KE LI

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EDUCATION

Cornell University Jul. 2021 - Aug. 2026 (Expected)

Ph.D. Candidate at SciFi Lab in Information Science, College of Computing and Information Science

- **Advisor**: Prof. Cheng Zhang, **Special Committee Member**: Prof. Deborah Estrin and Prof. Rajalakshmi Nandakumar
- **Concentration**: Ubiquitous Computing, Sensing Systems, Wearable Devices, and Artificial Intelligence

Cornell University Jul. 2021 - Dec. 2024

M.S. in Information Science, College of Computing and Information Science

Shanghai Jiao Tong University (SJTU) Sept. 2016 - Jul. 2020

B.S. in Information Engineering, School of Electronic Information and Electrical Engineering

- **Overall GPA**: 91.41/100 (Rank **3/158**)
- Outstanding Graduate from Universities in Shanghai **(Top 5%)**

Carnegie Mellon University (CMU) Jul. 2019 - Sept. 2019

Research Assistant in Department of Electrical and Computer Engineering, Supervisor: Prof. Swarun Kumar

PUBLICATIONS

SonicID: User Identification on Smart Glasses with Acoustic Sensing. **Ke Li**, Devansh Agarwal, Ruidong Zhang, Vipin Gunda, Tianjun Mo, Saif Mahmud, Boao Chen, François Guimbretière, and Cheng Zhang. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT '24)* 8, 4, Article 169, 27 pages. Nov. 2024

ActSonic: Recognizing Everyday Activities from Inaudible Acoustic Wave Around the Body. Saif Mahmud, Vineet A Parikh, Qikang Liang, **Ke Li**, Ruidong Zhang, Ashwin Ajit, Vipin Gunda, Devansh Agarwal, François Guimbretière, and Cheng Zhang. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT '24)* 8, 4, Article 183, 32 pages. Nov. 2024

Ring-a-Pose: A Ring for Continuous Hand Pose Tracking. Tianhong Catherine Yu, Guilin Hu, Ruidong Zhang, Hyunchul Lim, Saif Mahmud, Chi-Jung Lee, **Ke Li**, Devansh Agarwal, Shuyang Nie, Jinseok Oh, François Guimbretière, and Cheng Zhang. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT '24)* 8, 4, Article 189, 30 pages. Nov. 2024

EchoGuide: Active Acoustic Guidance for LLM-Based Eating Event Analysis from Egocentric Videos. Vineet Parikh, Saif Mahmud, Devansh Agarwal, **Ke Li**, François Guimbretière, and Cheng Zhang. In *Proceedings of the 2024 ACM International Symposium on Wearable Computers (ISWC '24)*, 40–47. ***Best Paper Honorable Mention Award*** Melbourne, Australia Oct. 2024

AI-Powered Eyewear for Routine Facial Expression Analysis in Parkinson's Disease: Study Design and Goals. Hwai Yin Ooi, Cheng Zhang, **Ke Li**, Jordan Narins, and Harini Sarva. *The International Congress of Parkinson's Disease and Movement Disorders*, 39 (suppl 1). Sept. 2024

GazeTrak: Exploring Acoustic-based Eye Tracking on a Glass Frame. **Ke Li**, Ruidong Zhang, Boao Chen, Siyuan Chen, Sicheng Yin, Saif Mahmud, Qikang Liang, François Guimbretière, and Cheng Zhang. In *Proceedings of the 30th Annual International Conference on Mobile Computing and Networking (ACM MobiCom '24)*, 497–512. D.C., USA Nov. 2024

EyeEcho: Continuous and Low-power Facial Expression Tracking on Glasses. **Ke Li**, Ruidong Zhang, Siyuan Chen, Boao Chen, Mose Sakashita, François Guimbretière, and Cheng Zhang. In Honolulu, USA May 2024

Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24), Article 319, 1–24.

EchoWrist: Continuous Hand Pose Tracking and Hand-Object Interaction Recognition Using Low-Power Active Acoustic Sensing On a Wristband. Chi-Jung Lee, Ruidong Zhang, Devansh Agarwal, Tianhong Catherine Yu, Vipin Gunda, Oliver Lopez, James Kim, Sicheng Yin, Boao Dong, **Ke Li**, Mose Sakashita, François Guimbretière, and Cheng Zhang. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*, Article 403, 1–21. Honolulu, USA May 2024

HPSpeech: Silent Speech Interface for Commodity Headphones. Ruidong Zhang, Hao Chen, Devansh Agarwal, Richard Jin, **Ke Li**, François Guimbretière, and Cheng Zhang. In *Proceedings of the 2023 ACM International Symposium on Wearable Computers (ISWC '23)*, 60–65. ***Best Paper Honorable Mention Award*** Cancún, Mexico Oct. 2023

EchoNose: Sensing Mouth, Breathing and Tongue Gestures inside Oral Cavity using a Non-contact Nose Interface. Rujia Sun, Xiaohe Zhou, Benjamin Steeper, Ruidong Zhang, Sicheng Yin, **Ke Li**, Shengzhang Wu, Sam Tilsen, François Guimbretière, and Cheng Zhang. In *Proceedings of the 2023 ACM International Symposium on Wearable Computers (ISWC '23)*, 22–26. Cancún, Mexico Oct. 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, François Guimbretière, and Cheng Zhang. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT '23)* 7, 3, Article 111, 28 pages. Sept. 2023

EchoSpeech: Continuous Silent Speech Recognition on Minimally-obtrusive Eyewear Powered by Acoustic Sensing. Ruidong Zhang, **Ke Li**, Yihong Hao, Yufan Wang, Zhengnan Lai, François Guimbretière, and Cheng Zhang. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*, Article 852, 1–18. Hamburg, Germany Apr. 2023

EarIO: A Low-power Acoustic Sensing Earable for Continuously Tracking Detailed Facial Movements. **Ke Li**, Ruidong Zhang, Bo Liang, François Guimbretière, and Cheng Zhang. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT '22)* 6, 2, Article 62, 24 pages. Jul. 2022

Locating Everyday Objects using NFC Textiles. Jingxian Wang, Junbo Zhang, **Ke Li**, Chengfeng Pan, Carmel Majidi, and Swarun Kumar. In *Proceedings of the 20th International Conference on Information Processing in Sensor Networks (IPSN '21)*, 15–30. ***Best Paper Award & Best Presentation Award*** Nashville, USA May 2021

A Constant Factor Approximation for *d*-Hop Connected Dominating Set in 3-Dimensional Wireless Network. **Ke Li**, Xiaofeng Gao, Fan Wu, and Guihai Chen. In *IEEE Transactions on Wireless Communications (TWC)*, vol. 18, no. 9, pp. 4357-4367, Sept. 2019. Sept. 2019

QLEC: A Machine-Learning-Based Energy-Efficient Clustering Algorithm to Prolong Network Lifespan for IoT in High-Dimensional Space. **Ke Li**, Haowei Huang, Xiaofeng Gao, Fan Wu, and Guihai Chen. In *Proceedings of the 48th International Conference on Parallel Processing (ICPP '19)*, Article 105, 1–10. Kyoto, Japan Aug. 2019

µTouch: Enabling Accurate, Lightweight Micro Hand Gesture Sensing with Passive Magnets. Siyuan Wang, Jike Wang, **Ke Li**, Jingyuan Huang, Cheng Zhang, Alanson P. Sample, and Dongyao Chen. *(In Preparation)*

HONORS & AWARDS

Qualcomm Innovation Fellowship 2024 Apr. 2024

Fellowship focused on recognizing, rewarding, and mentoring PhD students based on Qualcomm's core values of innovation, execution, and teamwork

Nominated for a 2021-2022 Outstanding Teaching Award May 2022
Honor bestowed on outstanding PhD teaching assistants in Information Science at Cornell

Outstanding Graduates in Shanghai (Top 5%) Jun. 2020
Honor bestowed on outstanding graduates from universities in Shanghai

A-level Outstanding Scholarship of Shanghai Jiao Tong University (Top 1%) Nov. 2019
Scholarship awarded to outstanding students at SJTU

Tang Lixin Scholarship (Top 0.2%) Oct. 2019
Scholarship founded by Mr. Tang Lixin and awarded to Top 60 students at SJTU

National Scholarship*2 (3/158, 1/158) Oct. 2018, 2019
Top scholarship awarded to undergraduates in China for their achievements in academics

B-level Outstanding Scholarship of Shanghai Jiao Tong University*2 (Top 5%, Top 2%) Nov. 2017, 2018
Scholarship awarded to outstanding students at SJTU

Wen-Yuan Pan Scholarship (Top 5%) Dec. 2017
Scholarship founded by Wen-Yuan Pan Foundation

SERVICE

External Reviewer 2022 - Present
UbiComp '22 '23 '24 '25, UIST '23, CHI '24 '25

TEACHING EXPERIENCES

INFO 2951: Introduction to Data Science with R Spring '25
Teaching Assistant at Cornell University, Instructor: Prof. Benjamin Soltoff

INFO 4320/5321: Introduction to Rapid Prototyping and Physical Computing Fall '22 '23, Spring '23
Teaching Assistant at Cornell University, Instructor: Prof. Cheng Zhang

INFO 4120/6120: Ubiquitous Computing *(Nominated for Outstanding Teaching Award)* Fall '21
Teaching Assistant at Cornell University, Instructor: Prof. Cheng Zhang

EXTRACURRICULAR ACTIVITIES & LEADERSHIP

Development Program for Excellent Student of SJTU, *Group Leader* Apr. 2017 – Apr. 2018

- Organized various activities, such as lectures, speech contests, volunteer programs, and summer social activities.
- Awarded Outstanding Participant Title in the 2018 Summer Social Practice of SJTU (Top 2%).

Master Distinguished Lecture, SJTU, *Director* May. 2017 - Sept. 2018

- Organized professional academic lectures and invited scholars for speeches, including 8 Nobel Prize Laureates.
- Oversaw the entire process of lecture, including brand building, publicity, directing, reception and recognition.