

# MING CHENG

✉ chengmingjtt123@gmail.com  
🌐 mingchengzack.github.io  
☎ 6197817840  
📍 3695 Merrimac Ave San Diego CA 92117  
🔗 mingchengzack

## 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  
Master of Science Computer Science 2021  
Sept. 2019 to Current

University of California, Davis  
Bachelor of Science Computer Science and Engineering 2019  
Sept. 2015 to June 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**.
- Applied Bubble Sort, Insertion Sort, Selection Sort, Shell Sort, Quick Sort, Merge Sort, Heap Sort, Radix Sort, and Bucket Sort for visualization.

**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**.
- Applied Dijkstra's Algorithm, A-Star Search Algorithm, Depth-First Search, Breadth-First Search, and Greedy Best-First Search for visualization.
- 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.