Chien-Feng Liao

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Education

National Taiwan University, ***MS in Data Science*** *Sep 2017 to Aug 2019*

- **Thesis**: *"A Study of Unsupervised Domain Adaptation in Speech Enhancement under Unseen Noise Environments"*
- **Advisor**: Dr. Yu Tsao and Prof. Hung-yi Lee

National Taiwan University, ***BS in Biomechatronics Engineering*** *Sep 2011 to Jun 2015*

Experience

Machine learning engineer at Taiwan AI Labs, Taiwan
Dec 2020 to present

- Developed novel **singing voice synthesis** algorithms using generative models and published paper in **ICASSP**.
- Collaborated with other engineers and implement algorithms into products.

Intern at Montreal Institute for Learning Algorithms (Mila), Canada
May 2020 to Dec 2020

- Helped **developing open-source PyTorch-based speech processing toolkit**, **SpeechBrain**.
- Implemented speech enhancement recipes in the toolkit using novel models like **Transformers** and **complex networks** and reached SOTA performance.
- Collaborated with researchers around the globe and published paper during the internship.

Intern at National Institute of Information and Communications Technology (NICT), Japan
Jul 2018 to Sep 2018

- Advised by Dr. Xugang Lu, studied novel algorithms for speech enhancement including **GANs and VQ-VAE models**, which resulted in a published paper in the prestigious conference, **INTERSPEECH2019**.

Research assistant at Research Center for Information Technology Innovation, Academia Sinica, Taiwan
Aug 2016 to Dec 2020

- Research interest includes speech enhancement, speech separation, voice conversion, GANs, domain adaptation, representation learning, and various novel deep learning models.
- Published paper in top-ranked conferences and journals, e.g., **ICML**, **INTERSPEECH**, and **IEEE Signal Processing Letter**.

Computer vision engineer at KINPO ELECTRONICS INC., Taiwan
Sep 2015 to Aug 2016

- Developed various computer vision algorithms, e.g., **face detection/verification, gender estimation,** and **pedestrian detection** in C++.

Skills

Specialization: Deep learning, generative models, speech enhancement, speech/singing voice synthesis
Programming Language: Python, C++, Matlab
Operating System: Linux, Kubernetes
Toolkit: PyTorch, TensorFlow, scikit-learn, NumPy, Matplotlib, OpenCV

Honors & Awards

Student Travel Grants, INTERSPEECH 2019
1st place (200K TWD prize), Merry Electroacoustics Thesis Award 2019
1st place, ACLCLP Master Thesis Award 2019

Selected publications

1. **Liao, C. F.**, Liu, J. Y., & Yang, Y. H. "KaraSinger: Score-Free Singing Voice Synthesis with VQ-VAE using Mel-spectrograms". *ICASSP2022.*
2. **Liao, C. F.**, Tsao, Y., Lu, X., & Kawai, H. "Incorporating Symbolic Sequential Modeling for Speech Enhancement". *Interspeech 2019.*
3. **Liao, C. F.**, Tsao, Y., Lee, H. Y., & Wang, H. M. "Noise adaptive speech enhancement using domain adversarial training". *Interspeech 2019.*
4. Fu, S. W., **Liao, C. F.**, Tsao, Y., & Lin, S. D. "MetricGAN: Generative Adversarial Networks based Black-box Metric Scores Optimization for Speech Enhancement". *ICML 2019.*
5. Fu, S. W., **Liao, C. F.**, & Tsao, Y. "Learning with Learned Loss Function: Speech Enhancement with Quality-Net to Improve Perceptual Evaluation of Speech Quality". in IEEE Signal Processing Letters, vol. 27, pp. 26-30, 2020