
SUMMARY

Experience applying machine learning and natural language processing algorithms to large datasets to develop innovative products and predictive analytics, combined with doctoral training in statistics, economics, finance, and computer science

EDUCATION

Stanford University – Graduate School of Business / Stanford, CA

Ph.D., Accounting (Financial Disclosure), 2010 – 2015

Dissertation: *Statistical Models of Language in Financial Disclosure*

Languages and Frameworks: Python, R, SAS, SQL, Matlab, Java, Scala, Hadoop, Spark, UNIX

Selected Courses: Machine Learning, Mining Massive Datasets, Empirical Finance, Econometrics, Social Networks Service:

- Volunteer data science consultant at Data Science Drop-in
- Elected representative of Graduate School of Business (GSB) to Graduate Student Council (GSC)

University of Waterloo – Faculty of Mathematics / Waterloo, ON

M.Math., Computational Mathematics, 2009 – 2010

B.Math., Honors Actuarial Science with Finance Option and Statistics Minor, 2002 – 2007

- Graduated with distinction on Dean's Honors List (GPA: 4.17)
- Self-financed education via scholarships for outstanding performance in mathematics competitions

EXPERIENCE

Fellow at Insight Data Science / New York, NY / 2015

Pro bono project for **Localitytics**, a mobile analytics startup – *Identifying Events Across Mobile Apps*

- Developed vector representation of events in mobile apps using NLP and word2vec neural network embedding
- Clustered semantically similar events across different mobile apps using k-means clustering and t-SNE
- Skills applied: Python, SQL | NumPy, SciPy, Matplotlib, NLTK, Gensim, Scikit-learn

Graduate Researcher at Stanford University / Stanford, CA / 2010 – 2015

Causal Attribution in Disclosure: Does Self-Serving Attribution Indicate Poor Future Performance?

- Analyzed earnings conference calls in Python using NLP and hierarchical topic models similar to LDA
- Discovered pattern of self-serving attribution (taking credit for good outcomes and shifting blame for bad outcomes)
- Found negative relation between self-serving attribution and firms' future earnings and cash flow performance

Pricing and Performance of Peer-to-Peer Loans: Does Narrative Disclosure Matter?

- Studied language in loan listings of online lending platform using NLP and machine learning algorithms
- Identified language predictive of loan performance incremental to quantitative financial data
- Used Pandas, dplyr, ggplot2, time series models, survival analysis, and regression analysis

Predicting Patent Litigation Risk Using Accounting Information and Patent Characteristics

- Developed proportional hazard model for patent litigation risk using dataset of patent lawsuits over a decade
- Identified characteristics of patents predictive of future litigation risk from non-practicing entities (NPEs)
- Used USPTO database, Compustat, CRSP, I/B/E/S, Pandas, dplyr, ggplot2, time series models, hazard models

Consultant at Oliver Wyman (Financial Services) / New York, Toronto, and Mexico City / 2007 – 2009

- Led consulting team in modeling profitability for 25 variable annuity products from 15 insurers, recommended product design and pricing changes to reduce risk and maintain profitability under adverse market conditions
- Designed process to measure performance improvement in sales by channel and product line, leading to transparent and accurate communication of benefits from new incentive program for global retail bank
- Developed asset-liability management (ALM) system and performance indicators for Fortune 500 insurer to hedge complex financial risks on insurance and annuity product portfolios

Internships

Constructed supervised and unsupervised machine learning models for pricing new financial products, performed survival analysis on pension data to reduce funding costs, developed credit scoring models for corporate bonds

- Quantitative Analyst, TD Asset Management, May – Aug 2006
 - Actuarial Analyst, Towers Watson (Tillinghast), Jan – Apr 2006
 - Actuarial Analyst, Morneau Shepell, May – Aug 2005
 - Financial Analyst, Illumina Partners, Sep – Dec 2004
 - Forensic Accounting Analyst, Kroll, Jan – Apr 2004
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