

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

• **GPA:** 3.851

• **Coursework:** Machine Learning • Reinforcement Learning • Algorithm Analysis • Robot Decision Making • Data Structures • Information Networks • Discrete Math • Linear Algebra • Embedded Systems • Multivariable Calculus

RESEARCH EXPERIENCE

Graduate Student Researcher

Seattle, Washington

University of Washington Mobile Intelligence Lab

Sep 2024 – Jun 2029

Advisor: Prof. Shyam Gollakota

- Develop machine learning empowered mobile intelligent systems to enhance human capabilities, such as human perception and speech, by developing and deploying such models on resource-constrained embedded system to make those systems applicable in real life

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

• Eye Blinking Detection

- Co-led a research project utilizing CNNs to detect eye blinks via FMCW signals using miniature speaker and microphone mounted on eyeglass frame
- Architected a data labeling pipeline for eye blink annotation that halved the time of manual data labeling; labeled 7000+ eye blink instances across 8+ hours of videos recorded from our user study involving 15 diverse participants

• Ring-a-Pose: Continuous Hand Pose-to-Pose Tracking

- Explored a ring form factor for continuously tracking pose-to-pose hand gestures in real time using ultrasonic signals; achieved average error of 10.3mm and 99.27% accuracy for classifying 7-class microgestures
- Implemented and extensively investigated the performance difference of various machine learning architectures, including CNN + ResNet, LSTM, GRU, and Transformer under different amount of data; experimented data augmentation including time masking, random vertical shift, time reversing etc.

• Pose-Sonic: Continuous Upper Body Pose Tracking

- Developed an eyeglass frame for continuous upper body pose tracking using FMCW acoustic signal; achieved average error of 6.17cm in lab and 14.1cm in semi-in-the-wild settings
- Implemented a deep learning model for processing FMCW signal and predicting 3D coordinates of 9 body joints; optimized the model training by applying cross-modal supervision

PUBLICATIONS

- Hyunchul Lim, **Guilin Hu**, Richard Jin, Hao Chen, Ryan Mao, Ruidong Zhang, Cheng Zhang. C-Auth: Exploring the Feasibility of Using Egocentric View of Face Contour for User Authentication on Glasses. **Proceedings of the 27th Annual International Symposium on Wearable Computers (ISWC' 23)**, <https://doi.org/10.1145/3594738.3611355>
- Saif Mahmud, Ke Li, **Guilin Hu**, Hao Chen, Richard Jin, Ruidong Zhang, Francois Guimbretiere, Cheng Zhang. PoseSonic: 3D Upper Body Pose Estimation Through Egocentric Acoustic Sensing on Smartglasses. **Proceedings of the Association for Computing Machinery on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)/UbiComp' 23**, <https://doi.org/10.1145/3610895>
- 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. Ring-a-Pose: A Ring for Continuous Hand Pose Tracking. **Proceedings of the Association for Computing Machinery on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)/UbiComp' 24**, <https://doi.org/10.1145/3699741>

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

British Physics Olympiad Top Gold Award *Nov 2018*

*Award conferred to contestants ranking **Global Top 100***

American Physics Bowl Competition (2018) Global Top 100 *May 2018*

*Award conferred to contestants ranking **Global Top 100***

LEADERSHIP

VP of Internal Affairs, ASCEND Cornell Chapter *Dec 2021 - Dec 2022*

- Organizes and designs new member training and stock pitch events for 12+ members per semester
- Responsible for recruitment and fund-raising communications

SKILLS & INTERESTS

- **Skills:** Python • Reinforcement Learning • Keras • Pytorch • TensorFlow • Numpy • SQL • Java
- **Interests:** Plane Spotting (Go to the airport and watch airplanes) • Landscape Photography • Mountain Biking • Table Tennis

LANGUAGES

- Chinese (Native)
- English (Fluent)
- French (Fluent)