Lou Zhou

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Education

Rice University **Expected Graduation Spring 2027**
Bachelors of Arts in Statistics and Sport Analytics(3.9 GPA) *Houston, TX*

Relevant Coursework: Introduction to Sport Analytics, Linear Algebra, Introduction to Program Design, Linear Regression, Elements of Analysis, Advanced Statistical Methods, Stochastic Methods, Tools and Models for Data Science

Experience

Carnegie Mellon University **Summer 2025**
Undergraduate Researcher *Pittsburgh, PA*

- Selected for fully funded research position focused on applied statistics and machine learning in sports
- Building predictive models in R using NFL tracking data to estimate quarterback time-to-decision and target predictions, incorporating spatial-temporal features and game context
- Participating in daily lectures and workshops on advanced data science topics, professional development, and guest talks from industry leaders

Rice University **August 2024 - Present**
Research and Teaching Assistant *Houston, TX*

- Built a scalable data preprocessing pipeline in Pandas that streamlined the handling of 300+ matches of spatiotemporal soccer tracking and event data, reducing data processing time from 12 hours to 2 hours
- Adapted and trained CNNs in PyTorch to evaluate the quality of a potential passing decision by estimating selection likelihood, success probability, and expected scoring value, improving model performance to an average log-loss of 0.37
- Provided in-class support and hosted weekly office hours for 17 students as a teaching assistant in an introductory applied data science course, achieving a 94% student satisfaction rate based on end-of-semester survey feedback

St. Jude Children's Research Hospital **Summer 2024**
Biostatistics Research Assistant *Memphis, TN*

- Constructed statistical models in R using fPCA on longitudinal data from 1,000+ ALS patients, improving the ability to forecast disease progression and supporting researchers in tracking patient outcomes over time
- Analyzed genetic data in Genome-Wide Association Studies(GWAS) using linear regression to identify 3 statistically significant genetic markers linked to ALS progression in patient genotype data, informing follow-up biological studies
- Mentored 2 high school students, guiding them in completing research projects that culminated in poster presentations at St. Jude's annual symposium

Shelby County Election Commission **Summer 2023**
Data Analyst Intern *Memphis, TN*

- Built Python scripts using Pandas to clean and update registration records for 500,000+ voters, ensuring accurate precinct assignments after redistricting and improving logistical efficiency and data integrity for election operations
- Enhanced internal tools to aggregate and analyze per-person voting data, streamlining metrics by voting method and precinct-level turnout to support data-driven election planning

Projects

Team Coin Flip: Travel Fatigue and Performance **Winter 2024**

- Developed a modified ELO rating system and integrated XGBoost models predicting baseball match outcomes to assess the impact of travel on team performance, placing 2nd out of 59 teams at the 2024 Rice Datathon

Breaking the Cycle: Reducing Recidivism in Iowa State Prisons **Fall 2022 - Spring 2023**

- Built deep learning models using Keras to predict inmate recidivism, achieving 0.85 AUC-ROC; applied SHAP values to interpret key risk factors and generate recommendations to support strategies for reducing recidivism
- Applied Monte Carlo simulations to model variability in recidivism and crime outcomes, providing economic burden estimates to guide policy recommendations and resource allocation for intervention programs
- Awarded 2nd place nationally (out of 227 teams) in the 2023 Modeling the Future Challenge, receiving a $15,000 team prize; work published in Actuarial Research Clearing House (ARCH)

Additional

Languages & Tools: Python, R, Java, SQL, sklearn, tidyverse, pandas, Git, PyTorch, Keras, NumPy
Activities: *Technical Lead*, Rice Sport Analytics Team (2025–2026) · *Tracks Organizer*, 2025 Rice Datathon · *Mentee*, 2025 MIT Sloan Sports Analytics Mentorship Program