Guilin Hu

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EDUCATION

University of Washington — **Seattle, Washington**

Ph.D. in Computer Science Engineering — *Sep 2024 – Jun 2029*

Cornell University, College of Arts and Sciences — **Ithaca, New York**

B.A. Computer Science — *Aug 2020 - May 2024*

RESEARCH INTEREST

I am broadly interested in machine learning for audio and speech, with a focus on building models that operate robustly, efficiently, and in real time in complex acoustic environments. My work spans speech enhancement and separation, conversation and dialogue, and streaming, low-latency speech modeling, as well as integrating these capabilities with large language models (LLMs) to enable systems that can perceive, reason over, and respond to sound at the level of human auditory intelligence.

PRIOR EXPERIENCE

Graduate Student Researcher — **Seattle, Washington**

The Ubicomp Lab — *Sep 2024 – Jun 2029*
Advisor: Prof. Shwetak Patel

- Design audio and speech models for source separation, auditory perception, and acoustic scene manipulation, enabling users to selectively attend to desired sounds and supporting more natural human-computer interaction through audio
- Develop real-time, streaming, and resource-efficient implementations of these models, optimizing them for on-device inference and deployment on mobile systems and LLM-based applications
- Train, finetune, and adapt language models for novel multimodal and audio-centric applications, integrating them with speech and auditory perception systems to enable new user experiences

Undergraduate Student Researcher — **Ithaca, New York**

Cornell University Smart Computer Interfaces for Future Interactions (SciFi) Lab — *Feb 2022 – May 2024*
Advisors: Prof. Cheng Zhang and Prof. François Guimbretière

- Conducted research on body and hand pose tracking, identification, and eye-blink detection using active acoustic sensing based on FMCW signals
- Designed and trained deep learning models to analyze data collected from custom-built wearable sensing hardware
- Co-authored and published 3 peer-reviewed papers in IMWUT/ISWC

PUBLICATIONS

- **Proactive Hearing Assistants that Isolate Egocentric Conversations**
  Guilin Hu*, Malek Itani*, Tuochao Chen, Shyamnath Gollakota
  EMNLP 2025 Main Conference

- **Ring-a-Pose: A Ring for Continuous Hand Pose Tracking**

  Tianhong Yu, Guilin Hu, Ruidong Zhang, Hyunchul Lim, Saif Mahmud, Chi-Jung Lee, Ke Li, Devansh Agarwal, Shuyang Nie, Jinseok Oh, Francois Guimbretiere, Cheng Zhang

  IMWUT 2024

- **C-Auth: Exploring the Feasibility of Using Egocentric View of Face Contour for User Authentication on Glasses**

  Hyunchul Lim, Guilin Hu, Richard Jin, Hao Chen, Ryan Mao, Ruidong Zhang, Cheng Zhang

  ISWC 2023

- **PoseSonic: 3D Upper Body Pose Estimation Through Egocentric Acoustic Sensing on Smartglasses**

  Saif Mahmud, Ke Li, Guilin Hu, Hao Chen, Richard Jin, Ruidong Zhang, Francois Guimbretiere, Cheng Zhang

  IMWUT 2023

AWARDS & HONORS

Honorable Mention of the 2024 Computing Research Association's (CRA) Outstanding Undergraduate Researcher Award (URA) *Dec 2023*

Award conferred upon top undergraduate students in North American colleges and universities who show outstanding potential in an area of computing research

Cornell University Summer Experience Grant (USD 5,370 & USD 4,790) *June 2023 & May 2022*

Award conferred upon top Cornell University students to offer financial support for summer research

Cornell University Dean's List *Fall 2020 & Fall 2021 & Spring 2022 & Fall 2022 & Spring 2023*

Honor presented each semester for students achieving exemplary academic records

MENTORING

• Aseem Gauri, ECE Undergraduate Student, University of Washington *June 2025 – Present*

ACADEMIC SERVICE

• Conference Reviewer: IMWUT 2025

SKILLS

• **Skills**: Deep Learning, Audio & Speech ML, LLM, Real-Time / Streaming Inference, On-Device ML, Acoustic Sensing, Multimodal Learning, PyTorch, TorchAudio, HuggingFace, Python, Git

LANGUAGES

• Chinese (Native)

• English (Fluent)

• French (Fluent)