

# Guan-Ting Lin

☎ (+886) 905286016 | ✉ [daniel094144@gmail.com](mailto:daniel094144@gmail.com) | 🏠 <https://daniellin94144.github.io/> | 📄 [DanielLin94144](#) | 🌐 <https://www.linkedin.com/in/guan-ting-lin-5084bb19b>

## Research Interest

Deep Learning for Speech Processing, Self-Supervised Learning, Real-world Challenges for Speech Technologies

## Education

### National Taiwan University

DIRECT PHD FROM MS IN COMMUNICATION ENGINEERING, DATA SCIENCE AND SMART NETWORKING GROUP

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](#).
- **Selected Courses:** Deep Learning for Human Language Processing, Machine Learning, Digital Speech Processing, Security and Privacy of Machine Learning

### National Tsing Hua University

PROGRAM. APPLIED ARTIFICIAL INTELLIGENCE

Hsinchu, Taiwan

Sep. 2020 – Jun. 2021

- **GPA:** 4.3/4.3
- **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

### National Tsing Hua University

B.S. IN BIOMEDICAL ENGINEERING

Hsinchu, Taiwan

Sep. 2017 – Jun. 2021

BIOIMAGING ENGINEERING GROUP

- **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

## Experience

### Amazon Alexa AI

APPLIED SCIENTIST II INTERN

Seattle, United States

June. 2023 - Sep. 2023

- Work with Alexa ASR LM team on Prosody-enhanced Large Language Model for conversational speech.

### Amazon Alexa AI

APPLIED SCIENTIST I INTERN

Cambridge, United States

July. 2022 - Oct. 2022

- Manager: [Chieh-Chi Kao](#); Mentor: [Qingming Tang](#)
- Proposed a weight-sharing Neural Architecture Search (NAS) approach on Acoustic Event Classification (AEC). By just train one supernet, we can search for specialized sub-networks across diverse resource constraints. The work was accepted to ICASSP 2023.

### 8th JASLT Summer Workshop

VISITING RESEARCHER

Baltimore, United States

July. 2022

- Work with Prof. Nigel Ward on self-supervised pre-training for prosody. The work was accepted to SLT 2022 and won the Best Paper Award.

### Speech Processing and Machine Learning Lab @National Taiwan University

UNDERGRADUATE RESEARCHER

Taipei, Taiwan

July. 2020 - Aug. 2021

- Advisor: [Hung-yi Lee](#)
- Improved end-to-end speech recognition model from 21.59 WER to 11.42 WER on Librispeech 100 hour dataset. Implemented CTC-based Phoneme Recognition for the SUPERB benchmark, which is a large-scale benchmark for self-supervised pre-trained speech model.

## Publications & Preprints

- 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* [\[link\]](#)
- 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)* [\[link\]](#)
- 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)* [\[link\]](#)
- 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)* [\[link\]](#)
- Guan-Ting Lin\*, Chan-Jan Hsu\*, Da-Rong Liu, Hung-Yi Lee, Yu Tsao. "Analyzing the Robustness of Unsupervised Speech Recognition", *ICASSP 2022* [\[link\]](#)
- 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* [\[link\]](#)
- Guan-Ting Lin, Manuel Giambi. "Context-gloss Augmentation for Improving Word Sense Disambiguation". *arXiv preprint arXiv:2110.07174*

## Honors & Awards

---

### SCHOLARSHIP

2023	<b>Best Paper Award</b> , one of the two best papers in IEEE SLT 2022, awarded with 500 USD	Doha, Qatar
2022	<b>ISCA Travel Grant</b> , awarded with 600 Euros for attending Interspeech 2022, only 60 students were selected.	Incheon, Korea
2022	<b>Appier scholarship for international top AI conferences</b> , awarded with 25000 NTD for Interspeech 2022.	Taiwan
2020	<b>The Zhu Shun Yi He Qin Scholarship</b> , the highest honor for National Tsing Hua University student with about 3000 USD prize.	Taiwan
Jun. 2021	<b>Phi Tau Phi Award</b> , top 1 graduation student of the department.	Taiwan
2018–9	<b>3 Deans's List</b> , top 5% students of the department, (2018 Spring/2018 Fall/2019 Fall in NTHU).	Taiwan

### COMPETITION

Feb. 2021	<b>Excellent Achievement</b> , 2020 AI CUP Competition on Medical Dialogue Decision: Deidentity Task, 15/531 (top 3%) with 300 USD prize	Taiwan
2020	<b>Top 40</b> , From IP TO IPO program (FITI). Innovation and entrepreneurship competition with 1000 USD prize	Taiwan
2019	<b>Finalist</b> , Innovative Project Award of the college of Nuclear Science with 800 USD reward	Taiwan
2018	<b>Honorable Mention</b> , Chinese Writing Contest held by the Writing Center of National Tsing Hua University	Taiwan

## Teaching

---

### Machine Learning Summer School 2021, Taipei [\[link\]](#)

National Taiwan University

HEAD TEACHING ASSISTANT

2021 summer

31 virtual Machine Learning courses, Manage Facebook group for 1400 international participants and communicate with world-wide lecturers.

### 2021 Fall - Linear Algebra

National Taiwan University

TEACHING ASSISTANT

2021 Fall

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

### 2021 Fall - Speech Processing Special Project

National Taiwan University

TEACHING ASSISTANT

2021 Fall

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

### 2022 Spring - Machine Learning 2022 Spring [\[link\]](#)

National Taiwan University

TEACHING ASSISTANT

2022 Spring

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

## Projects

---

### End-to-End Speech Recognition Model

TRAIN A END-TO-END JOINT CTC/ATTENTION-BASED MODEL

Achieve 11.42% WER on Librispeech 100hr dataset. Code is available in [E2E-ASR-Pytorch](#)

### Meta-StyleSpeech

HELP TRAINING A 16KHZ MELGAN VOCODER FOR MEL-TO-WAV CONVERSION.

Cooperate with the [Meta-StyleSpeech](#) project.

## Skills

---

**Programming** Python, C, C++, Matlab, LaTeX

**Deep Learning Framework** Pytorch, Tensorflow, PyTorch Lightning