Jui-Yang **Hsu**

Graduate Researcher at NTU EECS

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Education

National Taiwan University (NTU)   *Taipei, Taiwan*
M.S. IN COMPUTER SCIENCE & ELECTRICAL ENGINEERING   *Oct. 2018 - Feb. 2021*
- Speech Processing & Machine Learning Laboratory, Advisor: Prof. Hung-Yi Lee
- Thesis: Meta Learning in End-to-End Speech Recognition

Kungliga Tekniska högskolan (KTH)   *Stockholm, Sweden*
EXCHANGE STUDENT IN COMPUTER SCIENCE & COMMUNICATION   *Aug. 2017 - June 2018*

National Taiwan University (NTU)   *Taipei, Taiwan*
BACHELOR OF SCIENCE IN ENGINEERING   *Sep. 2013 - June 2018*
- Department of Electrical Engineering, GPA: 4.02/4.3

Work Experience

Visual Document Intelligence Team, AI & RD Center, Microsoft   *Taipei, Taiwan*
RESEARCH INTERN   *Oct. 2020 - Mar. 2021*
- Implemented unified multi-vertical document understanding model
- Migrated and refactored model training to Pytorch Lightning for much faster development and maintenance
- Migrated model training to the official AzureML training pipeline

Speech Processing & Machine Learning Laboratory, NTU   *Taipei, Taiwan*
GRADUATE RESEARCHER, SUPERVISED BY PROF. HUNG-YI LEE   *Oct. 2018 - Sep. 2020*
- Researched on low-resource speech recognition, focusing on improving the system with gradient-based meta learning and transfer learning [thesis] [slides] [1]
- As the **network administrator**, manage the slurm-based computation cluster (10 nodes, over 20 GPUs)
- Migrated netdata to replace the original unstable monitor system to support real-time resource monitoring for users
- Developed health check and notification mechanism to drain problematic nodes and notify to the public platform automatically

Natural Language Processing Team, Apple Inc.   *Cupertino, USA*
RESEARCH INTERN, SUPERVISED BY DR. JEROME BELLEGARDA   *July 2018 - Sep. 2018*
- Researched on deep generative model to develop algorithm improving keyboard experience of users [3]
- The research results have been published in iOS 13

Speech Processing & Machine Learning Laboratory, NTU   *Taipei, Taiwan*
UNDERGRADUATE RESEARCHER, SUPERVISED BY PROF. HUNG-YI LEE & PROF. LIN-SHAN LEE   *July 2015 - June 2017*
- Proposed the hierarchical attention-based model for the TOEFL Listening Comprehension Test by machine [2] [5]
- Researched on unsupervised audio word embeddings

Speech & Sound Team, Delta Research Center (DRC)   *Taipei, Taiwan*
RESEARCH INTERN   *July 2016 - Aug. 2016*
- Researched on end-to-end speech recognition based on CTC
- Reduced 3% CER on the corpus held by DRC, nearly comparable to the original system
- Migrated acoustic modeling to Tensorflow for faster development (building the interface between Kaldi & Tensorflow)

National Taiwan University   *Taipei, Taiwan*
TEACHING ASSISTANT
- CommE5054 Deep Learning for Human Language Processing (Spring 2020)
- EE5184 Machine Learning (Spring 2017) [designed assignments]

Publicatons

[1] **Jui-Yang Hsu**, Yuan-Jui Chen, Hung-Yi Lee. "Meta Learning for End-to-End Low-Resource Speech Recognition". *In International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020. [link] [video]

[2] Wei Fang[†], **Jui-Yang Hsu**[†], Hung-Yi Lee, Lin-Shan Lee. "Hierarchical Attention Model for Improved Comprehension of Spoken Content". *In IEEE Workshop on Spoken Language Technology (SLT)*, 2016. [link]

[3] Jerome R. Bellegarda, **Jui-Yang Hsu**, Partha Lal, Akash Mehra. "User-realistic path synthesis via multi-task generative adversarial networks for continuous path keyboard input" US Patent, US20200379640A1. [link]

[4] Yi-Chen Chen, **Jui-Yang Hsu**, Cheng-Kuang Lee, Hung-yi Lee "DARTS-ASR: Differentiable Architecture Search for Multilingual Speech Recognition and Adaptation". *In Conference of the International Speech Communication Association (INTERSPEECH)*, 2020. [link]

[5] Chia-Hsuan Lee, Hung-Yi Lee, Szu-Lin Wu, Chi-Liang Liu, Wei Fang, **Jui-Yang Hsu**, Bo-Hsiang Tseng. "Machine Comprehension of Spoken Content: TOEFL Listening Test and Spoken SQuAD". *In IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP)*, 2019. [link]

Honors & Awards

Chiao Hsin Cheng Scholarship, NTU EECS	*July, 2017*
Conference Grant, Ministry of Science and Technology	*Dec., 2016*
Best Team Award (out of 30+ teams), Garage Hackathon held by Microsoft Research Asia (MSRA)	*Aug., 2015*

Skills

Programming	Python, C++
Libraries/Tools	PyTorch, Git, Slurm
OS	GNU/Linux
Sports	Table Tennis (Varsity in NTU, 2013), Mountain Climbing (19/100 mountains), Marathon