Jui-Yang **Hsu**

Graduate Researcher at NTU EECS

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Research Interest

I am interested in machine learning for speech and natural language. In particular transfer learning, meta learning and representation analysis.

Education

National Taiwan University (NTU) — *Taipei, Taiwan*

M.S. in Computer Science & Electrical Engineering — *Oct. 2018 - Present*

- Speech Processing & Machine Learning Laboratory, Advisor: Prof. Hung-Yi Lee

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

Speech Processing & Machine Learning Laboratory, NTU — *Taipei, Taiwan*

Graduate Researcher, supervised by Prof. Hung-Yi Lee — *Oct. 2018 - Present*

- Researched on low-resource speech recognition, focusing on improving the system with gradient-based meta learning and transfer learning [1] [slides]
- 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 node 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
- The research results will be published in Apple Machine Learning Journal after feature released

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] [3]
- 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 — *Feb. 2017 - June 2017*

- 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". *Submitted to International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020. [link]

[2] 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]

[3] 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]

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++, Unix Shell Scripting, Go, JavaScript

Libraries/Tools PyTorch, Git, Slurm

OS GNU/Linux

Sports Table Tennis (Varsity in NTU), Marathon