Jiawei Du

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Research Profile

Jiawei's research is centered on speech technology and its applications, including Neural Audio Codec, Generative AI, Automatic Speaker Verification (ASV), and Audio Deepfake Detection & Localization. These research directions aim to assist in distinguishing truth from falsehood and generating more authentic content in the era of AIGC proliferation.

Education

National Taiwan University **2022 - Present**

M.S. in Computer Science and Information Engineering (CSIE), GPA 4.15/4.3 *Taipei, Taiwan*

- Ranking 1/189 in the department in the 2023/24 academic year.
- Supervised by Prof. Jyh-Shing Roger Jang in NTU MIRLab.

Ming Chuan University **2018 - 2022**

B.S. in Information and Telecommunications Engineering (ITE), GPA 3.98/4.0 *Taoyuan, Taiwan*

- Ranking 1/79 in the department cumulatively.
- Under the mentorship of Prof. Shu-Yin Chiang in the area of Robotics.

Shanghai Jiao Tong University **2020 - 2021**

Exchange Student in Computer Science and Technology *Shanghai, Chinese mainland*

- Core Courses: Digital Signal Processing, Digital Graphics Processing, Computer Network, Computer Vision

Publications

Empower Typed Descriptions by Large Language Models for Speech Emotion **2024**

Accepted, APSIPA ASC 2024 *[PDF]*

Haibin Wu, Huang-Cheng Chou, Kai-Wei Chang, Lucas Goncalves, **Jiawei Du**, Jyh-Shing Roger Jang, Chi-Chun Lee, Hung-yi Lee

DFADD: The Diffusion and Flow-Matching Based Audio Deepfake Dataset **2024**

Accepted, SLT 2024 *[Github, Demo, PDF]*

Jiawei Du*, I-Ming Lin*, I-Hsiang Chiu*, Xuanjun Chen, Haibin Wu, WenZe Ren, Yu Tsao, Hung-yi Lee, Jyh-Shing Roger Jang

Open-Emotion: A Reproducible EMO-SUPERB for Speech Emotion Recognition Systems **2024**

Accepted, SLT 2024 *[PDF]*

Haibin Wu, Huang-Cheng Chou, Kai-Wei Chang, Lucas Goncalves, **Jiawei Du**, Jyh-Shing Roger Jang, Chi-Chun Lee, Hung-yi Lee

Codec-SUPERB @ SLT 2024: A lightweight benchmark for neural codec models **2024**

Accepted, SLT 2024 *[PDF]*

Haibin Wu, Xuanjun Chen*, Yi-Cheng Lin*, Kai-Wei Chang*,**Jiawei Du***, Ke-Han Lu*, Alexander Liu*, Ho Lam Chung*, Yuan-Kuei Wu*, Dongchao Yang*, Songxiang Liu, Yi-Chiao Wu, Xu Tan, James Glass, Shinji Watanabe, Hung-yi Lee

Neural Codec-based Adversarial Sample Detection for Speaker Verification **2024**

Accepted, Interspeech 2024 *[Github, PDF]*

Xuanjun Chen*, **Jiawei Du***, Haibin Wu, Jyh-Shing Roger Jang, Hung-Yi Lee

EMO-SUPERB: An In-depth Look at Speech Emotion Recognition **2024**

Preprint *[Github, Demo, PDF]*

Haibin Wu, Huang-Cheng Chou, Kai-Wei Chang, Lucas Goncalves, **Jiawei Du**, Jyh-Shing Roger Jang, Chi-Chun Lee, Hung-Yi Lee

Dcase 2023 task 6b: Text-to-audio retrieval using pretrained models **2023**

Accepted, DCASE2023 Challenge, Tech. Rep, 2023 *[PDF]*

Chung-Che Wang*, **Jiawei Du***, Jyh-Shing Roger Jang

Research Experiences

Deepfake Detection **06/2022 - Present**

- Audio-Visual: Explored the limitations of current state-of-the-art (SOTA) Audio-Visual Deepfake Detection methods, and improved the mAP@50 from 13.1% to 75.7% on our private AV Deepfake dataset.
- Singing Deepfake: Achieved outstanding on the CtrSVDD dataset, reducing the previous SOTA Equal Error Rate (EER) by 50%.
- ASVspoof: Researched and applied nearly all methods from the past five years, including RawNet2, AASIST, Wav2Vec2-AASIST, etc.

Audio-Text Cross-Modal Learning **02/2022 - 06/2022**

- Investigated language-based audio-text retrieval. Redesigned and explored the performance of different models in speech-text retrieval, and experimented with various data augmentation methods.

Academic Cctivity

- Reviewer of 2024 International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI 2024).
- Reviewer of 2024 IEEE Spoken Language Technology Workshop (SLT 2024).
- Technical committee of Codec-SUPERB Challenge at SLT 2024.

Projects

Pick and Place Perler Beads by a Six-axis Robotic Arm using Image Recognition **01/2021 - 12/2022**

Information and Telecommunications Engineering, Ming Chuan University *Final Year Project*

- Imaging processing by de-shadowing to achieve highly accurate recognition of beads' locations by Hough circle transform (HCT).
- Responsible for the algorithm and device design of the robotic arm.
- Created C# WinForms and programming to visualize and control the robotic arm.

Research on Algorithms of Medical Image Enhancement Based on Noise OCT **10/2020 - 01/2021**

Computer Science and Technology, Shanghai Jiao Tong University *Term Project*

- Compared the capacity of denoising OCT images by Python among different algorithms (Side Window Filtering; Non-local Means; BM3D; Learning Self-Supervised Denoising from single image).
- The quality of images was enhanced by iterative denoising processes, and the enhancement of each algorithm was evaluated by the PSNR (Peak signal-to-noise ratio).

Honours and Awards

- SLT 2024 Travel Grant (10 were accepted, 42 submissions).
- Currently ranked 13/49 in the CtrlSVDD competition (total 74 participants, 130 submissions).
- DCASE Challenge 2023 Task 6b, ranked 3/10.
- Received one class ranking first scholarship and five departmental ranking first scholarships at Ming Chuan University.
- Masterpiece Award for General Course (ranked 4th) in Ming Chuan Univeristy
- Excellent Student Cadre by Association of Hubei Students in Taiwan

Extra-curricular Activities

Mainland – Taiwan Student Association **09/2019 - 04/2020**

Ming Chuan University *Secretariat of general affairs*

- In charge of overall budget planning and execution, purchasing, fundraising, communication with university administration and students.
- Planning and implementation of year-round, campus-wise activities.

Skills

Programming: Python, PyTorch, C++
Typesetting: LaTeX, Markdown
Languages: Mandarin (native speaker), English (IELTS 6.5)
Hobbies: Singing, Piano, Guitar, Electronic Keyboard, City Walk, Traveling, NBA