Curriculum Vitae

Personal Information

Jason Bohne, M.Sc.
Ph.D. Student
Stony Brook University
Department of Applied Mathematics and Statistics
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Birth date: 22 August 2000
Place of birth: Chicago, Illinois

Education

08/2021 – Present **Ph.D., Applied Mathematics and Statistics**
Stony Brook University, New York, USA

Advisor: Pawel Polak, pawel.polak@stonybrook.edu
Interests: Statistical Learning, Nonparametric Regression, Optimization
Activities: High-Frequency Research Group, SIAM

08/2021 – 12/2022 **M.Sc., Applied Mathematics and Statistics**
Stony Brook University, New York, USA

Relevant Coursework:
Probability, Statistical Methods, Stochastic Processes, Optimization

08/2018 – 05/2021 **B.Sc., Mathematics**
University of Illinois at Chicago, Illinois, USA

Undergraduate Project: An Analysis of Derivative Pricing Methods
Advisor: Jie Yang, jyang06@uic.edu

Relevant Coursework:
Linear Algebra, Numerical Analysis, Differential Equations, Complex Analysis

Professional Experience

05/2023 – 08/2023 **Bloomberg Technology**
Position: CTO Office Intern
Applied statistical models for trend estimation and regime detection

12/2021 – 08/2022 **Proprietary Trading Firm**
Position: Quantitative Researcher
Developed learning pipelines for data processing and feature generation
Constructed derivatives pricing and risk management engine for inventory risk.
Modeled short-term trend and volatility to determine quoting policies.

07/2020 – 07/2021 **Alpaca Securities**
Position: Content Research
Supervisor: Yoshi Yokokawa, yoshi@alpaca.markets
Created API tutorials on algorithmic trading and market data.
Hosted community events that attracted over 250 attendees.

Academic Experience

08/2022 – 05/2023 **Department of Applied Mathematics and Statistics**
Supervisor: Robert Frey, robert.frey@stonybrook.edu
Teaching Assistant for Foundations of Quantitative Finance
Teaching Assistant for Portfolio Optimization
Hosted weekly office hours, lectures, and homework assignments

Research Experience

06/2022– Present **Adaptive Trend Filtering and Regime Detection**
Advisor: Pawel Polak, pawel.polak@stonybrook.edu
Extended nonparametric trend filtering for adaptive estimation with covariates.
Performed simulations on filtering high-frequency trade data from local clustering.
Designed a model selection algorithm for interpretable regime detection.

06/2022 – Present **Modelling the Market Microstructure**
Advisor: Pawel Polak, pawel.polak@stonybrook.edu
Developed the infrastructure for a high-frequency trade and quote database.
Implemented automatic machine learning pipelines for feature generation.
Constructed SVMs and HMMs specifically for short-term trend estimation.

08/2020 – 05/2021 **An Analysis of Derivative Pricing Methods**
Advisor: Jie Yang, jyang06@uic.edu

Investigated analytical and numerical methods relevant to option pricing.
Designed pricing scripts in python to determine the fair value.
Performed aalysis of variance tests to determine differences in outcomes.

05/2020 – 08/2020 **Polymath REU on Probabilistic Combinatorics**
Advisor: Pat Devlin, patrick.devlin@yale.edu
Computed the hat guessing number for distinct classes of cyclic graphs.
Explored the hat guessing number against the chromatic number.
Provided bounds on the hat guessing number for complete graphs.

Competitions

09/2021 **Traders at MIT**
Statistical arbitrage strategy on an equity index using a VAR model.

05/2021 **Berkeley Trading Competition**
Forecasted midprice and spread of assets using order flow imbalance.

02/2021 **COMAP's Mathematical Contest in Modeling**
Graph neural network between musicians and the similarity of their songs.

Community Services

10/2022 – Present **Society of Industrial and Applied Mathematicians**
Board Member of Student Chapter

08/2018 – 05/2021 **Quantitative Trading Club**
President and Co-founder of UIC's first quantitative finance group.
Bloomberg Challenge, CME Challenge, and UBS Hackathon.
Seminars on derivative pricing and statistical estimation of market factors.

Conferences

2023 Princeton Fintech and Quant Conference

2022 Bloomberg Machine Learning Conference at Columbia

2021 University Illinois at Chicago Honors College Conference

Honors, Awards & Scholarships

2020	Victor Twersky Scholarship
2020	Yeuk-Lam Yau-Leung Memorial Scholarship

Skills

Programming Languages: Python, R, Bash

Technical Libraries: Scikit-Learn, SciPy, NumPy, Dask, PyTorch, Keras

Developer Tools: Git, Docker, Kubernetes, MLflow, SQL, Django, REST APIs

March 12, 2023