Kaichun Yang

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EDUCATION

The Ohio State University (OSU) **Columbus, OH**
Bachelor of Science *in Data Analytics*; **GPA:** 3.81/4.00 Aug. 2020-May 2024
Minor: Mathematics
Skills: C, Java, Python, R, Assembly Language, PHP, html, Javascript, CSS
Honor: Dean's List (Autumn 2020, Spring 2021, Autumn 2021, Spring 2022, Autumn 2022)

University of Illinois Urbana-Champaign **Champaign, IL**
Master of Computer Science (MCS) Aug. 2024-present
Skills: C++

RESEARCH

Judging Application Types Based on the Data Transmitted by VR Devices Dec. 2021-Apr. 2022
Supervised by Ph.D. Candidate Xin Jin from Baker Systems Engineering 439 at OSU

- Understood the ways of data transmission between VR devices and computers by consulting literature
- Monitored and collected data by running five VR software from the computer with Wireshark
- Established and trained a prediction model using K-Nearest Neighbor (KNN) and Approximate Nearest Neighbor(ANN) algorithms with the sample data, achieving an accuracy of 70-80%

Auxiliary loan methods for credit evaluation of loan personnel through XAI Mar. 2023-Aug. 2023
Supervised by Associate Professor Thomas Edward Bihari from Dreese Laboratories 113 at OSU

- Understood the concepts of explainable AI (XAI) and related explainers such as LIME, SHAP.
- Explored the LIME explainer's source code and algorithm and learned to use LIME output to interpret the model and prediction
- Used bank loan data to build a model and used LIME and SHAP to explain the model

PROJECTS

Design a "Grader" Application and Management System June 2023-Aug. 2023

- Established a database of students' information, application records, etc. based on OSU course catalog.
- Designed and implemented a simple and informative UI with good user experience using CSS
- Programmed with Ruby language to process students' submitted applications and approval result feedback
- Realized the data synchronization of various pages and modules by coding on Ruby on Rails

Set Game-based Web Card Game Design May 2023-June 2023

- Compiled a rigorous game logic by figuring out the algorithm of the Set game, the rules of the card game, the score calculation, and the change of game status
- Produced three webpages using JavaScript, CSS, and HTML to display game status and provide different functions based on my understanding of user experience
- Developed a Two-Player mode and designed the behavior rules of the computer player
- Added challenge mode with new game elements, such as countdown, special player skills, and difficulties by designing a countdown system and game mechanism

Analysis of Influencing Factors for the Winning Rate of NBA Teams Apr. 2023

- Used data from the 2021-2022 season on 30 teams from the official website of the NBA, each of which played 82 regular season games
- Conducted logistic regression analysis with the team winning rate as the response and other features as predictors
- Adopted stepwise method to find two important predictors and fit the model to analyze the correlation between the winning rate and the two predictors
- Employed Quasi-Poisson Regression to analyze the correlation between the number of wins and three-point field goals

Application of Machine Learning Algorithms Jan. 2023-May 2023

- Checked and cleaned the dataset on two hotels of different kinds (a hotel in a normal city and a hotel in a tourism city) by correcting or deleting the missing and unreasonable data
- Drew heat map and Confusion Matrix to analyze the structure and features of the data
- Used machine learning algorithms including KNN, Naïve Bayes, and Random Forest to analyze the possibility of clients' cancellation of the hotel reservation
- Compared the efficiency and accuracy of the three algorithms and found that Random Forest outstands with the highest accuracy of 80%

Spotify Playlist Optimizer Design Based on Gurobi Oct. 2022-Nov. 2022

- Invoked the API of Spotify to extract data on songs and scores of song's attributes and calculated mean and standard deviation of the scores
- Calculated the distance between song attributes and user-desired attributes and weighted attributes of different importance to determine desired songs for users
- Performed optimization analysis in Gurobi and created a new playlist by invoking the API of Spotify

Parking Management System Design Jan. 2022-May 2022

- Programmed the framework of the web program in PHP and implemented the functions of registering new events, calculating parking fees, and displaying available parking spaces
- Established a MySQL database and used the web program to operate it

IGS Energy Battery Optimization Jan. 2024-Mar 2024

- Use existing data and optimization methods to rationally allocate electricity usage and storage plans within a year to save money
- Use CVXPY to perform optimization calculations, analyze and fit the obtained optimization results, and obtain a new model. If the user inputs the current battery level and current time, the model can automatically arrange the charging and electricity consumption plan for the next hour

Honda Indirect Procurement Analysis Mar. 2024-May 2024

- By organizing the order records between Honda and various suppliers, we can organize Honda's ordering characteristics and provide suggestions for bulk ordering from a single supplier
- Create a network graph to visualize the relationship between Honda and its suppliers. And enable users to freely filter the desired information for visualization, while providing visualization of order volume comparisons between different suppliers and orders