Chung-Ming **Chien**

Chicago, Illinois, United States

✉ cmchien@ttic.edu | ⌂ Homepage | 🔗 LinkedIn | 🎓 Google Scholar | 📱 +1 (415) 539-5179

Education

Toyota Technological Institute at Chicago (TTIC) *Chicago, IL*
Ph.D. in Computer Science *Sep. 2022 - Present*
- Advisor: Karen Livescu

National Taiwan University (NTU) *Taipei, Taiwan*
M.S. in Computer Science and Information Engineering *Sep. 2019 - Aug. 2021*
- Thesis: End-to-End Prosody Learning Frameworks for Multi-Speaker Speech Synthesis
- Advisors: Lin-shan Lee & Hung-yi Lee at Speech Processing Lab
- GPA: 4.02/4.3

National Taiwan University (NTU) *Taipei, Taiwan*
B.S.E. in Electrical Engineering *Sep. 2015 - Aug. 2019*
- GPA: 4.08/4.3; Ranked 25/256 (9%) with two Dean's List Awards

Experience

Speech and Language Group, TTIC *Chicago, IL*
Graduate Student Researcher *Sep. 2022 - Present*
- Advisor: Karen Livescu

Hotpot.ai *Remote*
Machine Learning Researcher *Jun. 2022 - Aug. 2022*
- Researched on **text-to-image generaiton** by combining pre-trained word representations with **diffusion models**

World Quant LLC *Taipei, Taiwan*
Quantitative Research Intern *Jun. 2022 - Jul. 2022*
- Developed novel Alpha ideas and evaluated their performance with historical market data

Amazon Alexa *Cambridge, UK*
Applied Scientist Intern *Jul. 2021 - Nov. 2021*
- Mentors: Adam Gabryś and Jaime Lorenzo-Trueba
- Improved extremely **low-resource speaker-adaptive text-to-speech (TTS)** by modeling content and speaker information separately [*ICASSP'22*]
- Reduced the gap between synthesized and real speech by over 30%

Speech Processing Laboratory, NTU *Taipei, Taiwan*
Student Researcher *Sep. 2018 - Jul. 2021*
- Advisors: Lin-shan Lee and Hung-yi Lee
- Disentangled **speaker and phonetic information in self-supervised speech representations** for the task of voice conversion (VC) [*InterSpeech'21*]
- Proposed **SOTA zero-shot any-to-any VC** by learning **sub-phoneme alignments between utterances with Transformer attention** [*ICASSP'21*]
- Proposed **generative speaker embedding pre-training** for speech synthesis [*ICASSP'21*]
- Led a team to win the 2nd prize of the IEEE M2VoC Challenge on **low-resource voice cloning** [*M2VoC Challenge*]
- Built and maintained a state-of-the art TTS system **FastSpeech 2** [*Github*]
- Developed **hierarchical prosody modeling** in TTS [*SLT'21*]

Machine Learning and Estimation Theory Laboratory, NTU *Taipei, Taiwan*
Student Researcher *Feb. 2018 - Feb. 2019*
- Advisor: Pei-Yuan Wu
- Discovered a critical privacy leakage issue in a privacy-preserving support vector machine

Publications † indicates equal contribution

Conference Proceedings

[1] Adam Gabryś, Goeric Huybrechts, Manuel Sam Ribeiro, **Chung-Ming Chien**, Julian Roth, Giulia Comini, Roberto Barra-Chicote, Bartek Perz, and Jaime Lorenzo-Trueba, "Voice Filter: Few-Shot Text-to-Speech Speaker Adaptation Using Voice Conversion as a Post-Processing Module," in *ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2022.

[2] Jheng-hao Lin, Yist Y. Lin, **Chung-Ming Chien**, and Hung-yi Lee, "S2VC: A Framework for Any-to-Any Voice Conversion with Self-Supervised Pretrained Representations," in *Proc. Interspeech 2021*, 2021.

[3]   **Chung-Ming Chien**, Jheng-Hao Lin, Chien-yu Huang, Po-chun Hsu, and Hung-yi Lee, "Investigating on Incorporating Pretrained and Learnable Speaker Representations for Multi-Speaker Multi-Style Text-to-Speech," in *ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2021.

[4]   **Chung-Ming Chien**[†], Yist Y. Lin[†], Jheng-Hao Lin, Hung-yi Lee, and Lin-shan Lee, "Fragmentvc: Any-To-Any Voice Conversion by End-To-End Extracting and Fusing Fine-Grained Voice Fragments with Attention," in *ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2021.

[5]   **Chung-Ming Chien** and Hung-yi Lee, "Hierarchical Prosody Modeling for Non-Autoregressive Speech Synthesis," in *2021 IEEE Spoken Language Technology Workshop (SLT)*, 2021.

Honors

SCHOLARSHIP

2020	**Advanced Speech Technologies Scholarship**, NTU EECS ($ 17000)	*Taipei, Taiwan*
2016	**NTUEE60 Scholarship**, NTU EE ($ 3500)	*Taipei, Taiwan*

AWARDS

2021	**2rd Place**, IEEE ICASSP 2021 M2VoC Challenge	*Virtual*
2020	**Top 20 Finalist**, Trans Action Award	*Taipei, Taiwan*
2019	**Cathay United Bank Special Award**, Make NTU	*Taipei, Taiwan*
2016-2017	**Dean's List Awards (Two-Time)**, NTU EE	*Taipei, Taiwan*

LEADERSHIP

2019-2020	**Captain**, NTU Baseball Varsity Team	*Taipei, Taiwan*

NON-ACADEMIC

2019&2021	**5th Places (Two-Time)**, University Baseball League of Taiwan (equivelent to NCAA Division III)	*Taiwan*
2019	**Golden Medal, Men's Half-Iron Relay**, Yilan National Triathlon Championships	*Yilan, Taiwan*

Service

2022	**Reviewer**, IEEE JSTSP	

Talks

Nov. 2022	**Self-Supervised Pre-Trained Voice Conversion**, TTIC Student Workshop	*Chicago, IL*
Nov. 2021	**Few-Shot Speaker Adaptive TTS by Learning from Non-Target Speakers**, Amazon Text-to-Speech Group	*Cambridge, UK*
Aug. 2020	**Speech Synthesis in the Deep Learning Era**, AI Summer School 2020, NTU	*Taipei, Taiwan*

Teaching

National Taiwan University   *Taipei, Taiwan*

TEACHING ASSISTANT

- EE5184 Machine Learning, Spring 2020 and Spring 2019, instructed by Hung-yi Lee
- EE4049 Speech Processing Project, Spring 2020 and Fall 2019, instructed by Lin-shan Lee
    - Led 26 undergraduate students to do research in speech and natural language processing
- EE4037 Digital Speech Processing, Fall 2019, instructed by Lin-shan Lee
- EE2011 Signals and Systems, Spring 2018, instructed by Lin-shan Lee

Projects

FastSpeech2

OPEN-SOURCED PROJECT   *Jun., 2020*

- Open-sourced TTS project with **over 1000 stars on Github**, supporting multiple languages and more than 100 speakers [Github]

TTS without T

COURSE PROJECT   *Jun., 2019*

- Applied discrete speech units unsupervisedly discovered by the multilabel-binary vectors (MBV) and the vector quantized variational autoencoder (VQ-VAE) to a VC task [Link]

Skills

Natural Languages	Mandarin (native), English (fluent), German (basic)
Programming Languages	Python, C/C++, Shell Script, MATLAB, Verilog, HTML+CSS
Toolkits	PyTorch, MXNet, ESPnet, Kaldi, Git, LaTeX