SHANG-YI CHUANG

Research Center for Information Technology Innovation (CITI), Academia Sinica, Taiwan

RESEARCH INTERESTS

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

EDUCATION

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

Osaka University (OU) Rank: S (Highest rank) — 2016 – 2017, *Japan*
FrontierLab@OsakaU Program
Motor Intelligence Lab, Advisor: Prof. Tomomichi Sugihara

Heidelberg University Rank: Sehr gut (Highest rank) — 2013 Summer, *Germany*
NTU Student Representative of Summer School

PROFESSIONAL EXPERIENCE

Academia Sinica – CITI — 2018 – Present
RA, Advisor: Prof. Yu Tsao, Biomedical Acoustic Signal Processing Lab — *Taipei, Taiwan*
Faculty Collaborator: Prof. Hsin-Min Wang (IIS)

· **Real-World Application of Multimodal Learning on Speech Enhancement (SE) [1, 4]**
– 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 linear regression decoder to audio-only SE and audio-visual SE.
– Both situations contain only unlabeled data.

· **Cross-lingual QA System**
– Used additional English corpus to apply transfer learning on a Taiwanese Mandarin QA System.

PUBLICATIONS

[1] **S.-Y. Chuang**, H.-M. Wang, and Y. Tsao, "Improved lite audio-visual speech enhancement," submitted to *Neural Networks*, 2020.

[2] Y.-W. Chen, K.-H. Hung, **S.-Y. Chuang**, J. Sherman, and Y. Tsao, and X. Lu, "A study of incorporating articulatorymovement information in speech enhancement," submitted to *Proc. ICASSP 2020*.

[3] 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*.

[4] **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
– Used biological statistics results to make humans feel more comfortable when working with the robots.
– The velocity profiles and trajectories of the arms were successfully smoothed and a safer working environment for humans was created.

Hardware

· **Structural Design of Stents** 2013 – 2015
– Investigated and sought for the best design of stent crowns.
– The strength and sustainability of the structure were improved after the crown arrangement.

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

Culture

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

LEADERSHIP

Director of Darkroom, NTUPHOTO
Achievements include: the renovation of darkroom (including hardware and software), financial management, chemical maintenance system, novice training, technology promotion.

Captain of Radio Controlled Hovercraft, NTUME
Led the team to win the 2nd prize in ME Robot Cup.

NTU Student Representative of Summer School of Heidelberg University
Provided local support for NTU students in Heidelberg University.

TECHNICAL SKILLS

Natural Language	GRE General 324, TOEFL iBT 105, JLPT N1, Mandarin (Native)
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

AWARDS AND HONORS

ISCA and Interspeech Travel Grant 2020, *China*
JASSO Scholarship OU, 2016-2017, *Japan*
2nd Prize in ME Robot Cup ME, NTU, 2015, *Taiwan*
Dean's List Award (Top 5% of the class in GPA) ME, NTU, 2013, *Taiwan*

ACADEMIC SERVICE

Reviewer, IEEE Transactions on Audio, Speech and Language Processing 2020