

Lucas Pirvuti

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EDUCATION

University of Waterloo

Bachelor of Computer Science, Cumulative Average: 81%

Waterloo, ON

Sep 2025 – Apr 2030 (Expected)

Wilfrid Laurier University

Bachelor of Business Administration

Waterloo, ON

Sep 2025 – Apr 2030 (Expected)

EXPERIENCE

Software Engineer Intern

May 2026 – Aug 2026

CanDeal

Toronto, ON

- Refactored the fixed income security master configurator and datastore for enhanced analytics.
- Extended analytics across 7 instrument types, focused on callables, amortizers, and FRNs.
- Integrated a QuantLib-based C++ library for price, yield, and PV01/DV01 conversions.
- Rebuilt real-time security master synchronization between source and target environments.
- Built Claude agent skills that automatically configure complex FIX-based trade negotiation message flows.
- Rebuilt the observability layer using Grafana/Prometheus and custom TibcoRV event sources.
- Focused monitoring on pricing flows spanning 10M+ messages per day, plus complex trade flows.
- **Domain:** pricing (CAN, CAMM, ETF, Futures); Evolution / Coherence trading (outrights, swaps, bfly, lists).

PROJECTS

LP Stock Signals | TypeScript, Next.js 16, React 19, 160 tests

Jul 2026 – Present

- Built a chart-pattern scanner, backtester, and trade journal covering 92 tickers and 5 timeframes.
- Benchmarked detectors against matched random-entry controls, found no edge, and said so in the README.
- Caught a backtest bug that scored trades which never opened, then retracted the conclusions it broke.
- Pooled thin per-symbol samples with empirical Bayes shrinkage, tuned on out-of-sample data.
- Kept a rate-limited market feed alive with request caching, retry backoff, and stale-value fallback.

Green Simulation Limits | Python, NumPy, SciPy, pytest

Aug 2026

- Reproduced a 2022 Monte Carlo method that reuses samples across scenarios, confirming 100× lower error.
- Found its advantage vanishes by eight dimensions when the density it needs must be estimated from data.
- Measured error against a closed-form benchmark, itself checked on 2M brute-force Monte Carlo draws.
- Added control estimators blind to the conditioning features to confirm dimensionality caused the loss.

Waypoint | Python, FastAPI, NumPy, SciPy, Rasterio, Mapbox GL JS, Vite

Dec 2025 – Jan 2026

- Built a search-and-rescue simulator modeling 1000+ lost-hiker agents via 5 ISRID behavior strategies.
- Parallelized the Monte Carlo engine with ProcessPoolExecutor over NASA SRTM elevation data.
- Served slope-adjusted heatmaps with Gaussian smoothing ($\sigma = 0.5$) to Mapbox via async FastAPI endpoints.

TECHNICAL SKILLS

Languages: Java 21, Python, TypeScript, SQL (MySQL, Postgres), C++

Frameworks: Spring Boot, QuantLib, Vaadin, Next.js, React, FastAPI, Tailwind CSS

Libraries: NumPy, SciPy, Pandas

Developer Tools: Git, Maven, Grafana, Prometheus, TibcoRV, XML, Linux/Bash, Vim, pytest

Concepts: FIX Protocol, Observability, Concurrency, Monte Carlo Simulation

AWARDS

Euclid Mathematics Contest: 2025 Honour Roll, Group V — top 2% of 27,000 participants

University of Waterloo: President's Scholarship of Distinction; qualified for the President's Research Award