

Curriculum Vitae

Yu Tsao (曹昱)

Research Fellow (Professor)/ Deputy Director

Bio-Acoustic Signal Processing (Bio-ASP) Lab: <http://bio-asplab.citi.sinica.edu.tw/>

Research Center for Information Technology Innovation, Academia Sinica

128 Academia Rd., Sec. 2, Nankang District, Taipei 115, Taiwan

TEL: +886-22-2787-2390

Email: yu.tsao@citi.sinica.edu.tw <http://www.citi.sinica.edu.tw/pages/yu.tsao/>

Google Scholar: <https://scholar.google.com/citations?hl=zh-TW&user=ZO5e5I4AAAAJ>

Google Scholar Citation: 6663 (1247 until 2022/09/07).

RESEARCH INTERESTS

- Speech Enhancement and Voice Conversion
- Assistive Oral Communication Technologies
- Biomedical Acoustic Signal Processing
- Deep Learning Algorithm Development

EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, Georgia

Ph.D. in Electrical and Computer Engineering

Aug. 2003-Dec. 2008

• Research Topic: Robust Speech Recognition, under advisor: Dr. Chin-Hui Lee

• Leadership Activities: President, Taiwanese Student Association (TSA): represented the school; assisted students and visiting scholars from Taiwan.

NATIONAL TAIWAN UNIVERSITY, Taipei, Taiwan

Master of Science in Electrical Engineering

Sept. 1999-June 2001

Bachelor of Science in Electrical Engineering

Sept. 1995-June 1999

• Graduate Research Topic: Rapid Speaker Adaptation, under advisor Dr. Lin-Shan Lee

• Leadership Activities: Chairman, Public Relations Department of the Student Association: organized events to cultivate strong relationships among members.

PROFESSIONAL EXPERIENCE

RESEARCH CENTER FOR INFORMATION TECHNOLOGY INNOVATION, ACADEMIA SINICA,
Taipei, Taiwan

Researcher Fellow (Professor)/Deputy Director

2020/08–Present

Associate Researcher Fellow (Associate Professor)

2016/05–2020/08

Assistant Researcher Fellow (Assistant Professor)

2011/11–2016/04

- Research and develop speech signal processing algorithms.
- Develop devices of assistive oral communication technology.
- Derive acoustic signal processing for biomedical applications.
- Derive novel machine learning algorithms for acoustic signal processing.

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, Kyoto, Japan
Expert Researcher April 2009-Sept. 2011

- Developed research to handle non-native accent issues for automatic speech recognition applications.
- Developed digital signal processing-based solutions to improve the performance of speech recognizers under real-world adverse conditions.
- Contributed to developing VoiceTra multilingual speech-to-speech translation application on iPhone.
- Carried out projects of field tests and dissemination of spoken dialog interface technologies.

DEVELOPED TOOLS

(1) A smartphone-based assistive listening system, **SmartHear**, uses wireless technologies for individuals with mild-to-moderate hearing loss. **SmartHear** has been developed as a **mobile application program** and is available on **Google Play** (since 2015, there have been more than **10,000 downloads**). A demo **video** about **SmartHear** can be viewed at <https://www.youtube.com/watch?v=e9HqIj09QJs>.

(2) We have open-sourced codes and datasets of our biomedical and speech signal processing experiments: <https://bio-asplab.citi.sinica.edu.tw/Opensource.html>

HONORS

- **Clarity Machine Learning Challenges for Hearing Aids Challenge Gold Prize (2022)**
- **IEEE Signal Processing Society (SPS) Young Author Best Paper Award (corresponding author) (2021)**
- National Innovation Award, Taiwan (2021)
- National Innovation Award, Taiwan (2020)
- National Innovation Award, Taiwan (2019)
- National Innovation Award, Taiwan (2018)
- Outstanding Elite Award, Chung Hwa Rotary Educational Foundation 2019-2020 (2019–present)
- Travel Grant, ICML (2019)
- Distinguished Lecture Award, APSIPA (2018)
- Best Student Paper Award, ISCSLP 2018 (2018)
- Poster Presentation Award, APSIPA 2017 (2017)
- Career Development Award, Academia Sinica, Taiwan (2017)

PROFESSIONAL ACTIVITIES

Tutorial Lecture

- Title: Generative Adversarial Network and its Applications to Speech Signal Processing and Natural Language Processing, ICASSP 2018 (2018/04)
- Title: Generative Adversarial Network and its Applications to Speech Signal Processing and Natural Language Processing, APSIPA 2018 (2018/11)
- Title: Generative Adversarial Network and its Applications to Speech Signal Processing and Natural Language Processing, ISCSLP 2018 (2018/11)
- Title: Generative Adversarial Network and its Applications to Speech Signal Processing and Natural Language Processing, Interspeech 2019 (2019/09)
- Title: Speech Enhancement based on Deep Learning and Intelligibility Evaluation, APSIPA 2019 (2019/11).
- Title: Speech Enhancement based on Deep Learning and Intelligibility Evaluation, Interspeech 2020 (2020/10)
- Title: Theory and Practice of Voice Conversion, APSIPA 2020 (2020/12).
- Title: Speech Perception and Enhancement in Cochlear Implants, APSIPA 2021 (2021/12).
- Title: Speech Perception and Enhancement in Cochlear Implants, EUSIPCO 2022 (2022/08).

Invited Talks

- Keynote Speech, IEEE ICTS 2021 (2021/10)
- Invited Lecture APSIPA Japan Chapter (2021/03)

Challenge Organizer

- Voice Detection Challenge in IEEE Big Data 2018. The challenge has attracted the participation of **109 teams from 27 different countries**.
- VoiceMOS Challenge, a potential special session in Interspeech 2022.

International Services

- Chair, Speech, Language, and Audio (SLA) Technical Committee, APSIPA (2020-2021)
- Distinguished Lecturer, APSIPA (2019-2021)

Editorship

- Associate Editor, IEEE Signal Processing Letters (2020-present)
- Associate Editor, IEEE/ACM Transactions on Audio, Speech and Language Processing (2019-present)
- Associate Editor, APSIPA Transactions on Signal and Information Processing (2022- present)
- Associate Editor, IEICE Transactions on Information and Systems (2016-2020)

Conference Services

- Winter School Lecturer, APSIPA 2019, Lanchou, China (2019/11)
- Session Chair, APSIPA 2019, Lanchou, China (2019/11)
- Special Session Chair, Interspeech 2019, Austria (2019/09)
- Session Chair, IALP 2019, Taipei, Taiwan (2019/08)
- Local Arrangement Chair, ISCSLP 2018, Taipei, Taiwan (2018/11)
- Session Chair, APSIPA 2018, Honolulu, USA (2018/11)
- Special Session Chair, APSIPA 2017, Kuala Lumpur, Malaysia (2017/12)
- Special Session Chair, ISCSLP 2016, Tianjin (2016/10)
- Session Chair, ROCLING 2015, Taiwan (2015/10)
- Special Session Chair, ICASSP 2015, South Brisbane, Queensland, Australia (2015/04)
- Session Chair, ROCLING 2014, National Central University, Taiwan (2014/09)
- Special Session Chair, APSIPA, Kaohsiung, Taiwan (2013/10)
- Session Chair, ROCLING 2013, National Sun Yat-sen University, Taiwan (2013/10)
- Session Chair, ROCLING 2012, Yuan Ze University, Taiwan (2012/09)
- Session Chair, ISCSLP 2010, National Cheng Kung University, Taiwan (2010/11)
- Session Chair, ROCLING 2012, Yuan Ze University, Taiwan (2012/09)
- Committee Members, 2012 IEEE SPS Summer School, National Tsing Hua University, Taiwan (2012/07)

Conference Chairs

- Conference Chair, ROCLING 2017, Taiwan (2017/11–2017/11)
- Sponsor Chair, TAAI 2017, Taiwan (2017/11–2017/12)
- Program Chair, ROCLING 2016, Taiwan (2016/10–2016/10)
- Organizer, SWS 2015, IIS, Academia Sinica, Taiwan (2015/03–2015/03)

REPRESENTATIVE RESEARCH WORKS

My research focus is to derive novel machine learning and speech signal processing algorithms for assisting people who have hearing and speaking disabilities, which can be divided into three parts: speech enhancement and voice conversion, assistive hearing technologies, and assistive speaking technologies.

Speech Enhancement and Voice Conversion

- Paper#1: Speech Enhancement Based on Deep Denoising Autoencoder, Interspeech 2013, **Google Citation: 818** (until 2022/09/07).
- Paper#2: Voice Conversion from Unaligned Corpora using Variational Autoencoding Wasserstein Generative Adversarial Networks, *Interspeech 2017*, **Google Citation: 369** (until 2022/09/07).
- Paper#3: Voice Conversion from Non-parallel Corpora using Variational Auto-encoder, *APSIPA 2016*, **Google Citation: 267** (until 2022/09/07).
- Paper#4: End-to-End Waveform Utterance Enhancement for Direct Evaluation Metrics Optimization by Fully Convolutional Neural Networks, *IEEE/ACM Transactions on Audio, Speech and Language Processing*, vol. 26(9), pp. 1570-1584, April 2018. **(2021 IEEE Signal Processing Society (SPS) Young Author Best Paper Award). Google Citation: 228** (until 2022/09/07).
- Paper#5: MetricGAN: Generative Adversarial Networks based Black-box Metric Scores Optimization for Speech Enhancement, in *Proc. ICML 2019*, **Long Oral Presentation with ICML Travel Grant. Google Citation: 140** (until 2022/09/07).
- Paper#6: Audio-Visual Speech Enhancement Using Multimodal Deep Convolutional Neural Networks, *IEEE Transactions on Emerging Topics in Computational Intelligence*, vol. 2(2), pp. 117-128, April. 2018.

Google Citation: 173 (until 2022/09/07).

- Paper#7: Multichannel Speech Enhancement by Raw Waveform-mapping using Fully Convolutional Networks, *IEEE/ACM Transactions on Audio, Speech and Language Processing*, vol. 28, pp. 1888-1900, Feb. 2020. **Google Citation: 35** (until 2022/09/07).
- Paper#8: Unsupervised Noise Adaptive Speech Enhancement by Discriminator-Constrained Optimal Transport, *NeurIPS 2021*. **Google Citation: 2** (until 2022/09/07).

Assistive Hearing Technologies

- Paper#9: A Deep Denoising Autoencoder Approach to Improving the Intelligibility of Vocoded Speech in Cochlear Implant Simulation, *IEEE Transactions on Biomedical Engineering*, vol. 64(7), pp. 1568-1578, July, 2017. **Google Citation: 92** (until 2022/09/07).
- Paper#10: Deep learning-based noise reduction approach to improve speech intelligibility for cochlear implant recipients, *Ear and Hearing*, 2018.vol. 4, pp. 795-809, **Google Citation: 62** (until 2022/09/07).
- Paper#11: Improving the Intelligibility of Speech for Simulated Electric and Acoustic Stimulation Using Fully Convolutional Neural Networks, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 29, pp. 184-195, Dec. 2020. **Google Citation: 10** (until 2022/09/07).
- Paper#12: A Study of Joint Effect on Denoising Techniques and Visual Cues to Improve Speech Intelligibility in Cochlear Implant Simulation, *IEEE Transactions on Cognitive and Developmental*, vol. 13(4), pp. 984-994, Dec. 2021. **Google Citation: 6** (until 2022/09/07).

Assistive Speaking Technologies

- Paper#13: Joint Dictionary Learning-based Non-Negative Matrix Factorization for Voice Conversion to Improve Speech Intelligibility After Oral Surgery, *IEEE Transactions on Biomedical Engineering*, vol. 64 (11), pp. 2584-2594, November 2017. **Google Citation: 43** (until 2022/09/07).
- Paper#14: Generative Adversarial Networks for Unpaired Voice Transformation on Impaired Speech, *Interspeech 2018*. **Google Citation: 28** (until 2022/09/07).
- Paper#15: Detection of Pathological Voice Using Cepstrum Vectors: A Deep Learning Approach, *Journal of Voice*, vol 33(5), pp. 634-641, September 2019. **Google Citation: 152** (until 2022/09/07).

To date, my publications have received **6663 citations** based on **Google Scholar (1247 citations received in 2022)**. Among the publications mentioned above, Paper#4: End-to-End Waveform Utterance Enhancement for Direct Evaluation Metrics Optimization by Fully Convolutional Neural Networks) received the **ranking #3 citation** in *IEEE/ACM Transactions on Audio, Speech and Language Processing* 2020. Paper#15: Detection of Pathological Voice Using Cepstrum Vectors: A Deep Learning Approach, received the **ranking #1 citation** in *Elsevier Journal of Voice* 2020.

Citable Items in 2019 and 2018 (278)	Citations in 2020 (1,492)
TITLE	CITATIONS COUNTED TOWARDS #1
Supervised Speech Separation Based on Deep Learning: An Overview	101
By: Wang, DeLiang; Chen, Jinyu	
Volume: 28 Page: 1700-1726 Accession number: WOS:000458712500001	
Document Type: Article	
Conv-TasNet: Successing Ideal Time-Frequency Magnitude Masking for Speech Separation	61
By: Liu, Yi; Mengden, Nina	
Volume: 27 Page: 1258-1266 Accession number: WOS:000468338800004	
Document Type: Article	
End-to-End Waveform Utterance Enhancement for Direct Evaluation Metrics Optimization by Fully Convolutional Neural Networks	34
By: Fu, Si; Wei, Wang; Tao-Wu, Tao; Yu, Li; Rugang, Xiao; Huihui	
Volume: 28 Page: 1575-1594 Accession number: WOS:000453371500006	
Document Type: Article	
Detection and Classification of Acoustic Scenes and Events: Outcome of the DCASE 2016 Challenge	28
By: Mesaros, Armandina; Herlitz, Toru; Benetos, Emmanuel; Fostic, Peter; Lagrange, Mathieu et al.	
Volume: 26 Page: 379-383 Accession number: WOS:000418227000014	
Document Type: Article	

(a) *IEEE/ACM Transactions on Audio, Speech, and Language Processing* 2020 (reported on 2021/08/06)

Citable Items in 2019 and 2018 (348)	Citations in 2020 (701)
TITLE	CITATIONS COUNTED TOWARDS #1
Detection of Pathological Voice Using Cepstrum Vectors: A Deep Learning Approach	152
By: Fang, Shih-Hsi; Tsao, Yu-Hsiao; Min-Jing, Chen; Ji-Ying, Lai; Ying-Hui et al.	
Volume: 33 Page: 634-641 Accession number: WOS:000488443200007	
Document Type: Article	
Acoustic Perturbation Measures Improve with Increasing Vocal Intensity in Individuals With and Without Voice Disorders	11
By: Blockmann-Baustic, M.; Bohlender, J. E.; Mehta, D. D.	
Volume: 32 Page: 162-168 Accession number: WOS:000428594800005	
Document Type: Article	
Effects of Aging on Vocal Fundamental Frequency and Vowel Formants in Men and Women	5
By: Eichhorn, Julie; Traub, Kerl; Raymond, D.; Austin, Diane; Waples, Hui-K.	
Volume: 32 Accession number: WOS:000443384300021 Document Type: Article	

(b) *Elsevier Journal of Voice* 2020 (reported on 2021/08/06)

FULL PUBLICATION LIST

(1) Journal Papers (* indicating the corresponding author)

- [86] Y. Lin, **Y. Tsao**, and P.-J. Hsieh, "Neural Correlates of Individual Differences in Predicting Ambiguous Sounds Comprehension Level," to appear in *NeuroImage*.
- [85] C.-H. Hu, Y.-H. Peng, J. Yamagishi, **Y. Tsao**, and H.-M. Wang, "SVSNet: An End-to-end Speaker Voice Similarity Assessment Model," to appear in *IEEE Signal Processing Letters*.
- [84] S.-Y. Chuang, H.-M. Wang, and **Y. Tsao***, "Improved Lite Audio-Visual Speech Enhancement," to appear in *IEEE Transactions on Audio, Speech and Language Processing*.
- [83] Y.-W. Chen, K.-H. Hung, Y.-J. Li, A. C.-F. Kang, Y.-S. Lai, K.-C. Liu, S.-W. Fu, S.-S. Wang, **Y. Tsao***, "CITISEN: A Deep Learning-Based Speech Signal-Processing Mobile Application," to appear in *IEEE Access*.
- [82] K.-C. Liu, K.-H. Hung, C.-Y. Hsieh, H.-Y. Huang, C.-T. Chan, and Y. Tsao, "Deep Learning Based Signal Enhancement of Low-Resolution Accelerometer for Fall Detection Systems," to appear in *IEEE Transactions on Cognitive and Developmental Systems*.
- [81] C.-T. Wang, Z.-Y. Chuang, C.-H. Hung, **Y. Tsao**, S.-H. Fang, "Detection of Glottic Neoplasm Based on Voice Signals Using Deep Neural Networks," to appear in *IEEE Sensors Journal*, (Letters)
- [80] S.-S. Wang, C.-C. Lai, C.-T. Wang, **Y. Tsao**, S.-H. Fang, "Continuous Speech for Improved Learning Pathological Voice Disorders," to appear in *IEEE Open Journal of Engineering in Medicine and Biology*.
- [79] Y.-C. Lin, C. Yu, Y.-T. Hsu, S.-W. Fu, **Y. Tsao***, T.-W. Kuo, "SEOFN-NET: Compression and Acceleration of Deep Neural Networks for Speech Enhancement Using Sign-Exponent-Only Floating-Points," to appear in *IEEE Transactions on Audio, Speech and Language Processing*.
- [78] X. Lu, P. Shen, **Y. Tsao**, and H. Kawai, "Coupling A Generative Model With A Discriminative Learning Framework for Speaker Verification," to appear in *IEEE Transactions on Audio, Speech and Language Processing*.
- [77] L. Chen, J.-T. Sheu, Y.-J. Chuang, K.-C. Liu, **Y. Tsao***, "Predicting the Travel Distance of Patients to Access Healthcare using Deep Neural Networks," to appear in *IEEE Journal of Translational Engineering in Health and Medicine*.
- [76] K.-C. Liu, K.-H. Hung, C.-Y. Hsieh, H.-Y. Huang, C.-T. Chan, and **Y. Tsao***, "Deep Learning Based Signal Enhancement of Low-Resolution Accelerometer for Fall Detection Systems," to appear in *IEEE Transactions on Cognitive and Developmental Systems*.
- [75] R.-Y. Tseng, T.-W. Wang, S.-W. Fu, C.-Y. Lee, and **Y. Tsao***, "A Study of Joint Effect on Denoising Techniques and Visual Cues to Improve Speech Intelligibility in Cochlear Implant Simulation," *IEEE Transactions on Cognitive and Developmental Systems* 2021.
- [74] F. S. Abousaleh, W.-H. Cheng, N.-H. Yu, and **Y. Tsao***, "Multimodal Deep Learning Framework for Image Popularity Prediction on Social Media," *IEEE Transactions on Cognitive and Developmental Systems*, 2021.
- [73] K.-C. Liu, M. Chan, C.-Y. Hsieh, H.-Y. Huang, C.-T. Chan, **Y. Tsao***, "Domain-adaptive Fall Detection Using Deep Adversarial Training," *IEEE Transactions on Neural Systems & Rehabilitation Engineering*, 2021.
- [72] W. Ariyanti, T. Hussain, J.-C. Wang, C.-T. Wang, S.-H. Fang, and **Y. Tsao***, "Ensemble and Multimodal Learning for Pathological Voice Classification," *IEEE Sensors Journal* 2021.
- [71] T.-H. Lin, T. Akamatsu, **Y. Tsao**, "Sensing ecosystem dynamics via audio source separation: A case study of marine soundscapes off northeastern Taiwan," *PLOS Computational Biology* 2021.
- [70] H.-S. Lee, **Y. Tsao**, S.-K. Jeng, and H.-M. Wang, "Subspace-based Representation and Learning for Phonotactic Spoken Language Recognition," *IEEE Transactions on Audio, Speech and Language Processing*, 2021.
- [69] N. Y.-H. Wang, H.-L. S. Wang, T.-W. Wang, S.-W. Fu, X. Lu, H.-M. Wang, and **Y. Tsao***, "Improving the Intelligibility of Speech for Simulated Electric and Acoustic Stimulation Using Fully Convolutional Neural Networks," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2020.
- [68] T.-A. Hsieh, H.-M. Wang, X. Lu, and **Y. Tsao***, "WaveCRN: An Efficient Convolutional Recurrent Neural Network for End-to-end Speech Enhancement," *IEEE Signal Processing Letters*, 2020.
- [67] K.-H. Tsai, W.-C. Wang, C.-H. Cheng, C.-Y. Tsai, J.-K. Wang, T.-H. Lin, S.-H. Fang, L.-C. Chen, and **Y. Tsao***, "Blind Monaural Source Separation on Heart and Lung Sounds Based on Periodic-Coded Deep Auto-encoder," *IEEE Journal of Biomedical and Health Informatics*, 2020.

- [66] W.-C. Huang, H. Luo, H.-T. Hwang, C.-C. Lo, Y.-H. Peng, **Y. Tsao***, and H.-M. Wang, "Unsupervised Representation Disentanglement using Cross Domain Features and Adversarial Learning in Variational Auto-encoder based Voice Conversion," *IEEE Transactions on Emerging Topics in Computational Intelligence*, 2020.
- [65] T. Hussain, S. M. Siniscalchi, H.-L. S. Wang, **Y. Tsao***, S. V. Mario, and W.-H. Liao, "Ensemble Hierarchical Extreme Learning Machine for Speech Dereverberation," *IEEE Transactions on Cognitive and Developmental Systems*, 2020.
- [64] C. Yu, K.-H. Hung, S.-S. Wang, **Y. Tsao***, and J.-w. Hung, "Time-Domain Multi-modal Bone/air Conducted Speech Enhancement," *IEEE Signal Processing Letters*, 2020.
- [63] S. C. Hidayati, T. W. Goh, Ji.-S. G. Chan, C.-C. Hsu, J. See, L.-K. Wong, K.-L. Hua, **Y. Tsao**, and W.-H. Cheng, "Dress With Style: Learning Style from Joint Deep Embedding of Clothing Styles and Body Shapes," *IEEE Transactions on Multimedia*, 2020.
- [62] C. Yu, R. E. Zezario, S.-S. Wang, J. Sherman, Y.-Y. Hsieh, X. Lu, H.-M. Wang, and **Y. Tsao***, "Speech Enhancement based on Denoising Autoencoder with Multi-branched Encoders," *IEEE Transactions on Audio, Speech and Language Processing*, 2020.
- [61] J.-K. Wang, Y.-F. Chang, K.-H. Tsai, W.-C. Wang, C.-Y. Tsai, C.-H. Cheng, and **Y. Tsao***, "Automatic Recognition of Murmurs of Ventricular Septal Defect using Convolutional Recurrent Neural Networks with Temporal Attentive Pooling," *Scientific Reports*, 2020
- [60] C.-L. Liu, S.-W. Fu, Y.-J. Li, J.-W. Huang, H.-M. Wang, and **Y. Tsao***, "Multichannel Speech Enhancement by Raw Waveform-mapping using Fully Convolutional Networks," *IEEE Transactions on Audio, Speech and Language Processing* 2020.
- [59] X. Wang et al., "ASVspoof 2019: ASVspoof 2019: A Large-scale Public Database of Synthesized, Converted and Replayed Speech," *Computer Speech and Language*, 2020.
- [58] M. Lee, L. Lin, C.-Y. Chen, **Y. Tsao**, T.-H. Yao, M.-H. Fei and S.-H. Fang, "Forecasting Air Quality in Taiwan by Using Machine Learning," *Scientific Reports*, 2020.
- [57] Y.-H. Lai, W.-N. Chen, T.-C. Hsu, C. Lin, **Y. Tsao**, and S. Wu, "Overall Survival Prediction of Non-small Cell Lung Cancer by Integrating Microarray and Clinical Data with Deep Learning," *Scientific Reports*, 2020.
- [56] J.-Y. Wu, C. Yu, S.-W. Fu, C.-T. Liu, S.-Y. Chien, **Y. Tsao***, "Increasing Compactness of Deep Learning based Speech Enhancement Models with Parameter Pruning and Quantization Techniques," *IEEE Signal Processing Letters*, 2020.
- [55] S.-W. Fu, C.-F. Liao, **Y. Tsao***, "Learning with Learned Loss Function: Speech Enhancement with Quality-Net to Improve Perceptual Evaluation of Speech Quality," *IEEE Signal Processing Letters* 2020.
- [54] N. Y.-H. Wang, C.-H. Chiang, H.-L. S. Wang and **Y. Tsao***, "Atypical Frequency Sweep Processing in Chinese Children With Reading Difficulties: Evidence From Magnetoencephalography," 2020.
- [53] C.-T. Wang, F.-C. Lin, J.-Y. Chen, M.-J. Hsiao, S.-H. Fang, Y.-H. Lai, **Y. Tsao**, "Detection of Pathological Voice Using Cepstrum Vectors: A Deep Learning Approach," *Journal of Voice*, 2019.
- [52] S.-H. Fang, C.-T. Wang, J.-Y. Chen, **Y. Tsao** and F.-C. Lin, "Combining Acoustic Signals and Medical Records to Improve Pathological Voice Classification," *APSIPA Transactions on Signal and Information Processing*, 2019.
- [51] T.-H. Lin and **Y. Tsao**, "Source Separation in Ecoacoustics: A Roadmap towards Versatile Soundscape Information Retrieval," *Remote Sensing in Ecology and Conservation*, 2019.
- [50] C.-W. Lee et al., "Bioimaging: New Templated Ostwald Ripening Process of Mesostructured FeOOH for Third-Harmonic Generation Bioimaging," *Small* 2019.
- [49] Y.-C. Chu, Y.-F. Cheng, Y.-H. Lai, **Y. Tsao**, T.-Y. Tu, S. T. Young, T.-S. Chen, Y.-F. Chung, F. Lai, W.-H. Liao, "A Mobile Phone-Based Approach for Hearing Screening of School-Age Children: Cross-Sectional Validation Study," *JMIR Mhealth Uhealth*, 2019.
- [48] H.-T. Chiang, Y.-Y. Hsieh, S.-W. Fu, K.-H. Hung, **Y. Tsao***, S.-Y. Chien, "Noise Reduction in ECG Signals Using Fully Convolutional Denoising Autoencoders," *IEEE Access*, 2019
- [47] **Y. Tsao***, T.-H. Lin, F. Chen, Y.-F. Chang, C.-H. Cheng, and K.-H. Tsai, "Robust S1 and S2 heart sound recognition based on spectral restoration and multi-style training," *Biomedical Signal Processing and Control*, 2019.
- [46] H.-L. S. Wang , N. Y.-H. Wang , I.-C. Chen, and **Y. Tsao***, "Auditory Identification of Frequency-Modulated Sweeps and Reading Difficulties in Chinese," *Research in Developmental Disabilities*, 2019.

- [45] C.-T. Liu, T.-W. Lin, Y.-H. Wu, Y.-S. Lin, H. Lee, **Y. Tsao**, and S.-Y. Chien, "Computation-Performance Optimization of Convolutional Neural Networks with Redundant Filter Removal," *IEEE Transactions on Circuits and Systems I*, 2018.
- [44] H.-P. Liu, **Y. Tsao***, and C.-S. Fuh, "Bone-Conducted Speech Enhancement Using Deep Denoising Autoencoder" *Speech Communication* 2018.
- [43] **Y. Tsao***, H.-C. Chu, S.-H. Fang, J. Lee, and C.-M. Lin, "Adaptive Noise Cancellation using Deep Cerebellar Model Articulation Controller," *IEEE Access*, 2018.
- [42] S.-W. Fu, T.-W. Wang, **Y. Tsao***, X. Lu, and H. Kawai, "End-to-End Waveform Utterance Enhancement for Direct Evaluation Metrics Optimization by Fully Convolutional Neural Networks," *IEEE Transactions on Audio, Speech and Language Processing*, 2018.
- [41] T.-H. Lin, T. Akamatsu, and **Y. Tsao**, "Comparison of Passive Acoustic Soniferous Fish Monitoring with Supervised and Unsupervised Approaches," *Journal of the Acoustical Society of America (JASA)*, 2018.
- [40] J.-C. Hou, S.-S. Wang, Y.-H. Lai, **Y. Tsao***, H.-W. Chang, and H.-M. Wang, "Audio-visual Speech Enhancement based on Multimodal Deep Convolutional Neural Networks," *IEEE Transactions on Emerging Topics in Computational Intelligence*, 2018.
- [39] S.-Y. Tsui, **Y. Tsao**, C.-W. Lin, S.-H. Fang, and C.-T. Wang, "Demographic and Symptomatic Features of Voice Disorders and Their Potential Application in Classification using Machine Learning Algorithms," *Folia Phoniatrica et Logopaedica*, 2018.
- [38] S.-S. Wang, P. Lin, **Y. Tsao***, J.-W. Hung, and B. Su, "Suppression by Selecting Wavelets for Feature Compression in Distributed Speech Recognition," *IEEE Transactions on Audio, Speech and Language Processing*, 2018.
- [37] Y.-H. Lai, **Y. Tsao**, X. Lu, F. Chen, Y.-T. Su, K.-C. Chen, Y.-H. Chen, L.-C. Chen, P.-H. Li, and C.-H. Lee, "Deep Learning based Noise Reduction Approach to Improve Speech Intelligibility for Cochlear Implant Recipients," *Ear and Hearing*, 2018.
- [36] H.-T. Hwang, Y.-C. Wu, Y.-H. Peng, C.-C. Hsu, **Y. Tsao**, H.-M. Wang, Y.-R. Wang, and S.-H. Chen, "Voice Conversion based on Locally Linear Embedding," *Journal of Information Science and Engineering*, 2018.
- [35] H.-T. Hwang, Y.-C. Wu, S.-S. Wang, C.-C. Hsu, **Y. Tsao**, H.-M. Wang, Y.-R. Wang, and S.-H. Chen, "Locally linear Embedding Based Post-filtering for Speech Enhancement," *Journal of Information Science and Engineering*, 2018.
- [34] J. Torres-Sospedra et al., "Off-Line Evaluation of Mobile-Centric Indoor Positioning Systems: The Experiences from the 2017 IPIN Competition," *Sensors*, 2018.
- [33] P. Lin, D. Lyu, F. Chen, S.-S. Wang, and **Y. Tsao***, "Multi-style Learning with Denoising Autoencoders for Acoustic Modeling in the Internet of Things (IoT)," *Computer Speech and Language*, 2017.
- [32] T. Hussain, S. M. Siniscalchi, C.-C. Lee, S.-S. Wang, **Y. Tsao*** and W.-H. Liao, "Experimental Study on Extreme Learning Machine Applications for Speech Enhancement," *IEEE Access*, 2017.
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