Jiaming Zhang

Email: zjmmm1212@gmail.com | Phone: (+44) 7410972676

EDUCATION BACKGROUND

Cornell University, United States of America (Offer Holder) 09/2022 – 02/2024
Meng in Systems Engineering

University of Liverpool (UoL), United Kingdom 09/2020 – 06/2022
BSc in Computer Science | Overall GPA: 79% (Year 2)

Xi'an Jiaotong-Liverpool University (XJTLU), Jiangsu, China 09/2018 – 06/2020
BSc in Information and Computer Science

Coursework (UoL & XJTLU): Discrete Math and Stats | Data Structure | Complexity of Algorithms | Operating System | Programming in Java | Scripting Language | Group Software Project | Computer Aided Software Development | App Development (Swift) | Database Development | Advanced Artificial Intelligence | Computer Based Trading in Financial Markets

Coursework (Coursera): How to Win a Data Science Competition: Learn from Top Kagglers | Advanced Algorithms and Complexity | Building Database Applications in PHP | Numerical Methods for Engineers

RESEARCH AND PROJECTS

Analysis of Political Commentary on Reddit
Honor Year Project, UoL 09/2021 – 05/2022

- Developed a website that allows users to search for keywords on reddit and analyze the political sentiment and political stance of the search results, with a focus on anonymously data mining, text classification and interactive data visualization:
  - Implemented PRAW library for scraping the training data for classification model in anonymously link and used pandas for data pre-processing and transformation
  - Designed and implemented a text classification model with LSTM recurrent neural network which analyzes specific topics or comments on social media and classifies them from aspects of sentiment and political positions, performed hyperparameter tuning based on cross validation and Bayesian optimization; systematically tested the impact of hidden layer number on overall accuracies, characterized the model performance using confusion matrix and ROC curve
  - Completed a systematic test based on 5K+ Tweets and Reddit posts, showing 92% overall accuracy
  - Leveraged Django 4.0 and Vue 2 to build a visually appealing and user-friendly website, developed a one-stop, full-flow website from searching keywords, selecting interested topic to data analysis and visualization

Development of a Roommate Recruitment Website
Team Leader | Group Software Project, UoL 03/2021 – 04/2021

- Developed a website to facilitate the recruitment of roommates on UoL campus, with a focus on information sharing, intelligent query, and interactive and intuitive data visualization:
  - Leveraged HTML, CSS, PHP, and JavaScript to build a user-friendly frontend, allowing interactive data visualization; built backend database using C# and SQL in Visual Studio; leveraged Azure to build the server
  - Leveraged multiple software engineering principles, object-oriented programming features, and design patterns to streamline development processes and improve the application's efficiency, modularity, extensibility, maintainability and robustness
  - Practiced the workflow for developing a commercial software product, spanning user requirement solicitation, architecture design, programmatic implementation, testing, and deployment
  - Implemented a roommate recommender system based on collaborative filtering and content-based filtering

Team Leader | Computer Based Trading in Financial Markets Research Project, UoL 02/2021 – 03/2021

- Implemented in R an algorithmic trading model within the reinforcement learning (RL) framework for reducing transaction costs, optimizing trading timing, tracking market conditions, and facilitating back testing:
  - Designed, trained, and validated a hybrid model for stock price prediction, covering a LSTM network component for encoding the time series data, and a reinforcement learning (RL) component with epsilon-greedy exploration strategy and an experience replay
  - Employed epsilon-greedy exploration strategy and an experience replay to strike a balance between "exploration" and "exploitation"; optimized the algorithm by tweaking loss function, state/action space, reward function, experience replay, and normalization
  - Collected historical market data from Wind and Bloomberg to support model construction and back testing

Team Leader | *App Development* Course Project, UoL 11/2020 – 01/2021

- Designed, implemented, and tested in Swift an iOS interactive app for a user to locate artworks on campus relative to the current location:
  - Designed questionnaire and performed user requirement analysis; generated general description of the product, covering product perspective, product functions, user characteristics, general constraints, assumptions and dependencies
  - Followed the iterative development model, and optimized the system design for a balance between cost-effectiveness and redundancy
  - Leveraged Unified Modeling Language to guide software design; employed various object-oriented programming concepts to facilitate development

- Completed a systematic software testing to verify the functionality of individual components and overall performance

***Data Structure* Course Project, XJTLU** 03/2020 – 05/2020

- Systematically studied an array of algorithms and data structures, including graph theory, dynamic programming, divide and conquer, greedy algorithms, and the associated data structures
- Designed and implemented various algorithms and data structures while characterizing and optimizing the space and run-time efficiency:
  - Heuristic algorithm and branch-and-bound method for solving Travelling Salesman Problem (TSP)
  - Kruskal's minimum spanning tree algorithm
  - Letterman algorithm based on BFS and DFS
  - B++ tree data structure for dynamic multilevel indexing in a SQL database system, allowing the inserting, deleting, updating and querying operations of 1M+ entries within a second

WORK EXPERIENCES

Software Engineer Intern | Accenture, Beijing 06/2021 – 08/2021

- Participated in the front-end web page development for BMW China (client), and assisted in the development of the internal BestU system based on Microsoft SharePoint platform with Vue and Java SpringMVC, enabling the data of employee's performance intelligent and visualized in the web page
- Participated in back-end interface development for BMW China, developed multiple interfaces for internal Aftersales dealer system using C# language, and provided services for more than 300 BMW dealers in China
- Participated in the cloud migration of BMW China based on Microsoft Azure technology, moved its existing various audit batch and management systems to the cloud, and assisted the enterprise to complete the digital transformation

Software Engineer Intern | China Post, Gansu, China 06/2020 – 08/2020

- Joined a team of software engineers and data scientists to design, prototype, test, and deploy various software applications for automating the postal services:
  - Developed an optical character recognition (OCR) in OpenCV for reading address labels, covering geometric image transformation, region-of-interest extraction, number segmentation, Tesseract-based deep learning
  - Developed an online logistics optimization platform serving postal service truck drivers:
    - Prototyped an internal IoT system enabling real-time monitoring of delivery routes, traffic condition, weather data, and rerouting requests for capacity and asset sharing based on collecting and processing data from onboard sensors and GPS navigation system
    - Used MySQL structured database and MongoDB distributed database for data storage and manipulation
    - Enabled real-time optimization of complex webs of distribution hubs, plants, and warehouses based on a stochastic material flow model and Monte Carlo simulation

EXTRACURRICULAR EXPERIENCES

Online Kaggle Challenge Kaggle: Titanic 01/2021 – 03/2021

- Performed a data-driven analysis on the factors affecting the survival rate of passengers in Titanic disaster:
  - Applied detailed exploratory data analysis with Matplotlib and Seaborn.
  - Leveraged an array of feature engineering techniques, including 1) using random forest regressor to fill the missing values, 2) visually analyzing the correlation between features and labels using hotmap, 3) segmenting raw data to establish new features, and 4) clustering data features to create new features.
  - Conducted single-model training on SVM, LightGBM, XGBoost, CatBoost and Neural Network, followed by 1) cross-validation to test individual models, and 2) Bayesian optimizations to tune and optimize model parameters.
  - Used Ensemble, Blending and Stacking algorithms in Python to fuse single models for improving prediction accuracy.

President | XJTLU Movie Club 05/2019

- Designed, promoted, and organized the 2019 XJTLU Film Festival, attracting 26+ participating films and 500+ attendees; Coordinated a team of 100+ volunteers and 9 working groups to manage logistic items
- Established partnership with an array of leading online video platforms and film companies in China, such as iQIYI, Alibaba Pictures, etc; created and managed a WeChat public account to promote the club activities

Volunteer Teaching Program of AIESEC, Maldives 06/2018

- Completed a study on the local environmental status, and proposed a set of practices for environmental protection
- Delivered Chinese culture, literature, history courses to 250+ local elementary school students, receiving positive feedback from local teachers and students

PUBLICATIONS

- **Zhang, J. M.**, *How Does Cyber-Crime Affect Modern Society – A Data-Driven Study*. Modern Economics Information 2017/11

SKILLS

Programming Languages: Swift | Java | Python | MATLAB | R | MySQL | HTML | JavaScript | CSS
Libraries: NumPy | SciPy | Pandas | TensorFlow |Scikit-Learn | Scrapy | Matplotlib | Selenium
Software: Microsoft Office | Visual Studio | PyCharm | Eclipse | IntelliJ | Android Studio | Git | Jupyter Notebook