Borna Hemmaty

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EDUCATION

University of California, San Diego — La Jolla, CA
Mathematics-Computer Science B.S. — *Sep. 2021 – Jun 2025*

EXPERIENCE

AI Student Collective Discord Bot | *Python, Discord API, OpenAI API, Git* — March 2023 – Present
- Lead a team to Develop a Discord Bot with functionalities of OpenAI using Python and the Discord API.
- Programmed to have various default commands as well as certain voice channel functionalities.
- Moderate bot to monitor a discord server.
- Uses machine learning to identify certain text through language processing to mark messages with sentiment analysis whether they are valid to use on a restricted vocabulary discord server.

PROJECTS

Recipe Book Application | *Java, JavaFx, MongoDB, Open-AI, DALL-E, Whisper* — September - December 2023
- Developed Recipe Book application with a team of 6 using JavaFx, incorporating advanced features:
  - Dynamic recipe generation based on meal type and available ingredients.
  - Integration of Whisper API for capturing human input.
  - Utilization of OpenAI/GPT API for intelligent recipe generation.
- Implemented multi-device functionality, allowing users to access the application across different platforms.
- Implemented user account creation and login features using MongoDB for scalable data management.
- Leveraged DALL-E API to enhance the user experience by creating reference photos for generated recipes.

Huffman Tree Encoding and Decoding | *C++* — February 2023
- Developed an efficient Huffman Tree-based encoder and decoder in C++ for message encryption and decryption, showcasing advanced data compression techniques.
- Implemented the construction of a Huffman Tree by analyzing the frequency of each character in the input message, enabling optimal encoding of characters with variable-length codes.
- Utilized priority queue data structures and custom comparator functions to construct the Huffman Tree in a time and memory-efficient manner, demonstrating strong algorithmic skills.

Fortune Telling Hut | *JavaScript, HTML, CSS, MongoDB, Node.js* — June 2024
- Added new functions to an existing Fortune Telling Hut in vanilla Js, HTML, and CSS
- Implemented Login Functionality using MongoDB to store saved fortunes and login
- Worked on applying a better developer experience by applying MVC Pattern as well as test cases for new features.

Capstone Project | *Raspberry Pi OS, Bash, 3D CAD Modeling* — September 2020 – July 2021
- Team capstone project creating a wireless USB hub with a Raspberry pi zero along with outer shell.
- Using ssh to set up a wireless USB hub on the raspberry pi zero.
- Researched logistics of a wireless USB hub for marketing.
- Learned how to use 3D CAD software with isometric drawings for a raspberry pi zero shell.

TECHNICAL SKILLS

Coding: Java, Python, C/C++, Csharp, LaTeX, R, HTML, CSS, TypeScript, R
Technologies: Git, Blender, Vim, JUnit, Discord API, Tailwind CSS, Next.js, JavaFx, Open-AI, Whisper API, DALL-E API, MongoDB, R Studio
Relevant Coursework: Design and Analysis of Algorithms, Software Tools and Techniques Laboratory, Discrete Mathematics, Mathematics for Algorithms and Systems, Security in Amazon Web Services, Computer Organization and System Programming, Theory of Computability, Advanced-Data Structures, Software Engineering