Dwain Anderson

516-591-7908 ● dka36@cornell.edu ● https://dwain-anderson.github.io/

Education

Cornell University, College of Arts & Sciences Ithaca, NY
Bachelor of Arts in Computer Science, Minor in AI August 2023 - May 2027 (Expected)
GPA: 3.4/4.0

Related Courses: Functional Programming, Object-Oriented Programming & Data Structures, Database Systems, Intermediate Web Programming, Backend Development, iOS Development, Visual Data Analytics, Machine Learning, Probability Theory, Linear Algebra, Discrete Structures, Statistics, Calculus

Technical Skills

- **Languages:** Python, Java, JavaScript/TypeScript, OCaml, PHP, SQL, Swift, HTML/CSS
- **Frameworks:** React, NextJs, jQuery, Flask, Django, NumPy, SciPy, Scikit-learn, SQLite3
- **Tools & Technologies:** SQLite3, Docker, Postman, Git, GitHub, VS Code, PyCharm, IntelliJ

Project Experience

Sound Waves Analysis with Fourier Transforms | *Python, Flask, SciPy, NumPy, TypeScript, React, NextJs*
- Enabled users to upload audio files, apply various filters, and view analytical plots of the original and transformed audio.
- Built a dynamic web interface with React and Next.js to visualize sound wave transformations.
- Developed and deployed a RESTful API using Flask for sound wave analysis.
- Implemented Fourier Transform calculations and data processing using SciPy and NumPy.

Image Selection Processor | *Java, JUnit, Swing*
- Developed a Java Swing application for image selection, allowing users to select and save items within images.
- Implemented Dijkstra's algorithm, min-heaps, and multi-threading for real-time shortest path computation between user-selected points, achieving speed optimizations up to 5x after unit testing with JUnit.
- Implemented a GUI with features including live wire contouring, edge detection, and cancellation/undo options.

Cornell AppDev Hackathon: Bookkeeper | Python, Flask, Scikit-learn, NumPy, SQLite3
- Designed the database using SQL and implemented user login/logout, password hashing, and sessions.
- Architected the database using SQLite3 to store user data, books, and user favorites, ensuring efficient data retrieval and storage
- Implemented K-Nearest Neighbors recommendation algorithm for books.
- Developed the RESTful API using Flask to handle CRUD app operations.

Connect-N | *Python, PyGame*
- Implemented the game using object-oriented design principles and the Model-View-Controller (MVC) design pattern.
- Developed a Connect-N game in Python featuring a graphical user interface with PyGame.
- Implemented AI player logic using iterative backtracking algorithms and memoization approaches.

Spreadsheet Formula Evaluation | Java, JUnit
- Developed a Java batch application to evaluate postfix notation formulas in CSV spreadsheets
- Implemented an interactive calculator and CSV formula evaluator using subtype polymorphism to handle various formula types efficiently.
- Utilized tree data structures for expression evaluation, optimizing performance and memory usage.

Merging Spreadsheets | Java, JUnit
- Developed a Java batch application to perform a Left Inner Join on CSV files, facilitating efficient data merging.
- Implemented the linked-list data structure and utilized its associated operations for optimized data manipulation and storage.
- Designed and implemented a binary search tree to store variables and efficiently query their values, enhancing data retrieval efficiency.