

Yunzhong (Shawn) Xiao

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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)

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 of 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 and HashMap, it also uses search algorithms such as Depth First Search, and 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 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 of manure pollution problem in Inner Mongolia based on mobile robot. I directed weekly meetings, implemented object detection using RGBD camera Kinect V3 and integrated control system to Jetson Nano 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.