the finance division. Additionally incorporated user-requested features post release and followed *CI/CD principles*

Enterprise Information Governance Specialist

Ontario Lottery & Gaming Corporation

Jan. 2023 – May 2023

Toronto, ON

- Prototyped an automated system in Python, utilizing *OpenAI's API* for data management and entry. This would save an average of *10-15 hours per week* in regards to manual data entry
- Led initiatives for governance of personal data, metadata, and enterprise documentation
- Developed and standardized onboarding and project workflows, presented to senior management, including the CTO

Corporate Real Estate Analyst

Bank of Montreal

Jun. 2022 – Sept. 2022

Scarborough, ON

- Commissioned a new datacenter wing at BMO's SCC complex, overseeing the full process from *Levels 1 through 5*
- Automated logging and project forms - saved the team an average of *2 hours a week*
- Created a tool suite for CAPEX (Capital Expense) projects tracking and documentation using *VBA*
- Designed a multiplatform work order app for project scheduling using *Power Apps, Power BI, and PowerFX*

Founder

Ben's Cloud Computing

Jun. 2019 – Sept. 2022

Ottawa, ON

- Acquired seed funding via a business proposal to the photonics lab in the ARC (Advanced Research Complex), ROI was *within 7 months* of commencing operations.
- Provided computing resources. Set up project environments and *sold computing power* to run scientific simulations. Configured CMC Microsystems remote licensing for simulation environments
- Set up *FEM and FDTD* photonics simulations using *Optiwave, Lumerical, PhotonDesign*

DESIGN TEAMS

WATonomous - Power Systems Lead | *LV/HV AC & DC*

Sept. 2024 – May 2025

- Designing a new LV/HV AC & DC power supply system for automotive self-navigation electronics and compute module
- Prototyping a system to take advantage of the car's main HV battery bank, preventing drainage of LV power storage
- Designing physical emergency power shutoff system for HV & LV systems using spring loaded breakers
- Implementing in tandem with Vehicle Platform team a series of logic control boards and remote guidance systems for user overrides.

Engineers Without Borders - WATurbine Power Lead | *DC Power Generation*

Sept. 2024 – Jan. 2025

- Developing a DC power generation system for a small-scale wind turbine intended for deployment in Africa
- Engineering a cost-efficient, custom-designed DC brushed motor to optimize power output

TECHNICAL SKILLS

Languages: C/C++, MATLAB, Python, SQL, Microsoft VBA, ARM Assembly (Thumb2 Instruction Set), Javascript, HTML & CSS

Frameworks: React, Express, SQL Server

Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Microsoft Power Platform & Office, Azure DevOps

Other Skills: Technical Documentation, Project Management