

TIANYI XIE

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EDUCATION

University of Michigan, Stats Department

Master's in data science, GPA 3.8/4.0

- Core Course: Deep Learning, Stats in Finance, Parallel Computing, Web Systems, Computational Data Science

Ann Arbor, MI

Sep 2018 – Dec 2019

University of Michigan, LSA

B.S. in Quantitative Finance & Data Science, GPA 3.6/4.0

- Computer Science: Machine Learning, NLP, Database Management Systems, Data Structure in C++
- Math & Stats: Probability, Stochastic Process, Time Series, Regression Analysis, Bayesian Data Analysis

Ann Arbor, MI

Jan 2016 – May 2018

Michigan State University

Accounting Declaration, GPA 3.8/4.0

- Core Course: Financial Accounting, Managerial Accounting, Economics, Excel, Differential Equation

East Lansing, MI

Sep 2014 – Dec 2015

EXPERIENCE

Citi

Risk Model Quantitative Analyst/Developer

Coppell, TX

July 2020 - Present

- Develop four different phases in **GSST(Global Stress Scenario Testing)** model, including confidence level probability calibration, asset value correlation calibration, loss generation, flooring and smoothing method.
- Automate the **GSST** model in OOP program to speed up the process and make it easier to maintain.
- Enhance the **IDL(Incremental Default Loss)** model in Python to output more granular IDL loss on different time horizons, toggle on and off multiple default simulations across replenishment, and thus reduce the risk capital.
- Enhance the **IDL** model and parallelize the computation to speed up the program.
- Expand the features of the **DSFT (Derivative and Securities Based Financing Transaction)** model in Python, including special netting logic treatment for **TRS(Total Return Swap)** product, haircut algorithm, margin algorithm.
- Implement the data quality validation module in the **DSFT** model in Python, including checking data of regular transaction information, security volatility, stress mark to market, currency and margin information.
- Test new gaussian copula correlation model by comparing intermediate stress probability of default with new and old correlation model.

MPOG - UM Health System

Research Analyst

Ann Arbor, MI

May 2019 - Dec 2019

- Built a patient recommendation system in Python by constructing dynamic cosine similarity matrix among over millions of data which finds out potential patients on waitlist to fill in the appointment slot.
- Extracted patient information from a huge database by SQL join query, used regular expression to pick out keywords in Python, generated a one-hot encoding feature matrix and performed PCA to reduce dimensionality.
- Deployed visualized plot on Bokeh server.

Engineering College - Parallel Computing

Graduate Student Instructor

Ann Arbor, MI

Sep 2019 - Dec 2019

- Providing instruction section on parallel computing tools such as MPI, OpenMP, CUDA.

PROJECTS

Smart Meeting Record System

Feb 2019 – May 2019

- Developed meeting record system which can automatically identify the speakers in the meeting in Python, designed pairwise and triplet loss as objective function, applied SVD to speed up loss calculation and backward propagation..
- Applied ICA to take out noise, chunk audio data, training embedding matrix in BiLSTM deep neural network and calculation triplet loss by applying ResNets, applied t-SNE to visualize model clustering performance in Python.

User-Based Collaborative Filtering in CUDA

Oct 2018 – Dec 2018

- Developed a user-based parallel computing recommendation system on GPU in C, used shared memory to speedup program in CUDA, experimental results demonstrate up to 150x speedup than regular program.

Hate Speech Detection

Oct 2017 – Dec 2017

- Built and Compared a Hate Speech Classifier by applying SVM, random forest, Naïve Bayes, deep neural network algorithms in Python which helps us classify potential platform-violating speakers on Twitter and blocks their posts.

SKILLS & CERTIFICATIONS

Programming Languages: Python, C++, SQL, R, HTML, CSS, Excel

Packages & Tools: PyTorch, PySpark, CUDA, Scikit-learn, Pandas, NumPy, Linux, Git workflow

Certification: CFA charter holder/FRM certification

Languages: English, Mandarin