Yuwei (Evelyn) Zhang

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EDUCATION

University of Cambridge **Cambridge, UK**

PhD in Computer Science, supervised by Prof. Cecilia Mascolo *2023 – 2027 (expected)*
- Current research on generalizable and multimodal deep learning models for respiratory health
- Jointly funded by Nokia Corporation and Cambridge Trust

MPhil in Advanced Computer Science, supervised by Prof. Cecilia Mascolo *2022 – 2023*
- Graduated with distinction and awarded the **Examiners' Prize** for a Highly Commended MPhil Project
- Funded by Chiang Chen Overseas Fellowship

Fudan University **Shanghai, China**

BSc in Computer Science *2018 – 2022*
- Graduated with distinction (Major GPA: **3.9/4.0**, School Rank:**2/153**)

SELECTED PUBLICATIONS

(# denotes Co-First author)

1. Towards Open Respiratory Acoustic Foundation Models: Pretraining and Benchmarking.
   Y Zhang[#], T Xia[#], J Han, Y Wu, G Rizos, Y Liu, M Mosuily, J Chauhan, C Mascolo.
   Advances in Neural Information Processing Systems (NeurIPS D&B 2024).
2. RespLLM: Unifying Audio and Text with Multimodal LLMs for Generalized Respiratory Health Prediction.
   Yuwei Zhang, Tong Xia, Aaqib Saeed, Cecilia Mascolo.
   Machine Learning for Health (ML4H), 2024, PMLR.
3. Uncertainty Quantification in Federated Learning for Heterogeneous Health Data.
   Yuwei Zhang, Tong Xia, Abhirup Ghosh, Cecilia Mascolo.
   Machine Learning for Health (ML4H), 2024, PMLR.
4. Structural Hole Theory in Social Network Analysis: A Review.
   Zihang Lin[#], **Yuwei Zhang**[#], Qingyuan Gong, Yang Chen, Atte Oksanen, Aaron Yi Ding.
   IEEE Transactions on Computational Social Systems (TCSS).

EXPERIENCE

PhD Researcher **University of Cambridge**

Advised by Prof. Cecilia Mascolo *Sep. 2023 – now*
- Developed multimodal LLM that jointly models patient history and audio data for generalized health prediction tasks, achieving superior performance in diverse tasks and demonstrating strong zero-shot abilities
- Worked on large-scale data curation, self-supervised pretraining and comprehensive benchmarking of respiratory acoustic models on 19 health condition inference and lung function estimation tasks
- Delved into uncertainty quantification in decentralized health data, identifying and addressing key challenges in data heterogeneity and computation cost with an efficient personalized federated learning framework

Research Intern **Shanghai Artificial Intelligence Laboratory**

Advised by Dr. Jingjing Qu *Mar. 2022 – Sep.2022*
- Conducted global survey of digital contact tracing apps and policies; analyzed social media data using LDA and social network analysis, revealing diverse stakeholder impacts. Paper published by *Big Data & Society*.

Research Intern **University of Göttingen**

Advised by Prof. Xiaoming Fu *Jun. 2021 – Jun.2022*
- Using mobility data to analyze the functional groups, mobility patterns, and network structures of Shanghai, Singapore, and London metros, providing insights for urban planning.

Research Assistant   **Fudan University**

Advised by Prof. Yang Chen   *Sep. 2019 – Jun. 2022*

- Analyzed spatial and temporal patterns of mobile user behaviors and mood patterns; developed LSTM and GCN-based models for app usage prediction; reviewed structural hole theory in social network analysis.

Software Engineer Intern   **Unity**

Advised by Marcus Lao   *Mar. 2021 – Sep.2021*

- Developed code for PlasticHub collaborating with a large team; lifted user experience by identifying and solving product issues. Designed test cases and product description pages for product promotion.

Software Product Sprint   **Google**

Advised by Yang Yang   *Jul. 2020 - Aug. 2020*

- *Developed a GAN-based ML model in Python to convert music genres and deployed it as a web application using JavaScript, HTML, and CSS, collaborating with a team of peers.*

LEADERSHIP EXPERIENCE

Women@CL Committee   **University of Cambridge**

- Treasurer (2023-2024), Tech Event Chair (2024-2025)
- Organizing seminars and events highlighting and supporting women and non-binary individuals' achievements in computing research, leadership and enterprise

Student Hall Manager   **Fudan University**

- Led a 40-member student volunteer team as Vice Director (2020-2021)

Student Union, School of Computer Science   **Fudan University**

- Led the video team, producing popular films, organizing events, and coordinating student teams (2019)

TEACHING AND MENTORING

- **MPhil Project Supervisor:** *Federated Learning for Acoustic Foundation Models for Healthcare*   2024
  Guided students in ML and federated learning projects, building problem-solving and critical thinking skills.
- **Teaching Assistant:** *Mobile Health*   2024
  Delivered coursework on ML for mobile health, enhancing communication of technical concepts to audiences.
- **Undergraduate Supervisor:** *Machine Learning and Real-world Data*   2023 – now
  Supervised and mentored undergraduate students to help them understand ML methods in real-world contexts.

SELECTED AWARDS

- Examiners' Prize for a Highly Commended MPhil Project Report (**Top 2**)   2023
- Student Travel Award, KDD 2023   2023
- Chiang Chen Overseas Fellowship (**10 awardees yearly**)   2022
- Shanghai Scholarship (**Top 1%**)   2021
- Chinese National Scholarship (**Top 1%**)   2020
- Chinese National Scholarship (**Top 1%**)   2019
- Freshman Admission Scholarship of Tengfei College, Fudan University (**Top 2%**)   2018

SKILLS

- **Knowledgeable In**: Machine Learning, Deep Learning, Mobile Health, Trustworthy AI
- **Programming**: Python, PyTorch, Java, MATLAB, C/C++, Go, JavaScript, HTML, CSS
- **Spoken languages**: Chinese-Native, English-Fluent (**TOEFL iBT**: 111, **GRE**: 332)