Eric (Binqian) Zeng

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Introduction

One-year working experience as a Data Scientist; Master's level education background in Machine Learning and Financial Mathematics. Python & C/C++ programmer. Skilled in quantitative/machine learning modeling. Familiar with database, big data analysis, and cloud computing. Experienced in collaborating with the trading desk and the research team. Seeking full-time opportunities in the cross of technology and finance.

Work Experience

- **Swiss Reinsurance Company Ltd. (Swiss Re)** — **Armonk, NY**
  Analytics Specialist/Data Scientist — *Jan 2019–Present*
  - **Catastrophe Loss Impact Estimation using Machine Learning Models**
    - Estimate the loss of catastrophes(wild fire, flood, etc.) using satellite images, coverage policies, and geographic data from various resources(Geographic Zonal Statistic, Random Forest Regression, Neural Network, Python, TensorFlow, ArcGIS)
  - **Insurance Policies Dataset Management & Cluster Configuration**
    - Aggregated metadata description for big datasets(billions of records); ETL for data mining(SQL); Backtested hypothesis and correlation(SparkML); Clustering(SparkML); Configured the cloud computing clusters(Linux)
  - **Home Renters Insurance Go-to-market Analysis**
    - Identified home rental insurance market opportunities in New York State using self-designed opportunity scoring metrics(Significance Test, Linear Regression); Visualized in an interactive dashboard (Python, JavaScript)

- **King Street Capital Management, L.P.** — **New York, NY**
  Data Science Intern (full-time) — *Jul 2018–Dec 2018*
  - **Companies KPI Forecasting Model**
    - Forecasted KPIs of companies using an ensemble model; All base and top learners are SVMs with different constraints
    - Handled collinearity in meta-features by matrix factorization; Reduced overfitting by ridge regularization and noise injection(SQL, Python, Scikit-learn)
  - **Analyzing Alpha in Corporate Filings**
    - Categorized companies with high and low information ratio based on corporate fillings using RNN and attention mechanism
    - Generated sentence representation with word-embedding that is optimized by financial news
    - Involved statistical features by capturing textual changes over time(Python, NLTK, TensorFlow)

- **Crypto Investments** — **New York, NY**
  Machine Learning Engineer Intern — *Sep 2017–Dec 2017*
  - **Event-Driven Forecasting Model for Price of Cryptocurrencies**
    - Web-scrapped cryptocurrencies news and trade data by API; Data management for scrapped data(Python, MongoDB)
    - News sentiment analysis by Word2Vec; Event embedding by Open IE; Captured effects of different time spans by CNN

Technical Skills & Certificates

- **Programming & Scripting Language:** Python, C/C++, Java, Scala, R, Matlab
- **Toolkits, Softwares & Operating Systems:** MySQL, Spark, Hadoop, AWS, Tensorflow, Pytorch, Keras, NLTK, Scikit-learn, Numpy, Pandas, Github, Linux/Unix

Education

- **New York University, Courant Institute of Mathematical Sciences** — **New York, NY**
  Mathematics in Finance; part-time graduate program on-going — *Jan 2019 – Present*
  Courseworks: Derivative Securities, Operating System(C/C++), Risk and Portfolio Management with Econometrics, Financial Modeling
- **New York University, Courant Institute of Mathematical Sciences** — **New York, NY**
  M.S Data Science; GPA: 3.3/4.0; — *Sep 2016 – May 2018*
  Courseworks: Machine Learning, Natural Language Processing(Kyunghyun Cho), Deep Learning(Yann LeCun), Statistical and Mathematical Methods, Big Data(Hadoop MapReduce, Spark), Data Science in Quantitative Finance, Advance Python Programming
- **Sun Yat-sen University, School of Engineering** — **Guangzhou, China**
  B.E Engineering Mechanics (Fluid Dynamics Focus); GPA: 3.7/4.0 — *Sep 2012 – Jun 2016*
  Honor: Annual scholarship (three years)
  Courseworks: Numerical Methods, Finite element analysis, Ordinary Differential Equations, Fluid Dynamics, Linear Algebra

Portfolio

- **Operating System Components**
  Keywords: *C/C++, Operating System, Object-oriented Programming*
  - Linker; Process Scheduler(discrete event simulation model); Virtual Memory Management Unit; I/O Scheduler
- **Text Summarization Neural Network for News**
  Keywords: *Python, Pytorch, Bidirectional-LSTM, Attention Mechanism, Pointer Network, Semantic Relevance*
  - A hybrid of extractive and abstractive approaches text summarization model trained on CNN/Daily Mail news
  - Bi-LSTM encoder with attention mechanism; Pointer Network improves the accuracy of words generation and the ability of handling out-of-vocabulary words; Semantic relevance encouraged loss function
- **Commodity Trading Position Forecasting Model**
  Keywords: *Python, Alpha Strategy, Matrix Factorization, Regularization, Linear Regression*
  - Created a regression model that forecasts the optimal trading positions for oil, sugar, copper, gold, and natural gas futures
  - Estimated covariance models; Explained the variance of asset classes by top alpha factors; Signal filtering down by SVD