

Liang-Yuan “Leo” Wu

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Overview

Human-centered audio AI researcher exploring how people interact with intelligent sound systems, combining methods from HCI and AI to design interpretable and inclusive auditory technologies.

Education

University of Michigan <i>Master of Science in Computer Science & Engineering</i>	Sep 2022 - May 2024 Michigan, USA
National Taiwan University <i>Bachelor of Science in Electrical Engineering</i>	Sep 2017 - Aug 2021 Taipei, Taiwan

Research Experience

BiAlign Lab <i>Research Associate (remote), advised by Prof. Hua Shen</i> Led a project evaluating the emotional intelligence of audio-language models by creating a novel, psychometrically grounded benchmark dataset.	Aug 2025 – Present Shanghai, China
Soundability Lab <i>Research Assistant, advised by Prof. Dhruv Jain</i> - Led 4 research projects integrating machine learning, HCI, and medical school collaboration to design accessible audio AI systems; also delivered 1 filed patent and 1 Android application. - Developed a real-time speech-to-text captioning system for lab meetings and clinical scenarios, improving accessibility and communication for DHH researchers and patients.	May 2023 – Present Michigan, USA
Computational Human Artificial Intelligence Lab <i>Student Researcher, advised by Prof. Emily Mower Provost</i> - Developed speech emotion recognition models using multimodal approaches, incorporating silence tokens and audio energy features to improve activation state prediction and emotion classification. - Applied domain adversarial loss to enable personalized emotion recognition by mitigating speaker-dependent biases across diverse user data.	Aug 2022 – Apr 2023 Michigan, USA
Speech Processing and Machine Learning Laboratory <i>Student Researcher, advised by Prof. Lin-Shan Lee and Prof. Hung-Yi Lee</i> - Developed a Mandarin ASR training pipeline and investigated code-switching speech patterns, presenting findings at Machine Learning Summer School 2021. - Implemented and demonstrated explainable AI algorithms in natural language processing and computer vision, delivering these as interactive homework examples in a machine learning course with 1,000+ students.	Aug 2019 – Aug 2021 Taipei, Taiwan

Publications

* indicates Equal Contribution [C#] = Conference Paper [P#] = Short Paper [U#] = Under Review / Preprint

- [C4] **Liang-Yuan Wu** and Dhruv Jain, “**SoundNarratives: Rich Auditory Scene Descriptions to Support Deaf and Hard of Hearing People**”, in *Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25)*.
- [C3] **Liang-Yuan Wu**, Andrea Kleiver, Dhruv Jain, “**CARTGPT: Real-Time Correction of CART Captions Using Large Language Models**”, in *Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25)*.
Best Paper Honorable Mention
- [C2] Jeremy Zhengqi Huang, Caluã de Lacerda Pataca, **Liang-Yuan Wu**, Dhruv Jain, “**CapTune: Adapting Non-Speech Captions With Anchored Generative Models**”, in *Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25)*.
- [C1] Jeremy Zhengqi Huang, Jaylin Herskovitz, **Liang-Yuan Wu**, Cecily Morrison, Dhruv Jain, “**Weaving Sound Information to Support Real-time Sensemaking of Auditory Environments: Co-designing with a DHH User**”, in *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*.
- [P3] **Liang-Yuan Wu** and Dhruv Jain, “**EvolveCaptions: Real-Time Collaborative ASR Adaptation for DHH Speakers**”, in *Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25)*.

- [P2] Jeremy Zhengqi Huang, Caluã de Lacerda Pataca, **Liang-Yuan Wu**, Dhruv Jain, “**Demo of CapTune: Adapting Non-Speech Captions With Anchored Generative Models**”, in *Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25)*.
- [P1] **Liang-Yuan Wu**, Andrea Kleiver, Dhruv Jain, “**CARTGPT: Improving CART Captioning using Large Language Models**”, in *Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '24)* . **Best Poster Award**
- [U2] **Liang-Yuan Wu** and Dhruv Jain, “**EvolveCaptions: Empowering DHH Users Through Real-Time Collaborative Captioning**”, *Anonymous submission under review*.
- [U1] Sarah E Hughes*, **Liang-Yuan Wu***, Lindsay J Ma, Dhruv Jain, Michael M McKee, “**Assessing the Role of Medical Caption Technology to Support Physician-Patient Communication for Patients with Hearing Loss: A Pilot Study**”, *under review in JMIR Rehabilitation and Assistive Technologies*.

Work Experience

Ucarer Inc.	May 2021 – Aug 2021
<i>AI Platform Engineer Intern</i>	<i>Taipei Taiwan</i>
- Developed a backend system using JavaScript and PHP for an e-commerce platform to assist Sarcopenia patients in scheduling physical therapy sessions and purchasing health-supportive foods. - Built a customer relationship management system using PyTorch to analyze time-series data, enabling dynamic evaluation and ranking of customer needs based on health engagement patterns.	
Dragon Cloud AI	May 2020 – May 2021
<i>Machine Learning Engineer Intern (remote)</i>	<i>California, USA</i>
- Developed an AWS-based speech processing software to transcribe classroom recordings, detecting English portions in Mandarin-English bilingual classrooms to analyze teaching effectiveness. - Implemented an English accent scoring system using PyTorch, providing automated numerical feedback to assist non-native speakers in evaluating their pronunciation.	

Talk

Automatic Speech Recognition in Clinical Care	Oct 2024
<i>Presented in Disability Research Symposium, hosted by the Center for Disability Health and Wellness (CDHW), Michigan Medicine.</i>	
Improving User Experience in Speech Recognition with Large Language Model	Oct 2023
<i>Presented in 2023 AI Symposium, hosted by the AI Lab, University of Michigan.</i>	
Code-Switching Text Data Augmentation	Aug 2021
<i>Presented in Machine Learning Summer Schools (MLSS) 2021.</i>	

Honors

Best Paper Honorable Mention (10/83), ASSETS '25	Aug 2025
Best Poster Award (1/44), ASSETS '24	Oct 2024
Dean's List (top 5%), NTU	Dec 2021
Y.L. Lin Scholarship (\$15,000), NTU	Jul 2021
Outgoing Exchange Student Scholarship (\$2,500), NTU	Dec 2020
Social Devotion Special Award, NTU	Nov 2020
2nd Prize, Undergraduate Innovation Award, NTUEE	Jun 2020

Teaching Experience

EECS 592 Foundations of AI (Fall 2023)	Aug 2023 – Dec 2023
<i>Graduate Student Instructor</i>	<i>University of Michigan</i>
EE 5184 Machine Learning (Spring 2021)	Feb 2021 – Jun 2021
<i>Teaching Assistant</i>	<i>National Taiwan University</i>
EE 1006 Cornerstone EECS Design and Implementation (Spring 2020)	Feb 2020 – Jun 2020
<i>Teaching Assistant</i>	<i>National Taiwan University</i>

Services

External Reviewer: ACM CHI 2026, SAGE Trends in Hearing 2025, AAAI ICWSM 2024
Volunteer: Discover Engineering Workshop, Xplore Engineering Workshop