

LOU ZHOU

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Education

Rice University

Expected Graduation Spring 2027

Bachelor of Arts in Statistics and Sport Analytics(3.93 GPA)

Houston, TX

Relevant Coursework: Program Design(COMP 215), Algorithmic Thinking(COMP 182), Linear Regression(STAT 410), Introduction to Sport Analytics(SMGT 430), Linear Algebra(MATH 355)

Experience

Rice University Department of Sport Management

January 2024 - Present

Research and Teaching Assistant

Houston, TX

- Research Assistant under the mentorship of Dr. Scott Powers currently working in conjunction with TSG Hoffenheim's TSG Research Lab to determine the effects of VR training on decision making in soccer
- Develop and optimize convolutional neural networks using Python and SQL originally fit for Statsbomb-360 data to full tracking data to analyze and predict the value, success rates, and selection surfaces for passes to gauge decision making in a VR space
- Provide in-class assistance and host office hours as a TA for Introduction to Sport Analytics (SMGT 430)

St. Jude Children's Research Hospital

Summer 2024

Biostatistics Summer Intern

Memphis, TN

- Implemented functional Principal Component Analysis (fPCA) in R to model and predict ALS progression, providing a predictive framework that contributed to enhanced tracking of patient progression
- Applied linear regression techniques through Genome-Wide Association Studies (GWAS), identifying statistically significant genetic markers associated with ALS progression, providing foundational data for future ALS research
- Assisted in mentoring high school students in St. Jude's Research Immersion Program, promoting early engagement in scientific research

Shelby County Election Commission

Summer 2023

Summer Software Engineering Intern

Memphis, TN

- Developed data-cleaning Python scripts to update precinct voter registration data for over 500,000 voters, aligning voter rolls with redrawn precinct boundaries and improving election efficiency
- Further developed internal tools which cleaned and aggregated per-person voting data, consolidating data by voting method and primary counts for each precinct, enabling more accurate resource allocation for future elections.

Air Force Research Laboratory

Summer 2022

Summer Research Assistant

Dayton, OH

- Collected and processed image data to emulate aerial photos for the Machine Learning and Singularities Project
- Developed a Python script using a normalized cross-correlation algorithm to locate and crop target objects from 15,620 images, streamlining ML model training

Projects

Team Coin Flip: Travel Fatigue and Performance

Winter 2024

- Collaborated with a team of four to analyze the effects of travel fatigue on MLB team performance during the 36-hour 2023 Rice Datathon, securing 2nd place out of 59 teams.
- Developed a modified ELO ranking system to gauge baseline performance, integrating XGBoost models to assess fatigue's impact

Breaking the Cycle: Reducing Recidivism in Iowa State Prisons

Fall 2022 - Spring 2023

- Led a team that built a Feed-Forward Neural Network (FNN) in Python to predict recidivism rates among inmates
- Conducted Monte Carlo simulations to estimate the fiscal costs associated with recidivism, providing insights on the financial impact of repeat offenses and causes of re-offense
- Submitted for the 2023 Modeling the Future Challenge(MTFC), finishing 2nd place nationally out of 227 teams and receiving a \$15,000 team award and publication in the 2023 edition of the Actuarial Research Clearing House(ARCH)

Technical Skills

Languages: Python, R, Java, SQL

Libraries: pandas, numpy, scipy, matplotlib, scikit-learn, openCV, seaborn, Keras, tidyverse, dplyr, ggplot2, PyTorch

Technologies: Anaconda, VS Code, Excel, RStudio, Jupyter, Google Colab, Git