

NATHAN ZHANG

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EDUCATION

The University of British Columbia

B.A., Combined Major in Economics and Statistics, Minor in Data Science

Sep 2023 – May 2028

Average: 93.5/100

- **Coursework:** Statistical Inference, Machine Learning and Data Mining, Causal Methods, Advanced Econometrics, Statistical Learning, Time Series and Forecasting, Computational Optimization
- **Awards:** Work Learn International Undergraduate Research Awards (2026), Economics Undergraduate Scholarship (2025), Faculty of Arts International Student Scholarship (2024, 2025)

EXPERIENCE

ESG Research Analyst Co-op

British Columbia Investment Management Corporation (BCI), Capital Markets & Credit Investments

Sep 2026 – Present

- Apply causal ML to study governance risk factors, including executive compensation, and financial performance for fundamental investment research. Develop ML models to predict M&A and other corporate events.
- Independently build reproducible Capital IQ and ISS ECA ETL in Databricks for proxy-voting research. Backtest coded strategies using simulated ballot-time information and analyze subsequent-risk correlations.
- Assess portfolio environmental exposure using Net Purpose data.

Research Assistant

UBC Sauder School of Business

Apr 2026 – Present

- Study technological innovation with PatentsBERTa patent and task embeddings, validated against Qwen 3 and manual reading. As sole RA for J. Frank Li and Cheng Chen, fit weighted FE OLS/GMM wage and sorting models, run large-scale estimation and bootstrap inference on HPC/Slurm, and draft the empirical section.
- Prepared financial alternative data from 3.2M+ ProQuest articles and video and audio metadata. Independently built reproducible ETL for RavenPack coverage checks, metadata-to-panel parsing, media archiving, deduplication, and subtitle validation (Allen Hu, May-Aug 2026).

Research Assistant

Vancouver School of Economics at UBC, Jonathan Graves and Laura Nelson

Jan 2025 – May 2026

- Developed and deployed notebooks and HTML courseware for economics and social science students, applying CV, NLI, and sentiment analysis to historical and economic research. Built image classifiers and human-validated zero-shot stance analysis, and designed and taught a CV workshop.

PUBLICATIONS & MANUSCRIPTS

Sequential Tone Residualization and Abnormal Returns in Earnings Calls

Joint first author, accepted at ICAIF 2026 and selected for oral presentation

2026

- Proposed the earnings-call application and co-designed context-adjusted tone measures for investment signal research. Built a time-aligned Capital IQ, IBES, and CRSP panel.
- Across 1,901 held-out 2025 calls, a one-SD answer-tone residual was associated with +61.5 bps in one-day market-adjusted return. Tone prediction had positive OOS R^2 , and joint pre-event placebo tests cleared.

Memory Response Paths and Path-Structured Context Compilation

Joint first author, submitted to AAAI and under review

2026

- Proposed response path estimation to measure a memory record's incremental contribution across four horizons beyond endpoint scores. Designed paired-availability tests across 180 environments and fixed-evidence context ablations, with model API workflows and statistical analysis.
- In a separate 144-item MemGym-DR evaluation, PSCC improved LLM-judged quality by 6.9 percentage points using 32.8% fewer API tokens than A-Mem, a prior SOTA conversational-memory framework.

TECHNICAL SKILLS

Programming and ETL: Python, R, SQL, PySpark, DuckDB, Polars, Databricks

Quantitative methods: panel econometrics, GMM, causal inference, time-series forecasting, machine learning

Text, image and multimodal: NLP, semantic embeddings, computer vision, multimodal ETL

Modeling and finance tools: PyTorch, scikit-learn, fixest, Bloomberg, BQL

Research workflows: Bash, HPC/Slurm, Git, agent-assisted coding with Codex and Claude Code