Venus Lee

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Skills

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

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%.
- Improved model performance by 3% through fine-tuning learning rates and applying the Bengraham method, reaching a final sensitivity and specificity of 89%.
- Implemented model checkpointing to save best-performing weights during training and collaborated on preprocessing techniques based on research.
- 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 relevant supplementary homework to ensure students maintained a thorough understanding.
- Improved a student's Calculus grade from 45% (midterm) to 57% (final) through extra unpaid tutoring sessions.

Technical Project

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

- Developed a price tracking website replicating CamelCamelCamel, incorporating 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 providing real-time product tracking, price alerts, and historical trends, utilizing web scraping and API integration for periodic updates.
- Created a normalized relational database schema in PostgreSQL for users, products, price history, and alerts to ensure data integrity and reduce redundancy.

Favorite Movies Website (1-person team) | **(Python, HTML, CSS, SQL)**

- Developed a user-friendly website that allows users to store, edit and delete their top favorite movies from a collection of over 1 million films using The Movie Database (TMDb) API. Enabled users to search for and add their favorite films to personalized lists.
- Designed and implemented a backend and relational database using SQL, featuring "Movie" and "UserComments" tables. The "UserComments" table supports personalized comments for each movie, enhancing the movie list feature by storing and displaying user-specific feedback.
- Added content recommendations based on TMDb reviews and user interactions, providing tailored movie suggestions aligned with user preferences and review scores.
- Implemented a dynamic movie list display that adapts to personalized rankings, enhancing the movie discovery experience.

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++)**

- Developed a 2D space survival game using OpenGL for graphics rendering, featuring complex gameplay elements such as mob behaviors, item drops. pickup story items, and a fog of war system.
- Implemented the A* pathfinding algorithm to enhance navigation and developed dynamic spawning algorithms for game mobs.
- Implemented sprite sheet rendering for character animations and designed the integrated UI screens for tutorial, starting and ending scenes.
- Enhanced game stability through algorithm optimizations, including memory management improvements and efficient rendering techniques, to prevent crashes and maintain 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