

Liang-Yuan "Leo" Wu

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Overview

Working at the intersection of Human-Computer Interaction (HCI) and Artificial Intelligence (AI), where I apply human-centered principles to enhance audio AI for diverse user needs, with a particular emphasis on accessibility for Deaf and Hard-of-Hearing (DHH) individuals.

Education

University of Michigan, MS in Computer Science and Engineering Sept 2022 – May 2024

University of Edinburgh, Visiting Student (Non-Degree) in School of Informatics Sept 2021 – Dec 2021

National Taiwan University, BS in Electrical Engineering Sept 2017 – Aug 2021

Research Experience

Soundability Lab, advised by Prof. Dhruv Jain May 2023 – Present

- Adapted large multi-modal models to provide holistic and customizable audio scene understanding.
- Explored the deployment of speech recognition in healthcare through human-centered approaches and AI techniques.
- Implemented mobile and web applications to assist Deaf and Hard of Hearing people.

CHAI Lab, advised by Prof. Emily Mower Provost Aug 2022 – Apr 2023

- Explored multi-modal emotion recognition with the impact of silence.
- Explored applying the energy of speech as a feature for activation prediction.
- Developed a personalized Speech Emotion Recognition framework under a federated scenario.

Speech Processing and Machine Learning Laboratory, advised by Prof. Lin-shan Lee, and Prof. Hung-yi Lee Aug 2019 – Aug 2021

- Explored synthetic code-switching (Mandarin-English) texts generation with multilingual language models.
- Designed explainable AI examples with NLP and CV models.
- Implemented a pipeline for automatic speech recognition in Mandarin.

Publication

CARTGPT: Improving CART Captioning using Large Language Models Oct 2024

Liang-Yuan Wu, Andrea Kleiver, Dhruv Jain

(Poster Track) ASSETS '24: Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility

Preprint

SoundNarratives: Enhancing Auditory Scene Understanding of Deaf and Hard of Hearing People

Liang-Yuan Wu, Dhruv Jain

Under submission

Weaving Sound Information to Support Real-time Sensemaking of Auditory Environments: Co-designing with a DHH User

Jeremy Zhengqi Huang, Jaylin Herskovitz, *Liang-Yuan Wu*, Dr Cecily Morrison, Dhruv Jain

Under submission

Talk

Automatic Speech Recognition in Clinical Care Oct 2024

Presented in Disability Research Symposium, hosted by the CDHW, Michigan Medicine.

Improving User Experience in Speech Recognition with Large Language Model Oct 2023

Presented in 2023 AI Symposium, hosted by the AI Lab, University of Michigan.

Code-Switching Text Data Augmentation Aug 2021

Presented in Machine Learning Summer School 2021.

Teaching Experience

EECS 592 Foundations of AI (Fall 2023) Graduate Student Instructor Aug 2023 - Dec 2023

Graduate course, University of Michigan

EE 5184 Machine Learning (Spring 2021) Teaching Assistant Feb 2021 - June 2021

Graduate course, National Taiwan University

EE 1006 Cornerstone EECS Design and Implementation (Spring 2020) Teaching Assistant Feb 2020 - June 2020

Undergraduate course, National Taiwan University

Work Experience

Ucarer Inc., AI platform engineer intern May 2021 – Aug 2021

- Developed a backend operation system for the e-commerce platform, helping Sarcopenia patients to recover.
- Built a customer relationship management system to help evaluating and ranking the need of customers.

Dragoncloud.ai, Machine learning engineer intern (remote) May 2020 – June 2021

- Developed an AI classroom system that analyzed the proportion and the contents of English that was deployed in a school.
- Developed an accent scoring model that scores the quality of non-native English speakers' speakings.

Volunteer Activity

ICWSM 2024 Reviewer	June 2024
Discover Engineering Workshop Volunteer	Aug 2023
Xplore Engineering Workshop Lecturer	July 2023

Honors and Awards

Best Poster Award (1/44), ASSETS' 24	Oct 2024
Dean's List Award, NTU	Dec 2021
Y.L. Lin Scholarship (\$15,000), NTU	July 2021
Outgoing Exchange Student Scholarship (\$2,500), NTU	Dec 2020
Social Devotion Special Award, NTU	Nov 2020
2nd Prize, Undergraduate Innovation Award, NTUEE	June 2020

Extracurricular Activity

2020 MakeNTU Makeathon Chair	July 2019 - Oct 2020
Academic Department of NTUEE Student Association Director	June 2019 - June 2020
NTUEE Basketball Team Captain	June 2019 - June 2020

Skills

Programming Languages: Python, Javascript, Node.js, C/C++, Kotlin, PHP

AI Frameworks: PyTorch, TensorFlow, Transformers, Keras

Web Development: React, HTML5, CSS, MongoDB, GraphQL, Laravel, MySQL, Flask