MING CHENG

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Skills

PROGRAMMING LANGUAGE

C
C++
Python
JavaScript
HTML
CSS

FRAMEWORKS

React.js
Boost Asio
OpenGL
Design Patterns

TOOLS

Git
Firebase
AWS
CC3200

OS EXPERIENCE

FAT-based File System
User-Level Thread Library
Shell

Education

University of California, San Diego — Sept. 2019 to Current
Master of Science Computer Science 2021

University of California, Davis — Sept. 2015 to June 2019
Bachelor of Science Computer Science and Engineering 2019
GPA: 3.7/4.0

Team Experience

Gamification of Nutrition Literacy — University of California, Davis
Dr. Lisa M. Soederberg Miller's Team — Jan. 2019 to June 2019

- Worked in a team to develop a learning system with web-based games.
- Implemented two original games with various levels, login system for user interaction, leader board and badges rewards system in **JavaScript, HTML** and **CSS.**
- Implemented game physics, scene flow in **JavaScript** with **Phaser 3**, a framework for 2D games, designed game maps with **Tiled.**
- Used **Firebase**, a cloud-hosted NoSQL database to collect user data. LINK

Client-Server for Warcraft II — University of California, Davis
Prof. Christopher Nitta's Multiplayer Team — Jan. 2019 to Mar. 2019

- Worked in a team to develop multiplayer support for Warcraft 2, a real-time strategy game (MOBA), on Linux, Mac OS and Windows.
- Implemented multiplayer system with Client-Server model in **C ++11** with **Boost Asio**, a cross-platform C++ library for network programming.
- Implemented login system with authentication, and message system for pre-game and in-game chatting.
- Used **Protocol Buffers** to serialize user and game data for efficiency.

Projects

Sorting Visualizer — Jan. 2020 to Current

- Developed a web-based visualization tool for various sorting algorithms using **React.js, Javascript, HTML,** and **CSS.**
- Implemented Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort, Radix Sort, and Bucket Sort.

Path Finding Visualizer — Dec. 2019 to Jan. 2020

- Developed a web-based visualization application of path-finding algorithms using **React.js, Javascript, HTML,** and **CSS.**
- Implemented Dijkstra's Algorithm, A-Star Search Algorithm, Depth-First Search, Breadth-First Search, and Greedy Best-First Search.
- Applied maze-generation algorithms for visualization.

Gomoku (Connect 5) — Feb. 2019 to Mar. 2019

- Developed Gomoku (Connect 5), an abstract strategy board game, using CC3200 launchpads and Adafruit SSD1351 as the display.
- Implemented multiplayer gameplay between two CC3200 launchpads using IR remote control.
- Used **AWS** and **REST API** to communicate game data between two boards such as POST and GET.

3D/2D Drawing System — Sept. 2018 to Dec. 2018

- Developed a system that can draw and transform lines, polygons and simple polyhedral in **C++** with **OpenGL**.
- Applied DDA and Bresenham line drawing algorithms to draw lines, the scan-line algorithm for rasterizing polygons, and the Cohen–Sutherland algorithm for two-dimensional clipping.
- Applied Phong lighting model, Gouraud shading and the Painter's algorithm to display colored 3D objects.