

Guan-Ting Lin

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Research Interest

Multi-modal Large Language Model, Self-Supervised Learning, Spoken Language Understanding.

Education

National Taiwan University

PH.D. IN COMMUNICATION ENGINEERING, EECS COLLEGE

Taipei, Taiwan

Sep. 2021 – Present

- **GPA:** 4.24/4.3; Ranking: 15/158
- Speech Processing and Machine Learning Laboratory. Advised by Prof. Hung-yi Lee.
- Transferred from M.S. program in Feb. 2023.
- **Selected Courses:** Deep Learning for Human Language Processing, Machine Learning, Digital Speech Processing, Security and Privacy of Machine Learning, Deep Learning for Music Analysis and Generation.

National Tsing Hua University

B.S. BIOMEDICAL ENGINEERING & ADVANCED AI PROGRAM

Hsinchu, Taiwan

Sep. 2017 – Jun. 2021

- **GPA:** 4.08/4.3; Ranking: 1/48
- **Honors:** 3 Deans's List (top 5% students of the department), Phi Tau Phi Award, The Zhu Shun Yi He Qin Scholarship
- **Selected Courses:** Introduction to Artificial Intelligence, Introduction to Machine Learning, Deep Learning, Data Mining, Deep Learning and NLP Research Methodologies, Analysis and synthesis of digital audio signals.

Research Experience

Speech Processing and Machine Learning Lab @ NTU

Taipei, Taiwan

Research Assistant / ADVISOR: Prof. Hung-yi Lee

July. 2020 - Present

- Multi-modal Large Language Model for speech speaking styles [ACL'24, EMNLP'24].
- Self-supervised Representation Learning for speech [Interspeech'21, SLT'22].
- End-to-end Spoken Language Understanding and Spoken Question Answering [Interspeech'22'23, ICASSP'24].
- Test-time Adaptation on end-to-end Automatic Speech Recognition models [Interspeech'22, EMNLP'24 Findings].

Amazon AGI-Speech

Seattle, United States

Applied Scientist II Intern / ADVISOR: Dr. Prashanth Gurunath Shivakumar

June. 2024 - Sep. 2024

- End-to-end Spoken Language Models with better generation capability (paper under review).

Amazon Alexa AI (ASR LM team)

Seattle, United States

Applied Scientist II Intern / ADVISOR: Dr. Prashanth Gurunath Shivakumar, Dr. Andreas Stolcke

June. 2023 - Sep. 2023

- Paralinguistics-enhanced Multi-modal Large Language Model for conversational speech [ICASSP'24].

Amazon Alexa AI (Alexa Perceptual team)

Cambridge, United States

Applied Scientist I Intern / ADVISOR: Dr. Chieh-Chi Kao, Dr. Qingming Tang

July. 2022 - Oct. 2022

- Weight-sharing Neural Architecture Search approach on Acoustic Event Classification Models [ICASSP'23].

8th JASLT Summer Workshop

Baltimore, United States

Visiting Researcher, ADVISOR: Prof. Nigel Ward, Prof. Hung-yi Lee

July. 2022

- Self-supervised pre-training for prosody [SLT'22].

Selected Publications & Preprints

Please see the [google scholar](#) for full publications.

- Guan-Ting Lin*, Wei-Ping Huang*, Hung-yi Lee, “Continual Test-time Adaptation for End-to-end Speech Recognition on Noisy Speech”, **EMNLP 2024**
- Guan-Ting Lin, Hung-yi Lee, “Can LLMs Understand the Implication of Emphasized Sentences in Dialogue?”, **EMNLP 2024 Findings**
- Guan-Ting Lin, Cheng-Han Chiang, Hung-yi Lee, “Advancing Large Language Models to Capture Varied Speaking Styles and Respond Properly in Spoken Conversations”, **ACL 2024**
- Guan-Ting Lin, Prashanth Gurunath Shivakumar, Ankur Gandhe, Chao-Han Huck Yang, Yile Gu, Shalini Ghosh, Andreas Stolcke, Hung-yi Lee, Ivan Bulyko, “Paralinguistics-Enhanced Large Language Modeling of Spoken Dialogue”, **ICASSP 2024 (Poster)**
- Chyi-Jiunn Lin, Guan-Ting Lin, Yung-Sung Chuang, Wei-Lun Wu, Shang-Wen Li, Abdelrahman Mohamed, Hung-yi Lee, Lin-shan Lee, “SpeechDPR: End-to-End Spoken Passage Retrieval for Open-Domain Spoken Question Answering”, **ICASSP 2024 (Oral)**
- Guan-Ting Lin*, Guan-Wei Wu*, Guan-Ting Lin, Shang-Wen Li, Hung-yi Lee. “Improving Textless Spoken Language Understanding with Discrete Units as Intermediate Target”, **Interspeech 2023 (Poster)**
- Guan-Ting Lin, Qingming Tang, Chieh-Chi Kao, Viktor Rozgic, Chao Wang. “Weight-sharing Supernet for Searching Specialized Acoustic Event Classification Networks Across Device Constraints”, **ICASSP 2023 (Poster)**

- Guan-Ting Lin*, Chi-Luen Feng*, Wei-Ping Huang, Yuan Tseng, Tzu-Han Lin, Chen-An Li, Hung-yi Lee, Nigel G. Ward. “On the Utility of Self-supervised Models for Prosody-related Tasks”, **SLT 2022 (Best Paper Award)**
- Guan-Ting Lin, Yung-Sung Chuang, Ho-Lam Chung, Shu-wen Yang, Hsuan-Jui Chen, Shang-Wen Li, Abdelrahman Mohamed, Hung-yi Lee, Lin-shan Lee. ”DUAL: Textless Spoken Question Answering with Speech Discrete Unit Adaptive Learning”, **Interspeech 2022 (Poster)**
- Guan-Ting Lin, Shang-Wen Li, Hung-Yi Lee. “Listen, Adapt, Better WER: Source-free Single-utterance Test-time Adaptation for Automatic Speech Recognition”, **Interspeech 2022 (Oral)**
- Guan-Ting Lin*, Chan-Jan Hsu*, Da-Rong Liu, Hung-Yi Lee, Yu Tsao. “Analyzing the Robustness of Unsupervised Speech Recognition”, **ICASSP 2022**
- Shu-wen Yang, Po-Han Chi, Yung-Sung Chuang, Cheng-I Jeff Lai, Kushal Lakhotia, Yist Y. Lin, Andy T. Liu, Jiatong Shi, Xuankai Chang, Guan-Ting Lin, Tzu-Hsien Huang, Wei-Cheng Tseng, Ko-tik Lee, Da-Rong Liu, Zili Huang, Shuyan Dong, Shang-Wen Li, Shinji Watanabe, Abdelrahman Mohamed, Hung-yi Lee. “SUPERB: Speech processing Universal PERFORMANCE Benchmark”, **Interspeech 2021**

Honors & Awards

AWARDS

2024	IEEE Signal Processing Society Travel Grant , Awarded with 500 USD for attending ICASSP 2024	Seoul, Korea
2023	Best Paper Award , One of the two best papers in IEEE SLT 2022, awarded with 500 USD	Doha, Qatar
2023	NTU Elite Doctoral Scholarship , 4-year scholarship, only one student of each department.	Taiwan
2023	GICE Elite Doctoral Scholarship , The joint 4-year scholarship from Graduate Institute of Communication Engineering and NVIDIA	Taiwan
2022	ISCA Travel Grant , Awarded with 600 Euros for attending Interspeech 2022, only 60 students were selected.	Incheon, Korea
2022	Appier scholarship for international top AI conferences , Awarded with 25000 NTD for Interspeech 2022.	Taiwan
2020	The Zhu Shun Yi He Qin Scholarship , The highest honor for National Tsing Hua University student with about 3000 USD prize.	Taiwan
Jun. 2021	Phi Tau Phi Award , Top 1 graduation student of the department.	Taiwan
2018–9	3 Deans’s List , Top 5% students of the department, (2018 Spring/2018 Fall/2019 Fall in NTHU).	Taiwan
Feb. 2021	Excellent Achievement , 2020 AI CUP Competition on Medical Dialogue Decision: Deidentity Task, 15/531 (top 3%) with 300 USD prize	Taiwan
2020	Top 40 , From IP TO IPO program (FITI). Innovation and entrepreneurship competition with 1000 USD prize	Taiwan

REVIEWER SERVICES

Sep. 2021–
Present **Reviewers**, ICLR’24, ICASSP’23’24, ARR’22’23’24, ISCSLP’22

Teaching

Machine Learning Summer School 2021, Taipei

Head Teaching Assistant

31 virtual Machine Learning courses, Managed a Facebook group for 1400 international participants, and communicated with worldwide lecturers.

2021 Fall - Linear Algebra

Teaching Assistant

Design 1D and 2D Discrete cosine transform homework for JPEG compression.

2021 Fall - Speech Processing Special Project

Teaching Assistant

Design the special project for unsupervised speech recognition for about 20 students.

2022 Spring - Machine Learning 2022 Spring

Teaching Assistant

Design assignment for Black-box Adversarial Attack on CIFAR 10.

National Taiwan University

2021 summer

National Taiwan University

2021 Fall

National Taiwan University

2021 Fall

National Taiwan University

2022 Spring

Skills

Programming	Python, C, C++, Matlab, LaTeX
Deep Learning Framework	Pytorch, Tensorflow, PyTorch Lightning