Venus Lee

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Skills

Languages Python, Java, C++, JavaScript, SQL, HTML, CSS, R
Technologies/Misc Git, Spring Boot, React, PostgreSQL, MongoDB, RESTful APIs, OpenGL, TensorFlow/Keras

Work Experience

Acer | Machine Learning Engineer Intern | **(Python)** *Apr. 2023 – Aug. 2023*

- Developed a CNN (EfficientNetB0) deep learning model for Glaucoma classification using retinal images from various stages and demographics, initially achieving a sensitivity and specificity of 86%.
- Increased model performance to 89% sensitivity and specificity (+3%) by fine-tuning learning rates and applying the Bengraham method.
- Implemented model checkpointing, improving training efficiency by 15%, and enhanced input quality through preprocessing techniques.
- Deployed the optimized model in a testing environment within Acer, now in trial production with B2B clients.

Private Tutor | Tutor *Jan. 2021 – Present*

- Conduct one–on–one private weekly tutoring sessions for elementary and high school students.
- Designed customized homework assignments to reinforce learning and address individual student weaknesses.
- Improved a student's Calculus grade from 45% (midterm) to 57% (final) through extra unpaid tutoring sessions.

Technical Project

AmaSave – Price Tracker Website (1-person team) | **(Java Spring Boot, React, HTML, PostgreSQL, pgAdmin)**

- Developed a price tracking website with user registration, product tracking, and price alert features.
- Implemented secure user authentication with hashed passwords and session management, and designed a real-time SMS alert system using Twilio for price change notifications.
- Built a dynamic user dashboard for real-time product tracking, price alerts, and historical trends, leveraging web scraping and API integration for periodic updates.
- Designed a normalized relational database schema in PostgreSQL to manage users, products, price history, and alerts, ensuring data integrity and scalability.

Movie Collection Website (1-person team) | **(Python, HTML, CSS, SQL)**

- Built a website allowing users to manage personalized movie lists with search, add, edit, and delete functionalities, leveraging the TMDb API with access to over 1 million films.
- Designed and implemented a relational database with "Movie" and "UserComments" tables, enabling personalized comments and user-specific feedback storage.
- Integrated content recommendations based on TMDb reviews and user interactions to provide tailored movie suggestions.
- Created a dynamic movie list display that adapts to user rankings, enhancing discovery and engagement.

Task Organizer (1-person team) | **(Java)**

- Designed and implemented the backend architecture for a task organizer application, including app frame and button panel components, using Java Swing.
- Constructed a user-friendly frontend To-do list interface with Java AWT, facilitating enhanced task management.
- Implemented task addition, completion, and clearing functionalities to improve task organization.

Stranded – 2D Survival Game (6-person team) | **(C++)**

- Led a team of 6 to develop a 2D space survival game using OpenGL for graphics rendering, incorporating complex gameplay features such as mob behaviors, item drops, story items, and a fog of war system.
- Implemented the A* pathfinding algorithm to optimize navigation and developed dynamic spawning algorithms for game mobs.
- Designed sprite sheet rendering for character animations and integrated UI screens for tutorial, starting, and ending scenes.
- Enhanced game stability through algorithm optimizations, including memory management improvements and efficient rendering techniques, preventing crashes and ensuring a consistent game resolution.

Education

University of British Columbia | *Bachelor of Science* *Graduation: May. 2024*

Major: Mathematics **Minor:** Computer Science

Relevant Coursework: Data Structures and Algorithms, Machine Learning, Database Management, Software Construction, Applied Linear Algebra, Human Computer Interaction