QIUYUE (SHIRLEY) XUE

qiuyue@purdue.edu, website: https://xueqiuyue.com
Visiting faculty researcher @ Google
Seattle, WA 98103

WORK AND EDUCATION

Purdue University *to start in January 2026*
Assistant Professor, Computer Science

University of Washington *2019.09 - 2025.08*
Ph.D., Computer Science & Engineering
Advisors: Shwetak Patel, Vikram Iyer

Georgia Institute of Technology *2017.08 - 2019.06*
M.S., Computer Science
Advisors: Gregory Abowd, Thad Starner

Peking University, China *2013.09 - 2017.07*
B.S., Computer Science
B.S., Electrical Engineering

PROFESSIONAL EXPERIENCE

Visiting faculty researcher, Google XR Sep 2025 - **present**

Leading research on **mobile sensing R&D on Google Glasses**.
Host: Ishan Chatterjee

Research intern, Microsoft Research Jun 2022 - Oct 2022

Research for Industry & Networking Research group.
Led research on **ultra-low-power sensing for the food supply chain**, optimizing energy efficiency for real-world deployments.
Mentor: Vaishnavi Ranganathan, Bodhi Priyantha

Research intern, Apple AI/ML Jun 2021 - Oct 2021

Led research on **ultra-efficient real-time wireless sensing system for natural input interactions**, enabling seamless user experiences.
Mentor: Saman Naderiparizi

Student researcher, Google Health Research and Innovation Jun 2020 - Mar 2021

Led research on **smart home- and smartphone-based sonar for breathing and activity monitoring**. Developed deep learning models to interpret sonar signals for contactless health tracking.
Mentors: D. Shin, Mark Malhotra, Anupam Pathak

ML SDE intern, Bloomberg ML team May 2018 - Aug 2018

Developed a **sentiment analysis model for earnings calls transcripts**, using NLP techniques for extracting insights and improving financial test classification.
Mentor: Karan Uppal, Temma Choji

PUBLICATIONS

1. Qiuyue (Shirley) Xue, Dilini Nissanka, Tammy Yan, Ruiqing Wang, Shwetak Patel, Vikram Iyer. **PPG Earring: Smart Wireless Earring for Heart Health Monitoring**. In Proceedings of the 2025 CHI conference on human factors in computing systems, pp. 1-16. 2025.

2. Qiuyue (Shirley) Xue, Eric Martin, Jiaqing Liu, Ruiqing Wang, Antonio Glenn, Richard Li, Vikram Iyer, Shwetak Patel. **ECG Necklace: Low-power Wireless Necklace for Continuous ECG Monitoring**. In Proceedings of the 2025 CHI conference on human factors in computing systems, pp. 1-14. 2025.

3. Qiuyue (Shirley) Xue, Yujia Liu, Vikram Iyer, and Shwetak Patel. **Design of Thermal Earring: A Low-Power Wireless Earring for Longitudinal Temperature Monitoring**. In Companion of the 2024 on ACM International Joint Conference on Pervasive and Ubiquitous Computing, pp. 366-370. 2024.

4. Qiuyue (Shirley) Xue*, Yujia Liu*, Joseph Breda, Mastafa Springston, Vikram Iyer, and Shwetak Patel. **Thermal earring: Low-power wireless earring for longitudinal earlobe temperature sensing**. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 7(4):1–28, 2024

5. Qiuyue (Shirley) Xue, D Shin, Anupam Pathak, Jake Garrison, Jonathan Hsu, Mark Malhotra, and Shwetak Patel. **Luckychirp: Opportunistic respiration sensing using cascaded sonar on commodity devices**. In 2022 IEEE International Conference on Pervasive Computing and Communications (PerCom), pages 164–171. IEEE, 2022

6. Vikram Iyer*, Maruchi Kim*, Qiuyue (Shirley) Xue* (co-first author), Anran Wang, Shyamnath Gollakota. **Airdropping sensor networks from drones and insects**. In Proceedings of the 26th Annual International Confer- ence on Mobile Computing and Networking, pages 1–14, 2020

7. Anandghan Waghmare, Qiuyue (Shirley) Xue, Dingtian Zhang, Yuhui Zhao, Shivan Mittal, Nivedita Arora, Ceara Byrne, Thad Starner, and Gregory D Abowd. **Ubiquitouch: Self sustaining ubiquitous touch interfaces**. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 4(1):1–22, 2020

8. D Shin and Qiuyue Shirley Xue. **Optical accessory to add touch capability to a non-touchscreen device**. 2020

9. Rocko Graziano, David Benton, Sarthak Wahal, Qiuyue (Shirley) Xue, P Tim Miller, Nick Larsen, Diego Vacanti, Pepper Miller, Khushhall Chandra Mahajan, Deepak Srikanth, et al. **Jack watson: Ad- dressing contract cheating at scale in online computer science education**. In Proceedings of the sixth (2019) ACM conference on learning@ scale, pages 1–4, 2019

10. Nivedita Arora, Qiuyue (Shirley) Xue, Dhruva Bansal, Peter McAughan, Ryan Bahr, Diego Osorio, Xiaomeng Ma, Alanson P Sample, Thad E Starner, and Gregory D Abowd. **Surface++ a scalable and self-sustainable wireless sound sensing surface** (poster). In Proceedings of the 17th Annual International Conference on Mobile Systems, Applications, and Services, pages 543–544, 2019

11. Cheng Zhang, Qiuyue (Shirley) Xue, Anandghan Waghmare, Ruichen Meng, Sumeet Jain, Yizeng Han, Xinyu Li, Kenneth Cunefare, Thomas Ploetz, Thad Starner, et al. **Fingerping: Recognizing fine-grained hand poses using active acoustic on-body sensing**. In Proceedings of the 2018 CHI conference on human factors in computing systems, pages 1–10, 2018

12. Cheng Zhang, Qiuyue (Shirley) Xue, Anandghan Waghmare, Sumeet Jain, Yiming Pu, Sinan Hersek, Kent Lyons, Kenneth A Cunefare, Omer T Inan, and Gregory D Abowd. **Soundtrak: Continuous 3d tracking of a finger using active acoustics**. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 1(2):1–25, 2017

13. Cheng Zhang, Sinan Hersek, Yiming Pu, Danrui Sun, Qiuyue (Shirley) Xue, Thad E Starner, Gregory D Abowd, and Omer T Inan. **Bioacoustics-based human-body-mediated communication**. Computer, 50(2):36–46, 2017

PATENTS

Earring and earring systems including PPG sensors for heart health monitoring
Qiuyue (Shirley) Xue, Dilini Nissanka, Shwetak N. Patel, Vikram Iyer US patent 63/778,756 filed

ECG devices and systems including examples of necklaces
Qiuyue (Shirley) Xue, Eric Martin, Richard Li, Vikram Iyer, Shwetak N. Patel US patent 63/778,958 filed

Wearable devices for detecting events using external ear and ambient temperature, including examples of earrings
Qiuyue (Shirley) Xue, Yujia Liu, Vikram Iyer, Shwetak Patel US Patent 18/932,410

Opportunistic sonar monitoring of vital signs
Dongeek Shin, Qiuyue (Shirley) Xue, Shwetak Patel US Patent 17/360,999

Thin and flexible self-powered vibration transducer employing triboelectric nanogeneration
Nivedita Arora, Gregory D Abowd, Mohit Gupta, Diego Osorio, Seyedeh Fereshteh Shahmiri, Thad Eugene Starner, Yi-Cheng Wang, Zhengjun Wang, Zhong Lin Wang, Steven L Zhang, Peter McAughan, Qiuyue (Shirley) Xue, Dhruva Bansal, Ryan Bahr, Emmanouil Tentzeris US Patent 10,932,063

Systems, methods and devices for gesture recognition
Cheng Zhang, Gregory D. Abowd, Omer Inan, Pranav Kundra, Thomas Ploetz, Yiming Pu, Thad Eugene Starner, Anandghan Waghmare, Xiaoxuan Wang, Kenneth A. Cunnefare, Qiuyue (Shirley) Xue US Patent US Patent 11,762,474

TEACHING AND MENTORSHIP

Classes (teaching assistant):
University of Washington CSE/ECE 475: Embedded Capstone class, undergrad and grad level (2022 Fall, 2023 Fall)
Georgia Tech CS 6001: Artificial Intelligence, grad level (2019 Spring)

Mentored Students
Nancy (Yujia) Liu (ECE MS, now PhD student at UCSD PhD)
Jiaqing Liu (ECE MS)
Tammy Yan (HCDE MS)
Ruiqing Wang (UW Global Innovation Exchange Program, MS)
Yuhua Nie (ECE MS)
Dilini Nissanka (CSE undergrad)
Eric Martin (ECE undergrad)
Chetana Iyer (CSE undergrad)
CSNext program (for underrepresented communities): Sravya Nagalakunta, Yvonne Jose, Thanh Tong, Deepansha Singh, Ying Zhu, Wanting Mao, Wanting Mao.

AWARDS & FUNDING

University of Washington Innovation Gap Fund award (for smart earring), $10,000, 2023

Samsung Global Research Outreach Grant Proposal, submitted, 2024

Heidelberg Laureate Forum young researcher, 2020-2022

Best poster award, Mobisys 2019

Academic Excellence Awards, Peking University, 2015

SELECTED MEDIA COVERAGE

University of Washington front page; King 5 Seattle TV; KOMO News; GeekWire; DesignBoom; FemTech Insider, etc.: "UW-developed smart earrings can monitor a person's temperature"

ACADEMIC SERVICE

Student volunteer: UIST 2022, Ubicomp 2017
Paper reviewer: IMWUT/Ubicomp, CHI, UIST, Journal of open hardware