An-Yan Chang

- stanleychang0914110366@gmail.com - linkedin.com/in/anyanchang - github.com/s107081028 - website

EDUCATION

National Tsing Hua University (Double Major) **Hsinchu, Taiwan**
Bachelor in Interdisciplinary Program of Electrical Engineering and Computer Science *Sep 2018 - Jan 2023*
Bachelor in Interdisciplinary Program of Life Science and Medicine *Sep 2018 - Jan 2023*

- **Courses:** Computer Vision, Data Science, Deep Reinforcement Learning, Cloud Programming, Software Design

National Tsing Hua University **Hsinchu, Taiwan**
Master of Electrical Engineering *Feb 2023 - Jan 2025*

- **Overall GPA:** 4.21/4.30
- **Fields:** Medical and Clinical AI, Audio and Signal Processing, LLM-Automatic Speech Recognition

PUBLICATIONS AND PATENTS

1. **A. Y. Chang**, J. T. Tzeng, H. Y. Chen, C. W. Sung, C. H. Huang, E. P. C. Huang, C. C. Lee "GaP-aug: Gamma Patch-Wise Correction Augmentation Method for Respiratory Sound Classification" (IEEE ICASSP 2024) Link
2. **A. Y. Chang**, J. T. Tzeng, H. Y. Chen, C. H. Huang, E. P. C. Huang, C. C. Lee "Valve Token Masked Autoencoder for Missing Recordings on Cardiac Abnormality Classification" (IEEE ICASSP 2025) Link
3. C. H. Huang, C. H. Chen, J. T. Tzeng, **A. Y. Chang**, C. Y. Fan, C. W. Sung, C. C. Lee, E. P. C. Huang "The unreliability of crackles: insights from a breath sound study using physicians and artificial intelligence" (NPJ Primary Care Respiratory Medicine) Link
4. Inventor: **Chang, An-Yan**; Tzeng, Jing-Tong; Lee, Chi-Chun; Huang, Pei-Chuan "Data Augmentation Method, Respiratory Sound Classification Method and Electronic Device" (Patent US91431, TW 113144170 Pending)

AWARDS

Best Presentation Award April 2024
NTHU AI Advanced Technology Presentation Competition

TECHNICAL SKILLS

Programming Languages: Python, `C/C++/C#`, HTML, JavaScript, SQL, Kotlin, MATLAB, Verilog
Platform/Framework: PyTorch/TensorFlow, Django, AWS, Unity3D, Slurm, Android Studio

LANGUAGE SKILLS

English: Advanced proficiency (TOEFL: 105/120, TOEIC: Gold certificate)
Chinese: Native proficiency

RESEARCH PROJECTS

Behavioral Informatics & Interaction Computation Lab (BIIC lab) *Prof. Chi-Chun (Jeremy) Lee*

Topic: Respiratory and Cardiac Automated Auscultation System *Feb 2023 - Jan 2025*

- Manage clinical respiratory and cardiac sound w/ patient demographics collecting system in cooperation with Department of Emergency Medicine, National Taiwan University Hospital (NTUH).
- Propose two innovative algorithms for augmentation design and missing-recording reconstruction, achieving SOTA performances on public respiratory and cardiac sound datasets.

Topic: Cross-Device Respiratory Sound Classification *May 2024 - Jan 2025*

- Maintain robust performance with generative and adversarial methods in respiratory auscultation on unseen stethoscopes with Quanta and NTUH.

Topic: In-Car Multi-Channel Automatic Speech Recognition *May 2024 - Dec 2024*

- Integrate Large Language Model (LLM) into ASR system for real in-car multi-source environments, utilizing error correction, noise robustness, and multi-modal alignment.

Topic: Inter-Departmental and Inter-Hospital Platform *April 2024 - Jan 2025*

- Develop a platform managing structured and unstructured clinical data from multiple hospitals with Cathay Financial Holdings Co., Ltd., enabling risk and patient outcome predictions and facilitating model training.
- Provide inter-departmental insights by identifying potential patients for other departments.

Topic: Fish-eye Device Facial Emotion Recognition System *Jul 2019 - Sep 2020*

- Develop a 360-degree facial emotion recognition system by integrating Real-time Rotation Interval Face Detection to Facial Emotion Recognition model, solving distortion issues of FER on fish-eye devices.