WEI-TING LAI

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Google Scholar LinkedIn GitHub

EDUCATION

The Australian National University (ANU)

PhD in Audio and Acoustic Signal Processing **Sep 2022 – Nov 2026 (Expected)**

- Spatial audio research and algorithm development.
- Supervisors: Thushara Abhayapala, Prasanga Samarasinghe.
- Teaching Assistant:
  - Courses: ENGN4213 Digital Systems and Microprocessors, ENGN4537 Digital Signal Processing.
- Scholarship: Taiwan Australian National University Scholarship (Sep 2022 – Sep 2026).

National Taiwan University (NTU)

- MSc in Engineering Science and Ocean Engineering (ESOE) **Sep 2018 – Jul 2020**
- Specializing in Acoustics Engineering (NTU Acoustics Lab).
- Supervisor: Chao-Nan Wang.
- Thesis title: 'Head-Mounted Display Reproduction of 3D Acoustic Field'.
  - Developing an HRTF compensation system for HMDs using COMSOL simulations and experiments.
- Teaching Assistant:
  - Courses: ESOE5034 Fundamental of Acoustics, ESOE7029 Introduction to Electroacoustics.
- Scholarship: Research Assistant (Sep 2018 – Jul 2020)
  - Assist in conducting acoustic tests, including sound absorption and sound insulation tests.

National Taiwan University (NTU)

BSc in Engineering Science and Ocean Engineering (ESOE) **Sep 2014 – Jun 2018**

- Specializing in Information & Computational Science.
- Core courses: Basic Computer Concept, Computer Programming, Data Structures, OOP Language, Linear Algebra, Computer Graphics.

RESEARCH INTERESTS

Audio Signal Processing, Spatial Audio, Soundfield Analysis, Direction of Arrival, Source Localization, Source Separation, Soundfield Reconstruction, HRTFs.

PUBLICATIONS

[8] Xu, S., **Lai, W.-T.**, Zhang, Y. A., Zhang, J. A., Bastine, A., Birnie, L., Samarasinghe, P. N., and Abhayapala, T. D. "Three-Dimensional Gradient-Based Tracking of Multiple Sound Sources", *Proc. Asia-Pac. Signal Inf. Process. Assoc. Annu. Summit Conf. (APSIPA)*, 2025.

[7] Zhang, Y. A.*, **Lai, W.-T.***, Chen, X., Bastine, A., Birnie, L., Abhayapala, T. D., and Samarasinghe, P. N. " RAMDC: Room-Aware Multi-Device Clustering for Large Scale Teleconferencing", *Proc. Asia-Pac. Signal Inf. Process. Assoc. Annu. Summit Conf. (APSIPA)*, 2025.

[6] Xu, S.*, **Lai, W.-T.***, Bi, H., Samarasinghe, P. N., Abhayapala, T. D., Zhang, J. A., Birnie, L., and Bastine, A. "Three-Dimensional Gradient-Based Tracking of Multiple Sound Sources", *IEEE/ACM Trans. Audio, Speech, Lang. Process.*, under review, 2025.

[5] **Lai, W.-T.**, Birnie, L., Abhayapala, T., Bastine, A., and Samarasinghe, P. "Sound Source Localization using Multi-Dictionary Orthogonal Matching Pursuit in Reverberant Environments", *IEEE/ACM Trans. Audio, Speech, Lang. Process.*, 2025. [DOI]

[4] **Lai, W.-T.**, Birnie, L., Chen, X., Bastine, A., Abhayapala, T. D., and Samarasinghe, P. N. "Source Localization by Multidimensional Steered Response Power Mapping with Sparse Bayesian Learning", *Proc. Int. Workshop Acoust. Signal Enhanc. (IWAENC)*, 2024. [DOI]

[3] Chen, X., Bi, H., **Lai, W.-T.**, and Ma, F. "Monaural speech enhancement on drone via Adapter based transfer learning", *Proc. Int. Workshop Acoust. Signal Enhanc. (IWAENC)*, 2024. [DOI]

[2] Xu, S., Zhang, J. A., Abhayapala, T. D., Bastine, A., **Lai, W.-T.**, and Samarasinghe, P. N. "Sparse Sound Field Representation Using Complex Orthogonal Matching Pursuit", *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2024. [DOI]

[1] **Lai, W.-T.**, Birnie, L., Abhayapala, T., Bastine, A., Xu, S., and Samarasinghe, P. "A Two-Step Approach for Narrowband Source Localization in Reverberant Rooms", *Proc. IEEE Int. Conf. Acoust. Speech Signal Process. Workshops (ICASSPW)*, 2024. [DOI]

WORK EXPERIENCE

R&D Engineer at Acoustics Engineering **Sep 2021 – Jun 2022**
Acer Inc., Taipei

- Collaborate with ODM partners (REALTEK, Intel, DTS) on the R&D for improving product acoustic performance.
- Cortana audio test for gaming laptops, including AEC/ANC test, frequency response, and THD.
- Involved in a joint R&D project with DTS on developing a spatial audio laptop.

Intelligent Audio Algorithm Research Intern **Nov 2025 – Feb 2026**
TikTok Australia Pty Ltd, Sydney

- Survey, development and evaluation of technologies related to Free Lossless OR Ultra Low Bitrate Audio Codec for International Audio Standards

SKILLS

Programming: Python (PyTorch), MATLAB, C++, LABVIEW, JavaScript, COMSOL.
Audio Interfaces: SoundCheck, CLIO.
Languages: Mandarin (Native), Hokkien (Native), English (Fluent), and Japanese (JLPT N3).