Jiawei Du

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Research Profile

Jiawei's research interests are primarily focused on speech technology and its related fields, especially in the applications of Automatic Speaker Verification (ASV), Audio Neural Codec, and Audio Deepfake Detection and Localization. These research directions aim to help humans distinguish between truth and falsehood in the era of AIGC explosion.
Currently, he is focusing on Audio-Visual Anti-Spoofing, as deception is often more convincing in multi-modal scenarios.

Education

National Taiwan University **2022 - Present**
M.S. in Computer Science and Information Engineering (CSIE), GPA 4.13/4.3 *Taipei, Taiwan*

- Ranking 1/201 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

DFADD: The Diffusion and Flow-Matching Based Audio Deepfake Dataset **2024**
Accepted, SLT 2024
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
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
Haibin Wu, Xuanjun Chen, Yi-Cheng Lin, **Jiawei Du**, Kai-Wei Chang, 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
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
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
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 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

- Currently ranked 14/49 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 in Dept. ITE, 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