Xiling ZOU

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EDUCATION

Master of Science in Engineering, Data Science May 2023
University of Pennsylvania Philadelphia, PA
Bachelor of Science, Mathematics and Applied Mathematics June 2021
Southeast University GPA: 3.96 Nanjing, China
Exchange - Berkeley International Study Program Aug – Dec 2019
University of California, Berkeley GPA: 4.0 Berkeley, CA

SKILLS

Programming Tools: Java, MATLAB, R, Python, SQL (Python and Spark), AWS
Machine learning, time series analysis, statistical analysis, A/B testing

PROFESSIONAL EXPERIENCE

Data Analyst Intern Jun 2020 - Sept 2020
Research Department, CITIC Securities Co., Ltd Beijing, China

- Researched in Environmental, Social and Governance (ESG) investing with conclusions on the existing challenge and demand of ESG investing in A-share market in China as part of the final report of our product
- Built a novel rating system: crawled and parsed social media reviews, built a job satisfaction indicator with **NLTK**
- Tested the system by computing rating scores and analyzed correlation between scores and stock returns in Python
- Aggregated and processed data in real estate and pharmaceutical industries with **NumPy** and **Pandas** in Python

RESEARCH EXPERIENCE & PROJECTS

Project of CIS 545 Big Data Analytics: LendingClub's Default Status and Interest Rate Prediction
University of Pennsylvania Nov 2021 – Dec 2021

- Explorative analysis: plotted bar charts, pie charts in **matplotlib** and histograms in **seaborn** to display the feature distributions among historical borrowers; used **geopandas** to compare the loan volume and average annual income grouped by different states in a geographic map of the U.S.
- Model training and prediction: Reduced and transformed the original 16 features into 14 new features by applying **PCA** and examining the **cumulative explained variance** plot, which increased the accuracy by 10% compared to directly training **logistic regression** on the default status classification
- Story-telling: developed interpretations of EDA and model prediction results based on a global view of the economic situation and the stage of peer-to-peer lending growth at the time

Thesis Project: Research on Stein variational methods
Southeast University Sept 2020 – Jun 2021

- Propose a **kernel approximation** scheme for forward model evaluations, which reduced the computation cost to only **4%** of the original gradient-free Stein variational gradient descent (GF-SVGD) framework
- publication: L. Yan and X. Zou, Gradient-free Stein variational gradient descent with kernel approximation, *Applied Mathematics Letters* (2021).

Project of STAT 153 Time Series: A lake depth series analysis and forecasting
University of California, Berkeley Nov 2019 – Dec 2019

- Exploratory analysis: decomposed data as sinusoids of different frequencies based on the observed seasonality.
- Model selection: **plot analysis** and **cross-validation test** comparisons for different **SARIMA** models in **R**

Research and Application of SVGD and SVN methods Research Team leader
Southeast University Dec 2018 - Aug 2020

- Improved the performance of original SVGD by 10% in our divergence by choosing a different **kernel function** and adding randomness to bandwidths
- Adapted the SVGD and SVN algorithms to 1D and 2D PDE parameter estimation problems using **MATLAB**
- Selected as the "National Undergraduate Innovation and Entrepreneurship Training Program" (**Top 10%**)