

# Ahmed Mostafa

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## Education

University of California, San Diego

Sep. 2022 - March 2025

*B.S. in Data Science, Minor in Mathematics*

GPA: 4.0/4.0

### Relevant Coursework:

Data Structures & Algorithms, Design & Analysis of Algorithms, Probabilistic Modeling and ML, Data Management, Graph Theory, Probability & Statistics, Representation Learning, Systems for Scalable Analytics, Recommender Sys & Web Mining, Numerical Analysis

## Experience

Machine Learning Intern

June 2024 – Sep. 2024

*CarsXE*

*Highland, MD*

- Deployed regression car valuation model aiding customer assessment of vehicle prices, using Streamlit and Sklearn
- Developed automated pipelines integrating VehicleSpecs and MarketValue APIs, streamlining data for model training
- Performed exploratory data analysis using Seaborn and Pandas, **reducing feature space and memory usage by 54%**

Data Science Intern

June 2023 – Sep. 2023

*CarsXE*

*Highland, MD*

- Implemented a user monitoring system, identifying key growth opportunities in data-driven strategies and user engagement
- Analyzed API data to improve data reliability, resolving invalidity and nullness through consistency validation
- Optimized dashboard runtime by **caching dynamic queries to static calls**, reducing wait times **from minutes to seconds**

Instructional Assistant

Sep. 2023 – Present

*UC San Diego – Halicioglu Data Science Institute*

*San Diego, CA*

- **Tutored over 550 students**, improving comprehension over data science through office hours and discussion sessions
- Solicited feedback from students to enhance tutoring and discussion sections, **increasing exam scores by 30%**
- Created and graded homework assignments, exams, and projects, providing constructive feedback to support student learning

## Projects

Sepsis Clustering in ICU Patients | *R, PostgreSQL, Docker, Git*

- Replicated research paper findings on multimorbidity & sepsis in ICU patients, analyzing **36,000+** EHRs of MIMIC-III dataset
- Applied latent class analysis to identify distinct patient subgroups, connecting different risks for organ dysfunction and sepsis
- Documented reproducibility processes in GitHub, ensuring robust tracking of methodologies in the MIMIC-III dataset analysis
- Developed architecture for storing and versioning code on GitHub, enhancing collaboration & code reuse in MIMIC-III analysis.

League of Legends: Kill Analysis

- Analyzed **5,000+ professional League of Legends games**, showing impact of player kills in different positions on win rates
- Cleaned and prepared a dataset featuring detailed match statistics such as kills, positions, and game results
- Utilized exploratory data analysis and visualizations to understand kill distributions and their correlation with win rates
- Conducted hypothesis testing to explore the relationship between kills and win rates, focusing on the support role

League of Legends: Winning Prediction

- Implemented a **Random Forest Classifier** to predict match outcomes, using **GridSearchCV** for parameter optimization
- **Achieved a 34% increase to prediction accuracy** by integrating champion-specific statistics and team dynamics
- Performed a fairness analysis to evaluate model bias across player roles and team sides, generating insights for improvements
- Discovered that in lane to lane comparisons, support roles have an inverse relationship between kills and win-rate

NBA Trends Teller | *Svelte, CSS, HTML, D3.js*

- Developed an interactive data visualization project using Svelte, D3.js, CSS, and HTML to analyze NBA scoring trends
- Utilized D3.js to create dynamic charts, showcasing historical NBA data to evaluate changes in game strategies
- Designed responsive UI components with Svelte and CSS for an engaging user experience in visualizing sports analytics
- Conducted comprehensive data analysis to challenge perceptions about the decline of defense in the NBA

## Technical Skills

**Technical:** Python, Firebase, SQL, Java, Javascript, AWS, Spark, Dask, Git, Jira, Streamlit, Tableau, Svelte, D3.js, Docker, Keras

**Product:** Agile Methodology, Continuous Discovery, Critical Thinking, Growth, Problem-Solving, GitHub Actions CI

**Business:** Data Analysis, Market Analysis, Organizational Leadership, Project Management, Strategy