Martin Wu

236-518-9477 | martinwu500@gmail.com | martinwu.tech | LinkedIn | GitHub

Education

University of British Columbia **Sep 2025 – 2029**
Bachelor of Applied Science in Engineering *Vancouver, BC*

Technical Skills

Languages: Python, C, C++, JavaScript, TypeScript, Java, HTML/CSS, SQL
Frameworks & Tools: React, Flask, PyTorch, NumPy, Git, GitHub Actions, Docker, InfluxDB, Grafana
Embedded & Hardware: STM32, SPI, CAN bus, HAL drivers, PT1000 RTD sensors, MAX31865
Developer Tools & Platforms: WSL2/Linux, STM32CubeIDE, VSCode, Vercel, vast.ai, HuggingFace

Experience

Co-Founder & Software Engineer **Dec 2025 – Present**
AI/ML Startup (Seed Round) *Vancouver, BC*

- Developed LLM optimization system reducing 70B parameter model requirements from 8x A100 GPUs (640GB) to 2x RTX 4090 (48GB)
- Optimized PyTorch inference pipelines for Llama-3.1-70B on vast.ai GPU infrastructure
- Built production deployment architecture with HuggingFace integration and memory-efficient loading

Embedded Systems Engineer **Sep 2025 – Present**
UBC Solar *Vancouver, BC*

- Engineered PT1000 RTD temperature sensing system with MAX31865 after motor failure at competition revealed telemetry gaps
- Analyzed Altium PCB schematics and integrated hardware to driver dashboard for real-time monitoring
- Developed STM32 firmware in C implementing SPI communication and MAX31865 register configuration
- Achieved <1°C temperature measurement accuracy through ADC-to-temperature conversion, improving from multi-degree variance
- Integrated sensor data over CAN bus to dashboard, enabling safety monitoring independent of base station
- Configured Docker/Tailscale/InfluxDB/Grafana pipeline in WSL2/Linux via Sunlink radio for live vehicle diagnostics
- Conducted design reviews and debugging sessions using breakpoints and step-through analysis
- Developing external lighting control with dashboard button integration

Projects

Useful Tool Hub | *Python Flask, JavaScript, yt-dlp, Instaloader, Vercel* **2025 – Present**

- Built full-stack web app with Python Flask backend for media downloading
- Integrated yt-dlp and Instaloader for Instagram carousel and YouTube video extraction with format selection
- Deployed Flask backend on Vercel with GitHub Pages frontend; live at martinw500.github.io/Useful-Tool-Hub

Algorithmic Trading System | *Pinescript v6, Python, TradingView* **Q1 – Q3 2025**

- Developed quantitative trading strategies achieving 179% growth in backtesting with 1.05% alpha
- Implemented long/short strategies yielding 8.3% Q1 and 12.4% Q2 portfolio growth
- Built Python integration for strategy validation across 7-year historical dataset

Math Quiz Generator | *React, MathJax, Python Flask, GitHub Actions* **2024**

- Developed quiz platform with adaptive difficulty and weighted operation selection across 10 levels
- Integrated MathJax for mathematical notation; deployed via GitHub Actions to GitHub Pages

Haar Wavelet Image Compressor | *Python, NumPy, Pillow, CustomTkinter* **2024**

- Implemented Haar wavelet transform for lossy RGB image compression using NumPy
- Built CustomTkinter GUI with real-time compression parameter adjustment and visual comparison

Awards & Achievements

Mathematics Competition Awards **2023 – 2025**

- **Canadian Senior Mathematics Contest:** Top 0.5% (71st place) with score of 52/60
- **AIME Qualifier (2x):** Top 5% on AMC 12 A & B with score of 118.5
- **Euclid Contest:** Top 2% with score of 85