Cornelius Monahan

Seeking opportunities to apply technical skills and innovative problem-solving in real-world software development

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Skills

- Python | Java | JavaScript | HTML | CSS | Bootstrap 5 | Flask | Haskell | PHP | Git | SQL

Experience

Biopath Research Experience — Southern Connecticut State University — New Haven, CT, USA — 06/23 - 07/23

- Assisted in research pertaining to single-cell sequencing analysis of RNA and DNA in an ever-progressing effort to enhance cancer research. Topics included working with command lines, algorithms, statistical softwares, and other technologies to analyze the neo-epitopes of proteins, parts of the cell which can be examined for cancer and mutations.

Undergraduate Grading Assistant — Southern Connecticut State University — New Haven, CT, USA — 08/23 - 12/24

- Analyzed and corrected student code related to techniques for representing and processing information, including the use of tables, linked lists, trees, and graphs. Comprehensive foundation of data abstraction including stacks and queues using object oriented approach.

Customer Service Representative — Patterson Oil Company(Patco) — Terryville, CT, USA — 04/21 - Current

- Efficiently handle transactions and maintain inventory while building genuine connections with new and regular customers, ensuring a welcoming and personalized experience in a fast-paced environment.

Projects

- **Find a Fragrance:** Developed an intelligent cologne recommendation platform that uses semantic search and natural language processing (NLP) to match users with fragrances. Users can describe their scent preferences in everyday language (e.g., "I'm looking for something sweet but masculine"), and the system returns personalized suggestions by comparing the query's vector embedding against stored embeddings of colognes. These embeddings are generated using structured scent data like notes, accords, and brand context. The goal was to blend conversational AI with semantic vector similarity to create an intuitive, expressive, and highly personalized fragrance discovery experience for users. **(05/25)**
- **Live Streaming System:** Designed and developed three interconnected servers enabling real-time communication for a live-streaming service, utilizing Python, Flask, and UDP sockets for efficient, low-latency video transmission. Camera multithreading and motion-triggered recording was implemented using OpenCV and DepthAI with OAK-D PoE cameras. While in its foundational stages, this initiative served as a valuable learning experience, enhancing expertise in server architecture and real-time video processing. **(12/24)**
- **Sport Betting Assistant Website:** Built using Flask, Scikit-Learn, and Rapid-API, this application supports key features such as viewing trending events, accessing team and player stats, and participating in game-winner predictions for NBA games during a given season. The Decision Tree classifier, machine learning model, was used to forecast game outcomes. **(04/24)**

Education

Bachelor of Science in Computer Science — Southern Connecticut State University — New Haven, CT, USA

- **Key Courses:** Algorithm Design & Analysis, Artificial Intelligence, Data Structures, Database Systems, Internet Programming, Object-Oriented Programming, Operating Systems, Theory of Programming Language
- **Honors**: magna cum laude (GPA: 3.82/4.0)
- **Honors:** 9x Dean's List Recipient at Southern Connecticut State University - ***all semesters***
- **Award:** First-Year Research and Artistry Experience Award at Southern Connecticut State University **(2020)**
- **Award:** Academic Excellence in Computer Science (General)