# Yunzhong (Shawn) Xiao

LinkedIn | FaceBook | https://shawn-yzxiao.github.io | +1(US) 510.859.3104 | shawncloudy@gmail.com

## EDUCATION

### SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

BS Industrial Design

Sep 2019 - July 2023 | Shenzhen, China
School of System Design and Intelligent Manufacturing (SDIM)
Mentors: Dr. Jingshen Wu, Dr. Limin Zhou
GPA: overall 3.68/4.0; major 3.79/4.0

### UC BERKELEY  Visiting Student

Jan 2022 - Jan 2023 | Berkeley, US
Data Structures (A)
Machine Structures (A)
Simulation for Enterprise-Scale Systems (A+)
GPA: 4.0 / 4.0

### EECS COURSES

Data Structure
Great Ideas in Computer Architecture
Machine Learning
Introduction to Artificial Intelligence
Extended Reality Development

### DESIGN COURSES

Design Thinking
System Design and Management
Fundamentals of Industrial Design
Aesthetics and Design Psychology

## EXPERIENCES

### PROGRAMMING

Over 5000 lines:
Java • Python
Over 1000 lines:
C • C# • MatLab • RISC-V • LaTeX

### SOFTWARES

Extended Reality:
Unity 3D
Modeling & Analysis:
SolidWorks • Rhino • Abaqus
Adobe:
LightRoom • Premiere Pro • PhotoShop

### OTHERS

Language:
Chinese • TOEFL 108
Arts:
Aerial Photography • Guitar Playing

### COMMUNITY INVOLVEMENT

CS104 Intro to Mathematical Logic:
*Teaching Assistant*     Feb 2021 – Jul 2021
SUSTech Guitar Orchestra:
*Guitar Player*          Sep 2020 – Jul 2021
Shude Soccer and Basketball Team:
*Logistic Manager*     Sep 2019 – Sep 2020

## RESEARCH

### UCB ELECTRONIC SYSTEMS DESIGN RESEARCH

Supervisors: Dr. Sanjit A. Seshia, Edward Kim          Jun 2022 - Aug 2022
Corporate with 1 PhD and 5 undergraduates to develop an *Intelligent Tutoring System (ITS) to train psychomotor skills in Virtual Reality (VR)*. Our results show that our ITS had 32.3% higher learning gains than the self-guided baseline ($p$-value < .05) with an effect size of 0.41.
1. Developed Knowledge Identification algorithm based on a directed acyclic graph data structure to output the next best sample point.
2. Co-developed VR environment, wrote python scripts to check trainee's physical behavior in VR and provide feedback prompts.
3. Created the interface to fit Bayesian model prior to the human experiment

### UCB THEORETICAL & APPLIED FLUID DYNAMICS LAB

Supervisors: Dr. Reza Alam, Dr. Xiaoping Hong          Jan 2022 - Present
Initiated the project of *Developing Unmanned Surface Vehicles Swarm to Collect Real-time Marine Data* with two other undergraduates.
1. Built the first generation of electrical system, including the autopilot based on ArduRover firmware, integration of multiple ocean environment sensors using Arduino, and the mesh network communication based on DigiMesh protocol.
2. Evaluated 30 new applicants based on their suitability, interviewed and recruited 4 new undergraduate researchers on behalf of PI.
3. Organized team logistics for 5 undergraduates and 5 graduates, planned general work scheme, divided the work considering everyone's strengths, organized weekly meetings and managed group Notion.

### SUSTECH MACHINE LEARNING SYSTEMS DESIGN

Supervisor: Dr. Zhenkun Wang          Aug 2021 – Dec 2021
I led two undergraduates and proposed a new approach to chip packaging design optimization by applying Bayesian optimization machine learning algorithms. Achieved 15% improvement compared to the existing approach.
1. Implemented several classical evolutionary algorithms such as NSGA-II and state-of-the-art surrogate-assisted algorithms based on python or Matlab
2. Refined the finite element model of the chip packaging in Abaqus simulation and constructed its interface to our algorithms

## COURSE PROJECTS

**Gitlet** Built a version control software based on Java that has similar functions as Git such as remote repositories, encapsulation and branching. It uses data structures like directed graphs, linked list, HashMap, and search algorithms such as Depth First Search, A* search.

**CS61CPU** Built a small CPU that runs actual RISC-V instructions on logisim, I also applied 2-stage pipeline to increase speed.

**AI Pacman** An AI agent that runs in PacMan game, I used multiple search algorithms and reinforcement learning to increase the agent's performance.

**Game Simulation** Worked with three undergraduates to evaluate the exit rate of different game opponent-matching strategies by simulation of our probabilistic model. I led the implementation of the code.

**VR Escape Room** I designed and implemented an escape room game in Unity3D with a teammate, the player will use walking, climbing, or teleporting skills to navigate out of the maze. We wrote code in C# to mimic physical principles in VR environment.

**Grassland Manure-collecting Robot** I led a team of 6 to design a solution to manure pollution problem in Inner Mongolia based on the mobile robot. I directed weekly meetings, implemented object detection using RGBD camera Kinect V3 and integrated control system to JetsonNano board with another undergraduate.

**Inverted Pendulum** Modeled and linearized the inverted pendulum system, designed a PD controller to stabilize the Single Input and Multiple Output plant in SIMULINK.