Meng Lu (*Ivan*)

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EDUCATION

University of Lancaster *Lancaster, UK*
Master of Science in ***Quantitative Finance*** | GPA: **3.0** / 4.0 10/2017 – 09/2019

Northwestern University *Evanston, IL, USA*
Master of Science in ***Computer Science*** | GPA: **3.7** / 4.0 09/2013 – 03/2015

Hefei University of Technology *Hefei, China*
Bachelor of Engineering in ***Automation*** | GPA: **3.1** / 4.0 09/2009 – 06/2013

RESEARCH INTERESTS

Machine Learning, Data Mining, Natural Language Processing

RESEARCH EXPERIENCE

Institute of Automation, Chinese Academy of Sciences *Beijing, China*
Research Internship, Full-Time 01/2021 – Present

- **Natural Language Processing:**
  - ❖ Propose the novel adversarial attack method FastAttacker, study and design the details of the algorithm.
  - ❖ Pre-train BERT model with FEVER datasets
  - ❖ Attack BERT model and SOTA Adversarial Attack model—KernelGAT with our framework using FEVER test datasets.
  - ❖ Attack target BERT and KernelGAT model compared with two other baselines—TextFooler and BERT-Attack.
  - ❖ Build models and create adversarial text attacks
  - ❖ Doing experiments on algorithms
  - ❖ Drafted and edited academic paper content
- **Recommender system:**
  - ❖ Employ task-oriented optimization procedure and generate personalized bridge function with meta-network. Experiment with a novel framework named Personalized Transfer of User Preferences for Cross-domain Recommendation transfer user preference from an auxiliary domain to a target domain.
  - ❖ Study and capture users' dynamic interest utilizing Deep reinforcement learning and experiment on novel state-aware experiment replay mode, which recommends the agent with the optimal policy for the online recommendation. Employ locality-sensitive hashing to map high-dimensional data into low-dimensional representations and a prioritized reward-driven strategy to replay more valuable experiences at a higher chance.
  - ❖ Improved the recommendation algorithm of seq2seq, adding autoattent on the original basis, which allows the algorithm to automatically modify the parameters of the attention mechanism
  - ❖ Processed collected data, found baseline through literature review, and improved accuracy by comparing proposed algorithm with the same dataset
  - ❖ Drafted and edited academic paper content
- **Cooperate with other research groups:**
  - ❖ ***Pennsylvania State University***
    - o Prepared data in support of developing an innovative compaction monitoring method
    - o Employed machine learning model to predict the compaction condition of Superpave gyratory compactor *(*SGC) specimens
    - o Improved fine-grained algorithms to achieve better classification outcomes of newly added datasets
    - o Predicted the outcome label of which material to use under various circumstances
  - ❖ ***Icahn School of Medicine at Mount Sinai***
    - o Contributed to building an automated radiomics analysis system by combining thyroid segmentation via U-Net and radiomics feature extraction
    - o Gathered ultrasound image data from large-scale hospitals; used computer vision work on images to transfer them to 2-D arrays; built and trained CNN models with input of 2-D arrays
    - o Tested the model and conducted deep learning classification to predict malignancy of thyroid nodule

Empirical Asset Pricing and Risk Analysis with Machine Learning 11/2018 - 09/2019
Thesis Project, University of Lancaster MS in Quantitative Finance

- Used unsupervised learning techniques to train a model for cross-section returns analysis, and adopted ***Latent Dirichlet Allocation*** model to verify the correctness of the trained model
- Trained models with supervised learning algorithms – ***Decision Trees***, ***SVM***, and ***Neural Networks*** -- to predict empirical cross-section asset pricing and returns, and provide support for stock selection and investment
- Applied ***Natural Language Processing*** to extract important risk factors from companies' MD&A disclosures and trained supervised learning model (generalized linear model) to quantify them
- Constructed 3-factor and 5-factor Fama-French models that help to explain average returns on stocks

Wine Classification with Neural Networks and SVM Algorithms 01/2015 - 03/2015
Graduation Project, Northwestern University MS in Computer Science

- Trained ***Neural Networks*** and ***SVM*** models, 2 supervised learning ML algorithms, that can identify the classification of wine from its chemical compositions with accuracy of 96.63% and 98.88% respectively

Solar Energy Photovoltaic Concentrator Tracker 06/2010 - 03/2013
Served as the lead research analyst in the National Innovative Experiment Project for National College Students under the direction of Prof. Jianping Wang; received 20,000 RMB in project funding.

- Devised a simple and efficient sun tracking mechanism using programmable logic controller GE Fanuc PLC
- Designed 2 different types of sun tracking mechanisms: single axis and dual axis tracking

PUBLICATION

Automated Disentangled Sequential Recommendation (IEEE-COMPUTER SOCIETY) 09/2021 – Present
Supervisors: Doctoral Candidate Chengjie Zheng and Dr. Tian Wu, University of Massachusetts Boston
IEEE Transactions on Pattern Analysis and Machine Intelligence
FASTATTACKER Against Fact Verification (in submission) 03/2021 – Present
Supervisor: Dr. Di Jin, Amazon Alexa AI

Predicting the Compaction Condition of Asphalt Based on Particle Kinematics(in submission)
Supervisors: Doctoral Candidate Shuai Yu and Dr. Shihui Shen, Pennsylvania State University 05/2021– 08/2022

Automated Machine Learning-Based Radiomics Analysis Versus Deep Learning-Based Classification for Thyroid Nodule on Ultrasound Images: A Multi-Center Study *(IEEE-BIBE 2022)* 02/2022 – 08/2022
Supervisors: Doctoral Candidate Zelong Liu and Dr. Xueyan Mei, Icahn School of Medicine at Mount Sinai

INDUSTRY EXPERIENCE

Apple Bank *New York, NY, USA*
Assistant Treasurer, Credit Administration 03/2020 – 12/2020
Improved original Excel model for quantifying financial data and reports

- Added VBA macro keys on the basis of the original Excel operation and implemented the function of keys through VBA programming
- Increased the ability to add data, add and delete rows and columns, and find data through buttons, including calling out different ratios of financial indicators generated under different conditions
- Developed modeling software as the only member of the team with a CS background
- Tools used: ***VBA, Python,C/C++***

Database construction

- Created a backend database for the whole department using SQL; classified, merged, summarized, and searched different financial companies under different sections
- Classified by rating the companies 'performance into 21 credit levels, and analyzed by extracting the financial report information according to the degree of use of the model in the four main financial models
- Tools used: ***SQL***

Credit risk rating system

- Applied machine learning algorithms to examine different parameters and kernel functions, used the LIBSVM software package, and tested the classification accuracy of the SVM method in corporate

credit ratings
- Concluded that polynomial kernel function is optimal for credit classification, considering both efficiency and accuracy of prediction
- Obtained credit financial models with a combination of statistical methods for classifying and calculating credit ratings, based on data from financial samples with reference to discriminant analysis (MDA), weighted logistic regression analysis models, probit regression analysis models, etc.
- Tools used: ***Python, MATLAB, R***

Tigress Financial Partners, LLC *New York, NY, USA*
Financial Analyst in Equity Research Department 05/2018 – 01/2020

- Tokenized documents and clean data with python – grasping and collecting useful data and information from financial statements--10k,10Q with python
- Trained models via various algorithms – ***SVM***, ***Naïve Bayes***, ***Artificial Neural Network***, ***Decision Trees*** – over market data to optimize trading strategies, resulting in double-digit yields
- Trained RNN (***Recurrent Neural Networks***) for high-frequency trading, to automate trading and predict market movements

HONORS / AWARDS

Tamarkin Scholar Award, University of Lancaster 10/2017 - 09/2019
Excellent Student Leader Award, Hefei University of Technology 10/2010 - 06/2013

LEADERSHIP EXPERIENCE

Student Ambassador, Rainbow Push 47th Annual International Convention *06/2018 - 09/2018*

- 1 of 50 selected to represent a student contingent at Rev Jesse L. Jackson Rainbow PUSH Convention on advancing diversity and inclusion

Representative Summer Analyst, BNY Mellon's Pershing 2018 Insite Conference *05/2018 - 09/2018*

- 1 of 35 selected to represent a contingent of young finance professionals to discuss financial industry trends and the regulatory landscape

PROFESSIONAL SKILLS

Licensing: CFA Level 1 Candidate, Bloomberg Certificate
Technical: MS Office Suite, Capital IQ, FactSet, SAS, VBA
Programming: C/C++, Python, R, MATLAB, SQL
Quantitative: GRE 339 (Verbal: 170 99% Quantitative: 169 94% AW: 4.0 54%)
Languages: Chinese (Native), English (Fluent)
Interests: Basketball, Reading, Cooking, Fitness

PROFESSIONAL MEMBERSHIPS

Beta Gamma Sigma International Honor Society