

# Xiaoyu Liu

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## EDUCATION

### University of Wisconsin Madison

*Master of Science in Data Science (GPA: 3.81/4.00)*

Madison, WI

Sep 2020 - Jan 2022

### Hunan University

*Bachelor of Science in Statistics*

Changsha, China

Sep 2016 - Jun 2020

## INTERNSHIP EXPERIENCE

### Data Mining Intern

Jun 2020 – Aug. 2020

*Saint Gobain*

*Shanghai, China*

- Construct ETL process.
- Extract manufacturing data through mining and clawing methods from test reports in Python. Complement data wrangling and transform to structured data.
- Develop pipeline to integrate newly collected data with history data and store in Oracle automatically.

### Data Analysis Intern

Dec. 2019 – May 2020

*Lufax*

*Shanghai, China*

- Develop function of abnormal detecting method based on time series data, to find out the reason of change.
- Implement retention analysis function and funnel analysis function with Python.
- Develop function of extracting data from database using SQL.
- Participate in designing website for data warehouse managing.

## COMPETITIONS AND RELATED PERSONAL PROJECTS

### Streaming Data Analysis Dashboard Development | *Spark+Kafka+Airflow+AWS*

Mar. 2021 –

- Set up Kafka topic and feed raw twitter JSON data into Kafka cluster from Twitter API.
- Preprocess data from Kafka using Spark SQLtext. Store data with AWS S3.
- Apply sentiment analysis and topic analysis to streaming data with user defined function and LDA in Spark.
- Deploy above analysis tasks with Airflow.
- Develop dashboard showing EDA of hashtags with Python dash.

### Test Answer Prediction(Kaggle top 18%) | *Python*

Dec. 2020 – Jan. 2021

- <https://www.kaggle.com/xiaoyuli123123/lightgbm-sakt>
- Preprocess the historic performance of over 100 million students in Riiid lab and the metadata about the questions and the lectures. Create features on user-level and content-level.
- Transform and group tags using truncated SVD.
- Predict the probability of answering correctly using LightGBM.
- Predict the accuracy of answer in Self-Attentive-Knowledge-Tracing model.
- Embed the prediction using bagging method. Reach accuracy of 0.785.

### Jane Street Market Prediction(Kaggle Silver Medal) | *Python*

Jan. 2021 –

- <https://www.kaggle.com/xiaoyuli123123/xgboost-mlp-for-beginners>
- Analyze real stock market data larger than 5GB with billions samples. Create features on user-level and content-level.
- Carry out exploratory analysis and preprocess numerical values with feature scaling.
- Tune hyperparameters of max-depth and learning-rate in XGBoost and train data with cross validation to avoid overfitting.
- Build Autoencoder and Multilayer Perceptron. Embed the prediction from XGBoost and MLP. Reach accuracy of 0.702.

### Natural Language Processing with Twitter Data | *Python+R*

Nov. 2020 – Dec. 2020

- <https://github.com/XiaoyuLiu198/NLP>
- Data set include 50000 twitter comments. Applied tokenization and deleted stopwords.
- Build MLP model with word2vec embedding layer, dense layer with activation function and dropout layer to classify the comment into positive or negative group.
- Develop analysis dashboard with Rshiny, including visualization with bar plot and topic analysis with LDA.
- Test the result using classification metrics. Accuracy of classification is 0.802

## TECHNICAL SKILLS

**Languages:** Python, SQL, Scala, Java

**Software and System:** R, SAS, Tableau, Linux, Spark

**Libraries:** matplotlib, ggplot, sklearn, tensorflow, pytorch, keras, dplyr, tidyverse, pandas, numpy