



# Haosong Liu

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Los Angeles  
My Website: haosongliu.com  
Machine Learning Engineer / Software Engineer

## EDUCATION

**University of Southern California** Jan 2022 - Jun 2024  
Electrical Engineering Master Los Angeles

- Related coursework: *Convex Optimization, Advanced Deep Learning Systems, Cloud Computing and Distributed Systems, Hardware IoT, Remote Direct Memory Access.*

**University of California, Irvine.** Sep 2016 - Jun 2020  
Computer Science Undergraduate.

- Minor: Data Science
- Related coursework: *Software Engineering theory, Algorithms and Data structures, Database principles and applications, machine learning and data mining, statistical probability*

## Professional Skill

- **Languages:** English (Fluent), Chinese (Natural), Spanish (Working)
- **Computer Languages:** C/C++ , Python , Java , JavaScript , HTML , MySQL , Git , Bash
- **Environments & Libraries** PyTorch, Keras, Linux OS, AWS Sagemaker, AWS EC2, GitHub, Docker, Microsoft Visual Studio Code, Postman API.
- **Professional:** Code optimization, technical documentation, communication & presentation, team organization and leadership, project management, development workflow optimization, collaboration, mentoring.

## WORKING EXPERIENCE

**Qianxun Spatial Intelligence Inc.** Feb 2021 - Aug 2021  
Machine Learning Engineer Internship Shanghai

- Developed and tailored a web-based offline tool using JavaScript for the annotation of continuous street view imagery, enabling accurate labeling of lane markings, lane arrows, and drain outlets.
- Collaborated in the training of a building/structure segmentation model using point cloud data from satellite oblique photography, advancing 3D city reconstruction efforts.
- PypptRoadSign Library Project (<https://pypi.org/project/PypptRoadSign/>):
  - Lead and directed the development of a Python library using the Microsoft PowerPoint Python interface to facilitate the automated construction of SVG road signs.
  - Integrated the library into team workflows, allowing team members to seamlessly convert spatial data obtained from a text and entity detection network into SVG road sign representations.

**California Plug Load Research Center** Mar 2019 - Jun 2020  
Front-end Developer & Research Assistant, CalPlug Simhome Team Irvine

- Worked as part of the Calplug Simhome Team to develop a system monitoring energy usages of household appliances inside a simulated home area, improving energy efficiency by 20 percent.
- Lead the implementation of Amazon Alexa integration with the monitoring system, leveraging services provided by Amazon AWS (LambdaFunction, AlexaSDK) to develop, test, and collect data for the VUI and GUI.

**UCI School of Information and Computer Science Laboratory Mentor Project.** Dec 2017 - Mar 2019  
Laboratory tutor Irvine

- Coached approximately thirty to fifty freshman and sophomore students in experiment-based courses each semester, assisting in teaching foundational programming and offering guidance in laboratory assignments.
- Assisted professors in syllabus construction and conceptualization, the development of supplementary learning materials, and the construction of course websites.

## PROJECT & RESEARCH EXPERIENCE

**MICCAI 2020 RibFrac Challenge: Rib Fracture Detection & Classification** Jun 2020 - Sep 2020  
Researcher <https://ribfrac.grand-challenge.org/>

- Collaborated with teammates in the training of an AI model for the automatic, accurate detection and classification of rib fractures.
- Utilized 2D/3D U-Net CNN architecture to establish a deep learning model and subsequently trained the model using over 400 training CTs provided by MICCAI organizers.
- Achieved a final Detection FROC Score of 0.74, earning a position in the top thirty best performing models.

**Minecraft Mini-Game AI Design** Sep 2019 - Dec 2019  
Course Project Leader <https://hongminy.github.io/Take-Him-Out/final.html>

- Used Malmo (a Minecraft Python library) to create an AI player capable of dodging fireballs and earning credits
- Set up a training environment for the AI and adopted the Deep Q-Learning algorithm to conduct training
- Expedited the training processing by the aid of GPU Acceleration and made the AI achieve essential intelligence

## Club and organization experience

**Music Club** <https://www.youtube.com/channel/UCsE1-jqkIsaKgk0FPFHQX5g>  
Studio (Recording & Technical) Department Head

- Organized three on-campus live performances per semester for club singers, primarily responsible for live sound mixing, recording, and management of various audio equipment.
- Handled regular recording and videography for vocalists and instruments, and produced audiovisual content for the club's social media platforms (WeChat Account/Video Channel).