JOSEPH QUINN

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EDUCATION

Vanderbilt University - Nashville, TN *Present*

Bachelor of Science - *Major in Computer Science &Math; Minor in Data Science*

Relevant Coursework: Algorithms and Data Structures; Database Design and Management; Software Engineering Principles; Operating Systems; Computer Networks; Calculus and Analytic Geometry; Mathematical Logic and Discrete Structures.

Arapahoe Community College - Littleton, CO *May 2023*

- Associate Degree of Science *GPA: 3.83*
- 82 concurrent enrollment credits

EXPERIENCE

Lockheed Martin – *Engineering Explorers Post;* Littleton, CO January *2019 - March 2020*

- Participated in a specialized program aimed at providing students with an immersive, behind-the-scenes exposure to aerospace engineering.
- Participated in industry expert-led meetings on space programs like Maven and Osiris-Rex
- Collaborated on hands-on engineering projects, including rover construction and rocket development.
- Received mentorship from Lockheed Martin Engineers and contributed to technical space hardware projects.

Vanderbilt Change++ – *Developer* *August 2023 – Present*

- Student-led software development organization at Vanderbilt University dedicated to providing innovative, cost-free technology solutions to nonprofit organizations.
- Utilizing Typescript, React / React Native, Node.js Express, MongoDB, and AWS EC2.

PROJECTS

Snake Learning Model - *https://github.com/josephjquinn/Snake-Deep-Learning*

- Implemented a Deep Q-Learning (DQL) AI reinforcement learning algorithm that plays a basic Snake arcade game.
- Designed and implemented a feedforward neural network model using PyTorch.
- Utilized Rectified Linear Unit (ReLU) activation in the hidden layer.
- Implemented Q-learning algorithm logic, including state-action-reward-next state (SARSA) updates.
- Fine-tuned hyperparameters such as learning rate (LR), discount factor (gamma), and exploration rate (epsilon) for optimal learning.
- Visualized training progress using plotting functions to track agent performance and learning trends over time using Matplotlib.

Word-Wise Algorithm - *https://github.com/josephjquinn/word-wise*

- Developed a game algorithm that uses feedback and statistical analysis of letter frequencies to make effective word guesses, systematically approaching the solution.
- Parsed Wordle game data stored in CSV format. Implementing data loading, cleaning, and transformation techniques to prepare the data for analysis using python.
- Conducted statistical analysis on gameplay data, creating data visualizations using Matplotlib and Seaborn libraries.

Huffman Encoding - *https://github.com/josephjquinn/Huffman-Encoding-Algorithm*

- Developed binary algorithm for lossless data compression.
- Utilized priority Queue data structure is utilized, allowing for efficient sorting and selection of the nodes with the lowest frequency.
- Implemented recursive java methods and Object-Oriented Programing for Huffman Tree traversal and bit decoding.

TECHNICAL SKILLS

Languages: Java | Python | HTML | CSS | JavaScript | Typescript | R
Frameworks: Node.js | React | Linux distros | Fusion 360 | Prusa/Cura Slicer
Developer Tools: Git | VS code | PyCharm | IntelliJ | WebStorm | Postman
Libraries: PyTorch | Matplotlib | tkinter | pandas | seaborn | NumPy | bs4 | selenium