

Omar Abbas Haque

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EDUCATION

University Of Massachusetts

Bachelor of Science in Computer Science, Bachelor of Science in Mathematics

Amherst, MA

Aug. 2024 – May 2027

HIGH SCHOOL

Advanced Placement: Calculus BC: 4, Chemistry: 5, Physics 1: 5, Physics 2: 5, Computer Science A: 5

Cambridge International A Levels: Maths: A*, Further Maths: A*, Physics: A*, Chemistry: A*, CompSci: A*

COURSEWORK

Data Structures(Java), Introduction to C programming, Multivariable Calculus, Coursera: Stanford Machine Learning Specialization

PROJECTS

Tech Support Assistant | *React, TailwindCSS, OpenAI API, Amazon AWS EC2*

- Developed a chatbot with the functionality to answer questions related to a specific company or organisation
- Implemented OpenAI API as the LLM
- Information about the organisation is specified in the system prompt of the OpenAI Model
- Used React and TailwindCSS for frontend. Deployed to Amazon AWS EC2 servers
- Chatbot maintains conversation history by passing an array of past messages as context

Professor Recommendation Chatbot | *Pinecone, React, MaterialUI, OpenAI API*

- Developed a chatbot which recommends professors to the user based on criteria specified by them
- Each professor's data is stored in a JSON file, containing reviews by students on that professor
- Professor reviews were stored in the Pinecone vector database
- Implemented RAG to match user's query with reviews of the professors

Maze Generator | *JavaScript, p5.js, Depth-First Search*

- Developed a maze generator, which generates a valid maze with a guaranteed start and end point
- Depth-first search implemented with backtracking to generate the maze
- p5.js used for rendering

Inventory Management | *Firebase, React, MaterialUI*

- Developed a website to track an inventory of items
- Implemented firebase to keep track of the items in the inventory

Plinko Simulation | *JavaScript, p5.js, matter.js*

- Developed a realistic simulation of a plinko game using matter.js as the physics engine, and p5.js for rendering
- Used Object-Oriented Programming to make matter.js objects
- Iteration was used to generate a uniform pattern of fixed balls, and the buckets they will fall into

Color Palette Picker | *React, MaterialUI, Color Theory*

- Color palette generator to implement in other projects for designing UI
- Generates one complementary color, two analogous colors, and two triadic colors
- HSV color format is used for color manipulation since it corresponds directly to the 360 degrees in the color wheel

TECHNICAL SKILLS

Languages: Java, Python, C, JavaScript, HTML/CSS

Frameworks: React, Next.js, React Native, Material-UI

Developer Tools: Git, Pinecone, OpenAI, LangChain, VS Code, PyCharm, IntelliJ, Eclipse

Libraries: pandas, NumPy, Matplotlib, p5.js, matter.js, TensorFlow, scikit-learn