Yunhan Huang

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Education

- **Purdue University** — Indiana, US
  - *Master of Science - Computer Science* — *May 2023 - August 2024*
  - *Bachelor of Science - Computer Science; GPA: 3.68* — *August 2019 - May 2023*
  - ***Courses:*** *Problem Solving & OOP, Programming in C, Data Structures, Computer Architecture*
- *Bachelor of Science - Game Design and Development* — *August 2019 - May 2023*
  - ***Courses:*** *Geometric Modeling Visualization and Communication, Computer Graph Programming, Computer Animation, Digital Light & Render, Game Development*

Experience

- **Undergraduate Research Assistant**
  Kihara Bioinformatics Lab, Purdue University — *Aug 2021 - Present*
  - **Data Clustering**: Protein structure clustering with domain information such as secondary structure, sequence similarity, and Structural Classification of Proteins from UCB
  - **Data Dimensionality**:
    - Used cuML, a RAPIDS Machine Learning library, to perform initial data dimensionality reduction on all 3DZD data in a relatively faster speed.
    - Applied PCA and t-SNE for feature dimension reduction for visualizaing.
    - Adopted UMAP to finalize dimensionality reduction and generate clustering graphs for interactive webpage
  - **Interactive Graphs**:
    - Effectively deployed ThreeJS for 3D clustering graph visualization.
    - Used KNN algorithm on processed data to decrease total number of mesh objects for reduce rendering pressure.
    - Provided basic interactive functions, searching, locating, showing PyMOL generated images, and etc.
    - Integrated with 3D Surfer to provide better searching experience.

- **Undergraduate Teaching Assistant**
  Purdue University — *Aug 2022 - Present*
  - **Course:**: Purdue University CS 240 - Programming in C
  - **Tutor Preparation**: Designed guide questions of course-related concepts and applications in C. Provided introductive tutor on VIM and Pico
  - **Communication & Assist**:
    - Held office hours weekly, guided students to understand course concepts and to debug for project assignments.
    - Assisted over 100 students to consolidate their understanding in the course difficulties.

- **Programmer**
  Game Developer Union — *Aug 2019 - Aug 2020*
  - **Project Overview**: Used Unreal Engine 4 for the entire game production with supports of basic I/O functions and realistic physic simulation.
  - **Feature Implementation**: Achieved more steady and bug-less game with the Unreal Engine 4 scripting node system.
  - **Large-Scale Teamwork**: Applied professional communication skills to lead and coordinate team members

Projects

- **Goh**: Github
  - A web-based project manager tool for developer teams to oversee projects.
  - Used ReactJS framework to achieve real-time rendering and to achieve component-based architecture .
  - Utilized on Google FireStore NoSQL database and user authentication to store/retrieve/update users and projects information.
  - Adopted MUI, a comprehensive UI suite for ReactJS to provide high quality user experience
  - Performed as a front-end tech lead within a team of four people
- **Simple Biography Program**:
  - A program that allows small amount of users to communicate under the same wifi network, and also has basic friend list and personal biography page.
  - Implemented multi-thread structure and web-socket in Java for multiple user synchronously login.
  - Designed user information storage data system, and password verification & resetting.

Publication

"Assessment of Protein-Protein Docking Models Using Deep Learning", Zhang, Y., Wang, X., Zhang, Z., Huang, Y., and Kihara D., Protein-Protein Docking: Methods and Protocols, Methods in Molecular Biology, in press, (2023)

Skills Summary

- **Languages**: JAVA, JavaScript, C/C++, Python
- **Platforms**: Google Colab, Jupyter Notebook, Google Firebase
- **Frameworks**: ThreeJS, NodeJS, ReactJS, NumPy
- **Soft Skills**: Leadership, Team Work, Writing, Public Speaking, Time Management