SHANG-YI CHUANG

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EDUCATION

Cornell Tech in the *United States of America*   2021 – Present
M.Eng. in **Computer Science**

National Taiwan University (NTU) in *Taiwan*, GPA: 3.86/4.30   2012 – 2017
B.S., Major in **Mechanical Engineering (ME)**, Minor in **Electrical Engineering**
Advanced Medical Device Lab, Advisor: Prof. Hao-Ming Hsiao

Osaka University in *Japan*, Grade: S (Highest grade)   2016 – 2017
FrontierLab@OsakaU Program
Motor Intelligence Lab, Advisor: Prof. Tomomichi Sugihara

Heidelberg University in *Germany*, Grade: Sehr gut (Highest grade)   Summer 2013
Summer Study Abroad Program at NTU

PROFESSIONAL EXPERIENCE

Research Assistant at Academia Sinica in *Taiwan*   2018 – 2021
Biomedical Acoustic Signal Processing Lab at Research Center for Information Technology Innovation
Advisor: Prof. Yu Tsao, Faculty Collaborator: Prof. Hsin-Min Wang
− **Real-World Application of Multimodal Learning on Speech Enhancement (SE)**
  · Improved the applicability of deep-learning-based models on embedded systems.
  · Confirmed the effectiveness of lip images (both compressed and non-compressed) in SE tasks.
  · Addressed asynchronous and low-quality multi-data problems.
− **Self-Supervised Multimodal Learning**
  · Applied a denoising autoencoder with a linear regression decoder to audio-only and audio-visual SE.
  · Included only unlabeled data in both situations.
− **Cross-lingual QA System**
  · Implemented transfer learning with additional English corpus to enhance a Mandarin QA System.

PUBLICATIONS

[1] **S.-Y. Chuang**, H.-M. Wang, and Y. Tsao, "Improved Lite Audio-Visual Speech Enhancement," submitted to *IEEE/ACM Transactions on Audio, Speech, and Language Processing*.

[2] Y.-W. Chen, K.-H. Hung, **S.-Y. Chuang**, J. Sherman, X. Lu, and Y. Tsao, "A Study of Incorporating Articulatory Movement Information in Speech Enhancement," in *Proc. EUSIPCO 2021*.

[3] Y.-W. Chen, K.-H. Hung, **S.-Y. Chuang**, J. Sherman, W.-C. Huang, X. Lu, and Y. Tsao, "EMA2S: An End-to-End Multimodal Articulatory-to-Speech System," in *Proc. ISCAS 2021*.

[4] S.-W. Fu, C.-F. Liao, T.-A. Hsieh, K.-H. Hung, S.-S. Wang, C. Yu, H.-C. Kuo, R. E. Zezario, Y.-J. Li, **S.-Y. Chuang**, Y.-J. Lu, and Y. Tsao, "Boosting Objective Scores of Speech Enhancement Model through MetricGAN Post-Processing," in *Proc. APSIPA 2020*.

[5] **S.-Y. Chuang**, Y. Tsao, C.-C. Lo, and H.-M. Wang, "Lite Audio-Visual Speech Enhancement," in *Proc. INTERSPEECH 2020*.

ACADEMIC PROJECTS

Software

– **Audio-Visual Speech Enhancement** — 2018 – 2021
  · Addressed additional processing costs and privacy problems.
  · Improved the robustness of deep-learning-based systems in a car-driving scenario.
  · Constructed the dataset of Taiwan Mandarin Speech with Video.

– **Dynamics of Robot Arms** — 2016 – 2017
  · Smoothed the velocity profiles and trajectories of robot arms.
  · Realized a safer human-robot environment by applying biological statistics results.

Culture

– **Japanese Translation** — 2015 – 2016
  · Translated Japanese music-related materials into Mandarin or English.
  · Compared the parsing techniques between different languages.

Hardware

– **Pneumatic Car** — 2014 – 2015
  · Built an electric-powered gas-propelled vehicle.
  · Designed an airfoil based on turbine simulations.
  · Enabled the car to race through obstacle courses within the given time.

LEADERSHIP EXPERIENCE

Server Manager at Biomedical Acoustic Signal Processing Lab	2019 – 2021
Treasurer at NTU Photo Club	2015 – 2016
Director of Darkroom at NTU Photo Club	2014 – 2015
Captain of Radio Controlled Hovercraft in ME Robot Cup	2014 – 2015
Senior Assistant of Kaohsiung Alumni Association Club at NTU	2013 – 2014
NTU Student Representative of Summer School at Heidelberg University	Summer 2013

AWARDS AND HONORS

Merit-Based Scholarship at Cornell Tech	2021 – Present
ISCA and INTERSPEECH Travel Grant	2020
Japan Student Services Organization Scholarship at Osaka University	2016 – 2017
Second Prize in ME Robot Cup at NTU	2015
Dean's List Award (Top 5% of the class in GPA) at NTU	2013

TECHNICAL SKILLS

Programming Language	Python, C, MATLAB, Bash, Visual Basic, LabVIEW, Verilog
Machine Learning Framework	PyTorch, Keras, TensorFlow, scikit-learn
Feature Engineering	Dlib, OpenCV, FFmpeg, SoX, Praat

LANGUAGE SKILLS

English	Japanese	German	Spanish	Taiwanese	Mandarin
(Fluent)	(Fluent, **JLPT N1**)	(Beginner)	(Beginner)	(Native)	(Native)

ACADEMIC SERVICE

Reviewer of IEEE Signal Processing Letters	2021
Reviewer of IEEE/ACM Transactions on Audio, Speech, and Language Processing	2020