

# Brian Donaghey

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## EDUCATION

### University of Pittsburgh

*B.S Computer Science, Minor in Economics, CS Departmental Honors*

GPA: 3.60/4.0

Pittsburgh, PA

*Aug. 2021 – April 2025*

**Coursework:** Data Structures and Algorithms, Intro to Operating Systems, Intro to Database Management Systems, Software Engineering, Programming Languages for Web Applications, Software Quality Assurance, Intro to Cloud Computing, Functional Programming, Data Science with Python

## PROFESSIONAL EXPERIENCE

### Data Engineer Intern

*Federated Hermes*

May 2024 – August 2024

*Pittsburgh, PA*

- Engineered 15+ financial data pipelines in Databricks to perform ETL operations using PySpark and Pandas, transforming raw data into structured JSON outputs and ensuring data integrity with SQL DDL/DML queries.
- Automated ETL pipeline scheduling using BMC to ensure daily processing of updated data to minimize manual intervention and improve workflow efficiency, while leveraging Azure DevOps CI/CD pipelines for deployments.
- Led the development of a variance reporting model in Power BI for a company hackathon that was projected to save \$95,400 annually by reducing manual report analysis time and streamlining financial reporting.
- Developed a Power BI workspace monitoring system that analyzes large-scale enterprise data stored in Delta/JSON files, providing real-time insights into report usage and access patterns within the company.

## ACADEMIC EXPERIENCE

### Data Structures and Algorithms Teaching Assistant

*University of Pittsburgh*

Aug. 2024 – Present

*Pittsburgh, PA*

- Teach students fundamental data structures such as linked lists, binary trees, hashmaps, and graphs, helping them develop a strong foundation in algorithm analysis.
- Facilitate weekly recitations and host office hours for Pitt's Data Structures and Algorithms class.

## PROJECTS

### AI-Spotify Recommendation Engine 🎧 | *Python, React, Flask, OpenAI, NLP*

- Built a Flask API for an end-to-end AI music recommendation system using GPT-4o and the Spotify API.
- Enhanced recommendation quality through Natural Language Processing (spaCy, TextBlob, NLTK) to better interpret user queries, implementing feedback loops for learning, and using caching to prevent duplicates.
- Deployed the Flask backend and the React frontend as separate services, enabling clean integration with the API.

### Digital Attendance System 🎫 | *Google Cloud Platform (GCP), Docker, Node.js, Javascript, HTML*

- Designed and deployed a full-stack cloud-based attendance tracking system using Google Cloud services, featuring QR code generation for attendance tracking.
- Developed REST APIs with Node.js and Express for database interactions, utilizing Firestore's NoSQL capabilities for data management, and hosted the APIs on Google App Engine.
- Automated a CI/CD pipeline with Cloud Build and GitHub integration and deployed the application to Cloud Run using Dockerized containers.

### Olympic Games Database Management System 🏅 | *PostgreSQL, Java, JDBC*

- Created and modeled a fully functional mock database of the Olympic Games in PostgreSQL and Java utilizing constraints, triggers, and concurrency control methods to ensure data integrity and prevent SQL injections.
- Implemented SQL queries to test triggers, schema constraints, and functions to enable reliable database operations

## TECHNICAL SKILLS

**Languages:** Java, Python, C, SQL (Postgre), JavaScript, HTML/CSS, Haskell

**Frameworks:** JDBC, JUnit, Mockito, Selenium, Node.js, Flask

**Developer Tools:** Git, Azure DevOps, Databricks, Power BI, Linux, Google Cloud Platform, Docker, Maven, VisualVM

**Libraries:** pandas, NumPy, PySpark, matplotlib, scikit-learn, React

**Concepts:** Unit Testing, Integration Testing, Performance Testing, Agile, TDD, SDLC, ETL, Data Lake Architecture