ANFENG XU

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EDUCATION

University of Southern California (USC) Expected Dec 2026
Ph.D. in Electrical Engineering, Minor in Computer Science GPA: 4.0/4.0

University of Southern California (USC) May 2024
M.S. in Electrical Engineering GPA: 4.0/4.0

University of California, San Diego (UCSD) June 2021
B.S. in Electrical Engineering, Minor in Mathematics GPA: 3.97/4.0

RESEARCH INTERESTS

Speech Processing, Multimodal Learning, Generative AI, Healthcare AI, LLM.

WORK EXPERIENCE

Meta Reality Lab May 2024 - Aug 2024
Ph.D. Research Scientist Intern, Advisor: Dr. Biqiao Zhang *Meta*

Conducted research for Keyword Spotting (KWS) in the Meta Speech AI team.
Paper under review for ICASSP 2025.

Signal Analysis and Interpretation Laboratory (SAIL) August 2021 - Present
Ph.D. Research Assistant, Advisor: Dr. Shrikanth Narayanan *USC*

Conduct research projects with the main focus on speech processing and multi-modality.
Lead the child speech/video project, mentor MS students, and manage the IEMOCAP/CreativeIT data distribution.

Jacobs School of Engineering January 2020 - December 2020
Undergraduate Research Intern, Advisor: Dr. Tara Javidi *UCSD*

Developed a new algorithm for a Quantitative Group Testing (QGT) problem.

Engineers for Exploration January 2019 - September 2019
Undergraduate Research Intern, Advisor: Dr. Curt Schurgers *UCSD*

Built an underwater depth sensor embedded system for Scripps Institute of Oceanography using C language.

RECENT PROJECTS

Joint ASR and Speaker Diarization for Child-Adult Interactions (USC - BU - Apple) Oct 2024 - Present
Developped LLM error correction methods for ASR and speaker diarization for child-adult speech.
Developping an efficient ASR model guided by integrated child-adult speaker prediction with serialized output training.

Speaker Diarization for Child-Adult Interactions (USC - BU - Apple) Jan 2022 - Sep 2024

Proposed annotation framework and modeling pipeline to predict language capabilities of children directlyfrom audio.
Developed an audio-visual child-adult speaker classification method.
Built a child-adult speaker diarization model with Speech Foundation Models.
Built simulated conversations from AudioSet to further enhance child-adult speaker diarization.
First-authored 4 conference publications (2 Interspeech, 1 ICASSP, 1 under review).

AI Conversational Interactions (USC - Disney Research) June 2022 - Present

Helped investigating methods to estimate WER and CTC loss for simulated speech data.
Collecting conversational dataset between a digital AI agent and multiple subjects.

PUBLICATIONS

[ICASSP'25, under review] **A Xu**, T Feng, H Tager-Flusberg, C Lord, S Narayanan. "Data Efficient Child-Adult Speaker Diarization with Simulated Conversations."

[ICASSP'25, under review] **A Xu**, B Zhang, S Kong, Y Huang, Z Yang, S Srivastava, M Sun. "Effective Integration of KAN for Keyword Spotting."

[ICASSP'25, under review] T Feng, **A Xu**, X Shi, S Bishop†, S Narayanan. "Egocentric Speaker Classification in Child-Adult Dyadic Interactions: From Experimental Design to Computational Modeling."

[NeurIPS Workshop'24] (GenAI for Health) T Feng, **A Xu**, et al. "Can Generic LLMs Help Analyze Child-Adult Interactions Involving Children with Autism in Clinical Observation?"

[Interspeech'24] **A Xu**, K Huang, T Feng, L Shen, H Tager-Feng, S Narayanan. "Exploring Speech Foundation Models for Speaker Diarization in Child-Adult Dyadic Interactions."

[ICASSP'24] **A Xu**, K Huang, T Feng, H Tager-Feng, S Narayanan. "Audio-visual child-adult speaker classification in dyadic interactions."

[ACM MM'23] D Bose, R Hebber, T Feng, K Somandepalli, **A Xu**, S Narayanan. "MM-AU:Towards Multimodal understanding of advertisement videos."

[Interspeech'23] **A Xu**, R Hebbar, R Lahiri, T Feng, L Butler, L Shen, H Tager-Flusberg, and S Narayanan. "Understanding Spoken Language Development of Children with ASD Using Pre-trained Speech Embeddings."

(first author in BLUE, others in RED)

LANGUAGES

English (fluent), Japanese (native), Mandarin Chinese (conversational)

AWARDS

ECE Ph.D. Screening Exam (USC, 2022): Ranked 1st for the Signals and Systems track.

Annenberg Fellowship (USC, 2021): Top-off fellowship selected among incoming Ph.D. students.

Summa Cum Laude (UCSD, 2021): GPA top $0 \sim 2\%$.