

Liuhao Wu

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EDUCATION

University of Chicago (UChicago)

Sep 2021 — Jun 2023

Chicago, IL

- *The College*: B.S. in Computer Science; GPA: 3.788
- *Courses*: Operating Systems, Computer Architecture, Computer Networks, Complexity Theory, Functional Programming, Robotics, Human Computer Interaction, and Usable Security and Privacy

University of California, Santa Barbara (UCSB)

Aug 2019 — Aug 2021

Santa Barbara, CA

- *College of Engineering*: Computer Science with Honors (transferred out); GPA: 4.000

EXPERIENCE

Marine Biological Laboratory

Aug 2022 — Sep 2022

Woods Hole, MA

Undergraduate Researcher (Supervised by Dr. David Mark Welch and Dr. Elena Peredo)

- Conducted research on microbiome recovery of spurdogs and chain catsharks during the skin regeneration process
- Performed sample collection and DNA extraction, and analyzed sequencing results using Qiime2 to populate volcano plots, taxonomy charts, and alpha and beta diversity

CANON Lab at UChicago

Apr 2022 — Aug 2022

Chicago, IL

Undergraduate Researcher (Supervised by Prof. Diana Franklin)

- Developed a Connect 4-inspired educational game QueueBits on Unity 2D, in which chips on board carry different probabilities before the measurement to introduce superposition concepts to high school students
- Implemented instructor interface of Entwine, an educational website digitalizing and integrating existing paper worksheets into Scratch programming interface (a high-level programming language for children) for personalized learning, with features including student roster management, class module creation, and project progress check.
- Conducted preliminary testing and focus groups of QueueBits and Entwine on 15 middle school students and 36 high school students to evaluate their effectiveness on introducing quantum commuting concepts to young learners

Human-Robot Interaction (HRI) Lab at UChicago

Apr 2022 — Jul 2022

Chicago, IL

Undergraduate Researcher (Supervised by Prof. Sarah Sebo)

- Conducted 12 research experiments and analyzed 45 video recordings to qualitatively analyze the effectiveness of humanoid robot, monitor screen, and poster as facilitators for interpersonal meaningful conversations
- Supported data analysis from participants' survey responses and creation of story narratives based on study results

Gevirtz Graduate School of Education at UCSB

Jan 2021 — Sep 2021

Santa Barbara, CA

Undergraduate Researcher (Supervised by Prof. Diana Arya)

- Supported literature reviews and game design and testing in a virtual reality-based game program for remedial literacy education under the initiative of Community Based Literacies (CBL) project and McEnroe Reading and Language Arts Clinic
- Designed a radial menu detecting controller inputs on Unity 3D and art asset development using Blender and Photoshop

Religious Studies and Psychological & Brain Sciences at UCSB

Jun 2021 — Aug 2021

Santa Barbara, CA

Undergraduate Researcher (Supervised by Prof. Ann Taves and Dr. Elliott Ihm)

- Analyzed 1000+ survey responses from the Inventory of Non-Ordinary Experiences (INOE) project using R to investigate prevalence and categorization of non-ordinary experiences, as well as influences induced by religious / spiritual traditions
- Conducted interviews and literacy reviews on medication practices, and presented both qualitative and quantitative results

PROJECTS

Bouncing Ball Tracking

Aug 2023 — Aug 2023

- Implemented a WebRTC-based communication that transmits video frames and messages between client and server

Restrogram

July 2023 — Aug 2023

- Implemented a mock Instagram app for restaurants that supports dynamic post and profile systems using Firebase and SwiftUI

Pintos

Mar 2023 — June 2023

- Programmed an operating system framework supporting kernel threads, user programs, virtual memory, and file system

Network Protocols

Oct 2022 — Dec 2022

- Coded an Internet Relay Chat (IRC) server, Transmission Control Protocol (TCP), and multi-network IP routing with sockets

Turtlebot Waffle

Mar 2022 — Jun 2022

- Integrated and implemented arm and sensory-motor control to perform tasks including person following and object sorting
- Incorporated reinforcement Q-learning algorithm, particle filter localization, inversed kinematics, and OpenCV ARTag

UCSB Food Bank

Mar 2021 — Jun 2021

- Led the development of a website providing UCSB students information about item availability at the Food Bank

UCSB Course Search

Mar 2021 — Jun 2021

- Implemented course search and registration features and repaired backend controllers in the legacy codebase

SKILLS

Programming: C/C++, SwiftUI, Python, C#, Java, JavaScript, HTML, CSS, and R

Toolbox: Git, Azure, Firebase, React, CI/CD, TCP, OpenCV, UNIX, LaTeX, Unity, Blender, Arduino, Qiime2, Jupyter, Docker, and Godot