SHANG-YI CHUANG

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RESEARCH INTERESTS

Intercultural Learning	Natural Language Processing	Social Robot	Multimodal Learning
Machine Translation	Acoustic Signal Processing	Computer Vision	Machine Learning

EDUCATION

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 – Present
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) [1, 5]**
- Improved the applicability of DL-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 Transactions on Audio, Speech, and Language Processing*.

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

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

– **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.

– **Structural Design of Stents** 2013 – 2015
- Investigated and sought for the best design of stent crowns.
- Enhanced the strength and sustainability of the stent structure by the crown arrangement.

LEADERSHIP EXPERIENCE

Server Manager at Biomedical Acoustic Signal Processing Lab 2019 – Present
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

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) of ME 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 Transactions on Audio, Speech, and Language Processing 2020