

# Junwei Liao

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## EDUCATION

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### Xi'an Jiaotong University

*Bachelor of Science in Artificial Intelligence*

Xi'an, China

Sep 2021 - Jun 2025

- Cumulative **GPA**: 3.9/4.3
- **Relevant Coursework**: Linear Algebra & Geometry | Probability Theory & Mathematical Statistics | Computational Methods | Information Theory | Data Structure & Algorithms (Honor) | Intro to Machine Learning and AI | Computer Architecture | Mathematical Analysis in Engineering | Discrete Math
- **Awards**: Outstanding Student (2021 - 2023), HUAWEI scholarship

### University of California, Berkeley

*Visiting Student*

Berkeley, CA, USA

Aug 2023 - Present

- Cumulative **GPA**: Expected: 3.7/4.0
- **Relevant Coursework** (in progress): Designing, Visualizing and Understanding Deep Neural Networks | Theoretical Statistics | Deep Reinforcement Learning, Decision Making & Control

## RESEARCH EXPERIENCE

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### Deep Reinforcement Learning Research Assistant Intern

*Dept. of Computer Science and Technology, Tsinghua University*

Sep 2023 - Present

- Conducted research under the guidance of Postdoc Sheng Yue, in Prof. Ju Ren's lab.
- Tried to facilitate Reinforcement Learning by leveraging the power of LLMs and VLMs, making RL more human-sensitive, robust and generic.
- Gained a deep understanding of RLHF and RLAIIF, including fine-tuning LLMs with Reinforcement Learning.
- Investigated to find more effective solutions to offline pretraining and online fine-tuning.

### Federated Learning Research Assistant Intern

*Dept. of Computer Science and Technology, Tsinghua University*

Jan 2023 - Jun 2023

- Learned about federated learning, analyzing challenges, and improving solutions under the guidance of Prof. Ju Ren's PhD candidate Yongheng Deng.
- Implemented various datasets on FL framework and conducted some research

## PROJECTS

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### NUS SoC 2023 Summer Workshop | *Python, Java, JavaScript, HTML*

*School of Computing, National University of Singapore*

Jul 2023

Singapore

- Learnt AIoT related knowledge under the guidance of Prof. TAN Wee Kek.
- Led a team of 5 to develop an AIoT fitness assistance system called IntelliFit that analyzes exercise movements, provides real-time feedback(correctness) and advice.
- Processed frames with OpenCV, reduced dimensionality with PCA and classified posture using SVM
- Built a web interface to visualize classification results and exercise posture feedback for users in real-time.
- Received an A- for innovation, technical implementation, and presentation.

## **Data-Driven Model for Student Financial Aid Allocation** | *Python*

Jul 2023

- Clustered students using K-Means algorithm based on consumption features to identify groups with similar patterns.
- Developed XGBoost model using known poverty level data, and optimized it using cross-validation and heuristic algorithms.
- Allocated differentiated financial aid amounts to 80 most impoverished students based on poverty scores.
- Awarded Third Prize in the Mathematical Contest in Modeling at Xi'an Jiaotong Univ.

## **Transformer-based Semantic Segmentation for LC Surgery** | *Python*

Oct 2022 - May 2023

- Played a key role in data augmentation and preprocessing in this project. Researched and implemented various data augmentation techniques, including dynamic data augmentation to expand effective training dataset.
- Learned advanced deep learning models such as Transformer, ViT, U-Net, GAN for semantic segmentation.
- A related patent is being processed.