

Weiming Huang

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Education

Shanghai University, Shanghai

Sep 2020 – Jun 2024

BS in Intelligence Science and Technology , GPA 3.66 / 4.0

Related courses and grades:

Probability and Statistics A (100), Data Structure 1 (92)

Signal Processing (91), Computer Vision (94)

Publications

Weiming Huang, Qinghua Huang*, Liyan Ma, Zhengyu Chen, Chuan Wang, " SwG-former: A Sliding-Window Graph Convolutional Network for Simultaneous Spatial-Temporal Information Extraction in Sound Event Localization and Detection," submitted to *Applied Acoustics*, currently under review.

Research Experience

Digital Signal Processing Lab, Shanghai University

Nov 2022 – Now

Research Assistant

Individual research:

- Proposed an innovative audio representation based on GCN for the *Sound Event Localization and Detection (SELD)* task, marking the first study to employ GCN for this task.
- Designed a plug-and-play SwG-former block to learn temporal context information at various resolutions and dynamically construct graph vertices to capture spatial correlations.
- Integrated an improved *Conv2dAgg* function within the SwG-former block, demonstrating superior fitting and message-passing capabilities compared to standard graph aggregation methods.
- Engineered advanced SwG-former and SwG-EINV2 models for *SELD*, with the SwG-former outperforming recent models and SwG-EINV2 achieving state-of-the-art results.
- Completed tasks involving Conceptualization, Methodology, Software, Formal Analysis, Original Draft Writing, and Review & Editing of scholarly work.

Team collaboration:

- Assisted in training models and testing performance for Speech Separation and Direction-of-Arrival estimation tasks.
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Additional Info and Awards

- Skilled in Python, Pytorch, Matlab and Calligraphy
 - WARDS Mathematical Contest In Modeling Honorable Mention $\times 2$, 2021 - 2023
 - WARDS National Encouragement Scholarship, 2021-2022
 - WARDS First-class Academic Scholarship, SHU 2021-2022
 - WARDS Second-class Academic Scholarship, SHU 2020-2021
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