

Eric (Binqian) Zeng

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Education 🌐 <https://www.linkedin.com/in/binqian-zeng-257903126/> • <https://github.com/bz866>

- **New York University, Courant Institute of Mathematical Sciences** **New York, NY**
Mathematics in Finance; part-time graduate program on-going
Courseworks: Derivative Securities, Operating System(C/C++), Risk and Portfolio Management with Econometrics, Computing in Finance
New York University, Courant Institute of Mathematical Sciences **New York, NY**
◦ *M.S Data Science; GPA: 3.3/4.0;*
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
Sun Yat-sen University, School of Engineering **Guangzhou, China**
◦ *B.E Theoretical and Applied Mechanics (Fluid Dynamics Focus); GPA: 3.7/4.0*
Honor: Third-class scholarship (three times)
Courseworks: Numerical Methods, Finite element analysis, Ordinary Differential Equations, Fluid Dynamics

Technical Skills & Certificates

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

Work Experience

- **Swiss Reinsurance Company Ltd. (Swiss Re)** **Armonk, NY**
Analytics Specialist/Data Scientist
* **Catastrophe Loss Impact Estimation**
- Estimated liabilities of incoming claims after a catastrophe using satellite images, coverage policies, and building footprints geographic data (geographic zonal statistic analysis, CNN, random forest regression)
* **Home Renters Insurance Go-to-market Analysis**
- Identified rental insurance market opportunities in New York state using self-designed opportunity scoring metrics(significant test, linear regression)
* **Insurance Policies Dataset Management**
- Aggregated metadata description for big datasets(billions of records); ETL for data preparation(SQL); backtested hypothesis and correlation(SparkML); clustering(SparkML)
◦ **King Street Capital Management, L.P.** **New York, NY**
Data Science Intern (full-time)
* **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
* **Analyzing Alpha in Corporate Filings**
- Categorized companies with high and low information ratio based on corporate filings 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
◦ **Crypto Investments** **New York, NY**
Machine Learning Engineer Intern
* **Event-Driven Forecasting Model for Price of Cryptocurrencies**
- Web-scraped cryptocurrencies news and trade data by API and Beautiful Soup in Python; data management with MongoDB
- News sentiment analysis by Word2Vec; Event embedding by Open IE; captured effects of different time spans by CNN

Portfolio

- **Operating System Components**
* **Keywords:** C/C++ Programming, Operating System
- Linker; Scheduler(discrete event simulation model); Virtual Memory Management; I/O Schedulers
◦ **Enhanced Seq2Seq Model for News Text Summarization (Capstone Project in NYU)**
* **Keywords:** Pytorch, Bidirectional-LSTM, Attention Mechanism, Pointer Network, Semantic Relevance
- The Seq2seq text summarization model is a hybrid of extractive and abstractive approaches 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
- Involved cosine similarity term between encoded source representation and generated summarization representation into the negative log-likelihood loss function to encourage semantic relevance
◦ **Commodity Trading Position Forecasting Model**
* **Keywords:** Commodity Trading Advisors, Matrix Factorization, Regularization, Linear Regression
- Created regression models that forecast the optimal trading positions for oil, sugar, copper, gold, and natural gas futures
- Estimated covariance models over rolling windows for asset classes; Explained the variance asset class by top alpha factors
- Applied SVD on alpha factors to filter down signals; Reduced overfitting by elastic net regularization in linear regression