

# 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 4.13/4.3*

*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

### Empower Typed Descriptions by Large Language Models for Speech Emotion

2024

*Accepted, APSIPA ASC 2024*

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*

**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

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### 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

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- 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

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### 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

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- SLT 2024 Travel Grant (10 were accepted, 42 submissions).
- Currently ranked 13/49 in the CtrSVDD 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

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### 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

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**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