Chien-Feng Liao

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Education

National Taiwan University, *Sep 2017 to Aug 2019*

MS in Data Science, GPA: 4.13/ 4.30

- **Courses**: Machine Learning, Deep Learning for Computer Vision, Digital SP, Computation in Data Science, Statistical Foundations of Data Science
- **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, *Sep 2011 to Jun 2015*

BS in Biomechatronics Engineering

- **Courses**: Data Structures and Algorithms, Programming, Digital Visual Effects

Experience

Intern at Montreal Institute for Learning Algorithms (Mila), Canada

May 2020 to present

- Helped developing open-source PyTorch-based **speech processing toolkit**, **SpeechBrain**. Led by **Dr. Mirco Ravanelli** and advised by **Dr. Yoshua Bengio**. https://speechbrain.github.io
- 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 present

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

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

- Implemented **obstacle avoidance algorithms** in C++ and tested on auto-mobile robots.
- Implemented various computer vision algorithms in C++ and Python, e.g., **face detection/verification, gender estimation, pedestrian detection.**

Skills

Specialization: Deep Learning, Machine Learning, Speech Signal Processing, Speech Enhancement

Programming Language: Python, C++, Matlab

Toolkit: TensorFlow, Keras, PyTorch, scikit-learn, NumPy, Matplotlib, OpenCV, dlib, libsvm

Operating System: Linux, Windows

Language: TOEIC 975/990

Honors & Awards

- Student Travel Grants, INTERSPEECH 2019
- 1st place (200K TWD price), Merry Electroacoustics Thesis Award 2019
- 1st place, ACLCLP Master Thesis Award 2019
- Top 1 average GPA in Data Science Degree Program for the first two semesters

Publications

1. **Liao, C. F.**, Tsao, Y., Lu, X., & Kawai, H. "Incorporating Symbolic Sequential Modeling for Speech Enhancement". *Interspeech 2019.*
2. **Liao, C. F.**, Tsao, Y., Lee, H. Y., & Wang, H. M. "Noise adaptive speech enhancement using domain adversarial training". *Interspeech 2019.*
3. 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.*
4. 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
5. Lu, Y. J., **Liao, C. F.**, Lu, X., Hung, J. W., & Tsao, Y. "Incorporating Broad Phonetic Information for Speech Enhancement". To be appeared in Interspeech 2020
6. Kao, Y. Y., Hsu, H. P., **Liao, C. F.**, Tsao, Y., ... & Wang, H. M. "Automatic Detection of Speech Under Cold Using Discriminative Autoencoders and Strength Modeling with Multiple Sub-Dictionary Generation". In 2018 16th International Workshop on Acoustic Signal Enhancement (IWAENC) (pp. 416-420). IEEE.