




Gabriel Eze

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EDUCATION

Bachelor of Science in Data Science and Mathematics, *Centre College*

Relevant coursework: **Modern Calculus II, Modern Calculus III, Linear Algebra, Abstract Algebra, Probability Theory, Foundations of Mathematics, Statistical Modeling, Data Manipulation, Data Visualization, Programming and Problem Solving in Python, Sports Analytics, How to lie with statistics**

SKILLS

Programming Languages — Python, R, SQL • **Web Development** — HTML, CSS • **Tools and Technologies** — GitHub, Microsoft Office, Trello, Asana, Notion

RESEARCH

Pitch Recommendation System Developer, *Carnegie Mellon SURE Camp*

06/2024 – 07/2024

- Conducted advanced statistical analysis and modeling to predict pitch effectiveness (Stuff+) for MLB players, leveraging large datasets from FanGraphs and Baseball Savant.
- Applied Random Forest and Lasso regression techniques to model the relationships between pitch characteristics, achieving an RMSE improvement over baseline models in predicting new pitch success.
- Developed a pitch recommendation tool that provided actionable insights for MLB teams, optimizing player performance by suggesting ideal pitch sequencing based on past game data.

Sports Analytics Research Assistant

05/2023 – 07/2023

- Utilized Python to lead data cleaning and parsing efforts within a complex big data pipeline, ensuring data accuracy and reliability for basketball game analysis.
- Tracked possession data and employed advanced statistical techniques to assess player substitutions, providing vital insights for informed coaching decisions and game outcome analysis.
- Collaborated on the development of win probability models based on real-time game data, empowering the coaching staff with actionable insights for strategic game planning.

PERSONAL PROJECTS

Web Scraper

05/2023 – 07/2023

- Developed a Python-based web scraper capable of efficiently extracting targeted data from websites. Employed libraries such as requests and BeautifulSoup for web requests, HTML parsing, and data extraction.
- Demonstrated proficiency in data parsing and manipulation, enabling the scraper to retrieve valuable information, such as news articles or product details, and store it in structured formats like CSV files or databases.
- Enhanced user interaction by creating an intuitive command-line interface for inputting website URLs and data extraction parameters. The project highlighted skills in web scraping, data extraction, and command-line interface design.

DNA Sequence Analysis

10/2022 – 12/2022

- Developed a Python program for precise comparison of Short Tandem Repeat (STR) repetitions within DNA sequences to a database, facilitating accurate DNA matching.
- Designed and implemented robust data validation techniques to ensure the reliability of identified DNA sequences, including the elimination of anomalies and detection of zero repetitions.
- Created a user-friendly interface for inputting files and provided real-time matching results by comparing repetitive DNA strings with data stored in a CSV file, showcasing proficiency in Python and data analysis.

Forest Fire Simulation

10/2022 – 12/2022

- Initiated the development of a Python-based forest fire simulation program that models the progression of fires in a grid of trees. Implemented a Tree class to represent individual trees, including their states and graphical representations.
- Created a Forest class to manage a grid of trees and their interactions. Generated a 10x15 grid of trees, each capable of transitioning through different burn states when exposed to fire.
- Designed an interactive graphical user interface (GUI) for the simulation using the graphics library. Incorporated features such as a burn probability display, exit button, random start button, and reset button. The GUI allows users to interact with the simulation and control its execution.