**Mo Pei**

27 Saint Lukes Road, Apt 12, Allston, MA 02134, +1(617) 888-1517, [fasmp11@gmail.com](mailto:fasmp11@gmail.com)

**EXPERIENCE**

**Homesite Insurance** Boston, MA

***Rating Analyst*** (2/2014-present)

Develop SAS insurance policy premium calculation engine. Validated policies’ premium from 48 states in the U.S., which is critical to the company’s underwriting results and product quality.

* Use SQL and SAS to develop programs to extract and map the customers’ data from business platform and automatically calculate insurance premium of homeowner, renters, and condominium.
* Analyze and implement over 300 rating functions and 2000 factors about house market values, construction type, location, earthquake, weather, claim, personal property, personal liability, medical payments, and so on.
* Build statistical models (Python) to research insurance conversion rate for marketing and underwriting analysis.
* Write Python programs to extract, map, validate testing data. It automatically generates testing result report.

**BNY ConvergEx Group** Boston, MA

***Algorithmic Trading Analyst/Developer Intern*** (6/2013-2/2014)

Develop a trading engine written in SQL to analyze trading data. Guarantee millions shares trade correctly.

* Build SQL trading engine to analyze the trading strategy inculding: time, type, size, and price.
* Test the performance of the trading algorithms inducing TWAP, VWAP, POV, Dark-pool, MOO, and MOC.

**EDUCATION**

**Harvard University** Cambridge, MA

*Extension School, Graduate Certificate in Data Science & Machine Learning* GPA: 3.73/4.0 (9/2014-12/2016)

**Boston University** Boston, MA

*M.S. Actuarial Science*  GPA: 3.15/4.0 (9/2011-2/2013)

**Northeastern University** Boston, MA

*B.S. Organizational Leadership* - Summa cum Laude GPA: 3.76/4.0 (9/2009-5/2011)

**PROJECTS&COURSE WORK**

**Direct Mail Campaign for a High-End Clothing Chain Store (Python)** (CS109 Class, Harvard University )

Use machine learning models to increase return rate by 132%, and make a profit of $300,000 with a budget of $129,000.

Project Link: <https://sites.google.com/site/datasciencedmm109/home>

* Research 23000 customers’ information. Design utility and profit matrix.
* Feature engineering of deriving new variables. Use K means to analyze customers’ clusters.
* Apply machine learning models: Logistic Regression (L1, L2), Random Forest, KNN, SVM (Linear), SVM (Rbf).
* Compare model performance by checking ROC curve and Profit curve. Feature Selection and Data Balancing.
* Present the project to a teaching fellow assumed who does not have deep tach background.

**Recommender System for user rating of restaurants (Python)** (CS109 Class, Harvard University)

Set up Recommender System models (explicit) to achieve rating prediction RMSE of 0.88 with 1-5 rating scale.

* Import 1.17 million users’ data. Analyzed rating by user and restaurants. Calculated common support of restaurants.
* Use user and item bias to build baseline model and Ridge Regression model. Test model performance by using rmse.
* Apply supports matrix, KNN, shrunk regularized Pearson similarity to build a local user-based CF recommender.
* Build Latent factors models. Apply Alternating least square and Ridge regression to find optimized the number of latent factors, alpha (Ridge regression), dimension reduction, converged user rating matrix and item rating matrix.
* Take stacked regression ensemble model of KNN regularized, baseline ridge regression, and latent factors models.

**Text Analysis of Amazon Food Reviews (Python**) (CS109 Class, Harvard University)

Use machine learning models to analyze reviews’ text.

* Apply tf-idf matrix and use Ridge Logistic Regression to predict positivity of reivews.
* Take Latent Dirichlet Allocation (LDA) cluster model to research five topics among reviews.

**QUALIFICATION EXAMS**

* Society of Actuaries Exam Probability Society of Actuaries Exam Financial Mathematics
* Society of Actuaries VEE credit Corporate Finance

**SKILLS**

* Programming skills: Python, SAS, SQL, and R. Languages: English (Fluent), Mandarin Chinese(Native)

**AWARDS & ACTIVITIES**

* Dean’s list for five semesters (2009-2011) & Double Husky Scholarship (4/2011)
* Member of Harvard Extension School Alumni Association (Since 7/2017)