

Liang-Yuan “Leo” Wu

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🎓 Liang-Yuan Wu

Education

New York University

Doctor of Philosophy in Computer Science

Sep 2026 - June 2030 (expected)

New York, USA

University of Michigan

Master of Science in Computer Science & Engineering

Sep 2022 - May 2024

Michigan, USA

National Taiwan University

Bachelor of Science in Electrical Engineering

Sep 2017 - Aug 2021

Taipei, Taiwan

Research Experience

Music and Audio Research Lab (MARL)

Jun 2026 – Present

Graduate Researcher, advised by Prof. Magdalena Fuentes, and Prof. Mark Cartwright

New York, USA

- **MixCards**: Benchmarked six audio-language models on 4,884 multi-source soundscapes, evaluating source detection, temporal localization, and source-specific descriptions to identify errors obscured by aggregate caption scores.
- **Evaluation methodology**: Led the design and validation of an evaluation framework spanning 15 semantic and acoustic fields, combining LLM judges with deterministic metrics; developed controlled perturbation tests to distinguish valid paraphrases from semantic and acoustic errors.

BiAlign Lab

Oct 2025 – May 2026

Research Associate (remote), advised by Prof. Hua Shen, Dr. Chao-Han Huck Yang, and Prof. Tongshuang Wu

Shanghai, China

- Led the development of **SpeechEQ**, a benchmark of 2,265 multi-turn dialogues across 15 emotional intelligence dimensions, using identical transcripts with contrasting vocal delivery to isolate paralinguistic reasoning.
- Designed the evaluation protocol and **Spoken Emotional Quotient** metric; benchmarked cascaded and end-to-end speech-language models and analyzed failures in acoustic reasoning and emotional context tracking.

Soundability Lab

May 2023 – Oct 2025

Research Assistant, advised by Prof. Dhruv Jain

Michigan, USA

- **Audio accessibility**: Led research on contextual sound descriptions and personalized non-speech captions for deaf and hard-of-hearing users, combining audio-language models, participatory design, and interactive customization; developed the AdaptiveSound Android application to support access to environmental sound information.
- **Speech accessibility**: Led development and evaluation of LLM-assisted caption correction and collaborative, speaker-specific ASR adaptation; built and deployed a real-time captioning system used in lab meetings and clinical studies to support accessible communication.

Publications

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

- [U4] **Liang-Yuan Wu**, Zih-Ching Chen, Tongshuang Wu, Chao-Han Huck Yang, Hua Shen, “**SpeechEQ: Benchmarking Emotional Intelligence Quotient in Socially Aware Voice Conversational Models**”, under review at NAACL ’27.
- [U3] Sripathi Sridhar, Giovana Morais, Yujin Kim, Mehmet Atilay Kucukoglu, **Liang-Yuan Wu**, Prem Seetharaman, Lloyd May, Mark Cartwright, Magdalena Fuentes, “**MixCards: Evaluating Structured Descriptions of Multi-Source Sound Scenes**”, under review at ICLR ’27.
- [U2] **Liang-Yuan Wu**, Sripathi Sridhar, Mark Cartwright, Magdalena Fuentes, “**An Evaluation Framework for Structured Audio Captions Validated by Controlled Perturbations**”, under review at ICASSP ’27.
- [U1] **Liang-Yuan Wu** and Dhruv Jain, “**EvolveCaptions: Empowering DHH Users Through Real-Time Collaborative Captioning**”, under review at CHI ’27.
- [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 Patata, **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)*.
- [J1] 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**”, in *JMIR Rehabilitation and Assistive Technologies Vol 13 (2026)*.
- [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 Patata, **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

Presentations

SoundNarratives: Rich Auditory Scene Descriptions to Support DHH People <i>Presented in Generative AI and Accessibility Workshop, CHI 2025.</i>	Apr 2025
Automatic Speech Recognition in Clinical Care <i>Presented in Disability Research Symposium, hosted by the Michigan Medicine.</i>	Oct 2024
Improving User Experience in Speech Recognition with Large Language Model <i>Presented in 2023 AI Symposium, hosted by the AI Lab, University of Michigan.</i>	Oct 2023
Code-Switching Text Data Augmentation <i>Presented in Machine Learning Summer Schools (MLSS) 2021.</i>	Aug 2021

Work Experience

Ucarer Inc. <i>AI Platform Engineer Intern</i>	May 2021 – Aug 2021 <i>Taipei Taiwan</i>
<ul style="list-style-type: none"> Built a healthcare e-commerce backend and a PyTorch-based time-series system for assessing customer needs. 	
Dragon Cloud AI <i>Machine Learning Engineer Intern (remote)</i>	May 2020 – May 2021 <i>California, USA</i>
<ul style="list-style-type: none"> Developed AWS-based transcription and English-segment detection for Mandarin-English classroom recordings, and implemented a PyTorch-based English accent scoring system. 	

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), Y.L. Lin Hung Tai Education Foundation	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

Academic Service

Speech, Audio, Language : ICASSP 2027; EMNLP 2026; Trends in Hearing 2025
Human-Computer Interaction: CHI 2026–2027; UIST 2026; ICWSM 2024

Technical Skills

Programming Languages: Python, Javascript, C++, HTML/CSS, Kotlin
Machine Learning: PyTorch, Hugging Face, Transformers
Fullstack Development: React.js, Node.js, Flask, FastAPI
Tools & Platforms: GCP, AWS, SQL, Git