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

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.