

Jonathan Chow

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Employment and Research Experience

TD Securities | Automated Strategies Intern Associate **Toronto, Ontario | 2018**

- Analyzed ETF market making order lifecycle: theoretical profit/loss against ETF fair value, netting of holdings, hedging strategy, amendment efficiency, and potential impacts on latency
- Designed novel strategies (idea generation, backtesting, written proposal and presentation, production-ready software implementation, and statistical analysis of performance) for ETF market making and automated strategies groups
- Developed ETF hedging strategy with Python and SQL which was projected to annually return approximately \$1,300,000 more than previous method
- Constructed and improved automated processes for traders and daily start up of ETF quoting system

CPP Investment Board | Portfolio Construction Intern **Toronto, Ontario | 2017**

- Developed and analyzed one-step portfolio optimization model with MATLAB and VBA to reduce investment program assumptions
- Performed statistical analysis to determine optimal granularity of alpha inputs to asset allocation model
- Expanded current portfolio optimization framework to server-side application for interdepartmental use

School of Accounting and Finance | Research Assistant **Waterloo, Ontario | 2016**

- Developed software to classify and perform textual analysis of bond issue prospectuses
- Implemented algorithms to aggregate and structure prospectuses

Hong Kong Asset Management | Foreign Exchange Intern **Wan Chai, Hong Kong | 2016**

- Investigated impact of the British referendum to exit the European Union on foreign exchange rates
- Analyzed gains and losses on trades directly following the referendum to find opportunities for profit

Research Science Institute | Researcher **Cambridge, Massachusetts | 2015**

- One of 84 students worldwide accepted for a research mentorship at the Massachusetts Institute of Technology
- Applied time-series random forest classification to company sentiment and fundamental data to evaluate their effect on stock price changes

Extracurricular Learning

Quantitative Sports Betting **2018 - Current**

- Initiated and led student group that managed algorithmic sports betting pool
- Students contributed buy-in to the fund, permitting them to propose and vote on strategies
- Members presented backtesting (including expected returns, notional requirements, data sources, and code) to be voted on, with successful strategies run using the pool's capital
- Developed and pitched support vector machine classifier to predict outcome of NHL games after regulation time
- Model achieved 53% precision and 59% annualized expected return in backtest over four seasons of regular and playoff games

Algorithmic Trading: Behavioural Strategies **2016 - 2018**

- Traded Canadian equities using news sentiment as a proxy for herding and overconfidence behavioural biases
- Implemented multinomial naive Bayes classifier to generate sentiment scores and random forest classifier for price change predictions

Charitable Wishlist **2014 - 2017**

- Developed website (www.charitablewishlist.com) to connect volunteers and donors with charitable organizations
- Invited to present at OCE Discovery conference (www.charitablewishlist.com/video/presentation.mp4)

"Ctrl-F" Object Identification **2016**

- At Hack Harvard, used Mathematica and Java to develop "Ctrl-F" for physical objects
- Provided with an image, the program locates and highlights objects the user searched for

Distinctions

Mayor's City Builder Award **2016**

- Youngest recipient of award recognizing outstanding and innovative community contributions
- Featured on Canadian news (www.cbc.ca/news/canada/ottawa/our-ottawa-jonathan-chow-1.3372757)

University of Waterloo President's Scholarship of Distinction **2016**

Queen's University Chancellor's Scholarship (\$36000, Declined) **2016**

Education

University of Waterloo **Waterloo, Ontario | 2016 - Present**

Mathematical Finance and Computer Science

Activities and Interests

Adaptive Markets Hypothesis, Bookmaking, Unicycling, Rock Climbing (Bouldering, Top Rope, Lead), Hiking