

Yu-Wen Chen

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RESEARCH INTERESTS

Speech Processing, Natural Language Processing, Human-computer Interaction, Multimodal Learning, Machine Learning

EDUCATION

National Taiwan University (NTU)

Taipei, Taiwan

M.S. in Electrical Engineering, Computer Science, GPA: 4.11/4.3

Sep 2017 - Jun 2019

- Taiwan Evolutionary Intelligence Laboratory, Advisor: Prof. Tian-Li Yu
- Coursework: Artificial Intelligence, Computer Vision, Digital Speech Processing, Genetic Algorithms, Machine Learning, Natural Language Processing

National Cheng Kung University

Tainan, Taiwan

B.S. in Electrical Engineering, GPA: 92.05/100, Ranking: 2/37

Sep 2013 - Jun 2017

- **Outstanding student for the academic achievement in the school year 2013-2014, 2014-2015, 2015-2016**
- Coursework: Algorithm, Computer Networks, Computer Organization, Database, Data Mining, Data Structures, Image Processing, Operating System, Software Engineering, Web Programming

WORK EXPERIENCE

Research Center for Information Technology Innovation, Academia Sinica

Research Assistant, Biomedical Acoustic Signal Processing Lab

Taipei, Taiwan

Feb 2020 - Present

- Principal Investigator: Prof. Yu Tsao
- Research Areas: Speech Enhancement, Speech Synthesis, Speech Processing, Multimodal Learning, Machine Learning

Industrial Technology Research Institute

Hsinchu, Taiwan

Intern, Electronic and Optoelectronic System Research Laboratories

Nov 2017 - Jun 2019

- Research Areas: Computer Vision, Health Care Applications, Machine Learning
- Mental Stress Detection: used physiological signals to detect stress levels
- Sleep Analysis: classified sleep stage by Electroencephalogram signals
- Production Yield Analysis: analyzed machine parameters to deduce the causes of defective OLED
- Face Recognition: researched on infrared light face recognition and 3D face recognition

RESEARCH

• EMA2S: An End-to-End Multimodal Articulatory-to-Speech System

Accepted by IEEE International Symposium on Circuits & Systems (ISCAS) 2021 as 1st author

- Proposed an end-to-end multimodal articulatory-to-speech system that directly converts articulatory movements to speech signals. The results show that the proposed joint loss of spectrogram, mel-spectrogram, and deep feature can effectively improve system performance.

• A Study of Incorporating Articulatory Movement Information in Speech Enhancement

Accepted by European Signal Processing Conference (EUSIPCO) 2021 as 1st author

- Proposed to use articulatory movements as additional features for speech enhancement. The results show that the usage of articulatory movements greatly enhanced the speech in both quality and intelligibility

• InQSS: A Speech Intelligibility Assessment Model Using a Multi-task Learning Network

Submitted to ICASSP 2022 as 1st author

- Proposed an Intelligibility and Quality assessment model using Spectrogram and Scattering coefficients as input features and released a Chinese speech dataset that records the quality and intelligibility scores of clean, noisy, and enhanced speech signals.

- **CITISEN: A Deep Learning-Based Speech Signal-Processing Mobile Application**
Submitted to IEEE Access 2021 as 1st author
 - Developed a mobile app (CITISEN) that supports speech enhancement, background noise conversion, and model adaptation. The CITISEN can potentially serve as a front-end processor for various speech-related services
- **Multi-Performance Estimation for Deploying Bank Branches Based on a Multi-task Attentive Tree-enhanced Model**
Submitted to IEEE TETCI 2021 as 3rd author
 - Proposed a multi-task attentive tree-enhanced model for bank location recommendation. The model has been used to assist the banker in deploying optimal branch locations in several cities in Taiwan in 2020.

TERM PROJECTS

Graduate studies

- **Depth Map Generation on More Realistic Scenes**
Computer Vision: from Recognition to Geometry · Python
 - Used traditional approaches and neural network-based approaches for stereo matching on real-world conditions
- **Metric learning: Triplet-loss-based Autoencoder for Handwriting Recognition**
Artificial Intelligence · Python
 - Investigated and implemented a triplet-loss-based autoencoder for classification
- **Genetic Algorithm (GA) for Social Influence Maximization**
Genetic Algorithms · Python
 - Researched simple GA and model building GA for the social influence maximization, which uses an independent cascade model and a linear threshold model

Undergraduate studies

- **Exploration of Articles in PTT**
Data Mining and Social Network Analysis · Python
 - Used recurrent neural networks to predict the popularity of articles and data mining to analyze user behavior in a bulletin board system
- **Restaurant Recommendation Chatbot**
Database · HTML/CSS, Python
 - Used NoSQL database for a restaurant recommendation chatbot. The chatbot will recommend restaurants based on the conditions given by users
- **Mobile Monitoring Monster**
Introduction to Software Engineering · Java
 - Developed a mobile game that helps users monitor their usage habits of mobile apps. The game is a simulation game, and the monster in the game will grow based on the apps used by the users
- **Video Recommendation System**
Undergraduate Project for Computer and Communication · HTML/CSS, Java
 - Designed an emoticon-based video recommendation system, which recommends according to users' current emotion

SKILLS

- Programming: **Python, C++, Java**
- Toolkits/Software: **PyTorch, TensorFlow, Scikit-learn, OpenCV, NLTK, LaTeX**
- Language:
 - GRE: 325 (V:155, Q:170, AW:3.5)
 - TOEFL iBT: 107 (R:28, L:29, S:24, W:26)