Yasha S. Iravantchi

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https://yasha.xyz — yiravan@umich.edu

RESEARCH INTERESTS

I am interested in developing novel, privacy-aware sensing hardware co-designed with lightweight ML to solve the challenges of continuous health and activity inferencing. More broadly, my interests lie in HCI, mobile/ubiquitous sensing systems, and privacy.

EDUCATION

University of Michigan, Ann Arbor, MI — Sep 2019 - Present
Ph.D., Computer Science and Engineering
Advisor: Alanson Sample

University of Michigan, Ann Arbor, MI — Aug 2020
M.S.E., Computer Science and Engineering

Harvard College, Cambridge, MA — May 2014
S.B., Engineering Sciences:
Electrical Engineering & Biomedical Engineering

FELLOWSHIPS, AWARDS, & HONORS

AccessComputing Service Honorarium, 2024
Along with Prof. Elaine Short at Tufts University, I am developing a guide to aid faculty in supporting and mentoring NeuroDiverse students seeking a Ph.D. in computing.

NextProf Nexus Future Faculty Workshop, 2024
Sponsored by the University of Michigan, UC Berkeley, and Georgia Tech, Nexus is an effort to strengthen and diversify the next generation of academic leaders in engineering.

Rackham Predoctoral Fellowship, 2024–2025
The Rackham Predoctoral Fellowship is an honor given to doctoral candidates with an outstanding achievement in research, as well as excellence in teaching and/or service.

CHI 2023 Best Paper Award – SAWSense
The ACM CHI Best Paper Awards honor exceptional papers published at the CHI conference. Best Paper Awards represent the top 1% of papers.

Meta PhD Research Fellowship, 2022–2024
The Meta Research PhD Fellowship encourages and supports promising doctoral students engaged in innovative and relevant research related to computer science.

University of Michigan e-HAIL Summer Research Support, 2022
e-HAIL is a joint Michigan Medicine and College of Engineering initiative that aims to make U-M a premier hub for research that innovates in health through AI.

CHI 2021 Best Paper Honorable Mention Award – PrivacyMic
The ACM CHI Best Paper Awards honor exceptional papers published at the CHI conference. Honorable Mention Awards represent the top 5% of papers.

2020 UM CSE Graduate Student Honors Competition – First Place
Finalists are selected from five research areas (Systems, AI, Theory, Human-Centered Computing, Computer Engineering). I represented Human-Centered Computing.

CHI 2019 Best Paper Honorable Mention Award – Interferi
The ACM CHI Best Paper Awards honor exceptional papers published at the CHI conference. Honorable Mention Awards represent the top 5% of papers.

PUBLICATIONS

20. Kunpeng Huang, **Yasha Iravantchi**, Dongyao Chen, Alanson P. Sample. MagDesk: Interactive Tabletop Workspace based on Passive Magnetic Tracking. *To Appear at Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2025*

19. **Yasha Iravantchi**, Pardis Emami-Naeini, Alanson Sample. SoK: (Un)usable Privacy: the Lack of Overlap between Privacy-Aware Sensing and Usable Privacy Research. *To Appear at the 25th Privacy Enhancing Technologies Symposium (PETS '25), 2025*

18. Jike Wang, **Yasha Iravantchi**, Alanson Sample, Kang G. Shin, Xinbing Wang, Dongyao Chen. Polaris: Accurate, Vision-free Fiducials for Mobile Robots with Magnetic Constellation. *To Appear at the 30th Annual International Conference on Mobile Computing and Networking (MobiCom '24), 2024*

17. Yaxuan Li, **Yasha Iravantchi**, Hyunmin Park, Yiming Liu, Alanson Sample. ECG Signal Construction From Heart Sounds via Single Node, Surface Acoustic Sensing. *In The 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '24), 2024* **[Link]**

16. **Yasha Iravantchi**, Thomas Krolikowski, William Wang, Kang G. Shin, Alanson Sample. PrivacyLens: On-Device PII Removal from RGB Images using Thermally-Enhanced Sensing. *In Proceedings of the 24th Privacy Enhancing Technologies Symposium (PETS '24), 2024* **[Link]**

15. Jike Wang, Shanmu Wang, **Yasha Iravantchi**, Mingke Wang, Alanson Sample, Kang G. Shin, Xinbing Wang, Chenghu Zhou, Dongyao Chen. METRO: Magnetic Road Markings for All-weather, Smart Roads. *In The 21st ACM Conference on Embedded Networked Sensor Systems (SenSys '23), 2023* **[Link]**

14. Chen Liang, **Yasha Iravantchi**, Thomas Krolikowski, Ruijie Geng, Alanson Sample, and Anhong Guo. BrushLens: Hardware Interaction Proxies for Accessible Touchscreen Interface Actuation. *In Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (UIST '23), 2023* **[Link]**

13. Laura Aguilera, **Yasha Iravantchi**, Alanson Sample, Marcos Lazaro Alvarez, Bahillo Martinez Alfonso, Elba Caneon. Privacy-Preserving Automatic Collection of Acoustic Voiding Events. *In The 45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '23), 2023* **[Link]**

12. **Yasha Iravantchi**, Yi Zhao, Kenrick Kin, Alanson Sample. SAWSense: Using Surface Acoustic Waves for Surface-bound Event Recognition *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23), 2023* **[Link]** ***Best Paper Award***

11. Amani Alkayyali, **Yasha Iravantchi**, Jaylin Herskovitz, Alanson Sample. UbiChromics: Enabling Ubiquitously Deployable Interactive Displays with Photochromic Paint. *In ACM Interactive Surfaces and Spaces (ACM ISS), 2022* **[Link]**

10. Mingke Wang, Qing Luo, **Yasha Iravantchi**, Xiaomeng Chen, Alanson Sample, Kang G Shin, Xiaohua Tian, Xinbing Wang, Dongyao Chen. Automatic calibration of magnetic tracking. *In The 28th Annual International Conference on Mobile Computing and Networking (MobiCom '22), 2022* **[Link]**

9. Dongyao Chen, Mingke Wang, Chenxi He, Qing Luo, **Yasha Iravantchi**, Alanson Sample, Kang G. Shin, Xinbing Wang. MagX: Wearable, Untethered Hands Tracking with Passive Magnets. *In The 27th Annual International Conference on Mobile Computing and Networking (MobiCom '21), 2021* **[Link]**

8. **Yasha Iravantchi**, Karan Ahuja, Mayank Goel, Chris Harrison, Alanson Sample. PrivacyMic: Utilizing Inaudible Frequencies for Privacy Preserving Daily Activity Recognition. *In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21), 2021* **[Link]** ***Best Paper Honorable Mention Award***

7. **Yasha Iravantchi**, Mayank Goel, Chris Harrison. Digital Ventriloquism: Giving Voice to Everyday Objects. *In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20), 2020* **[Link]**

6. Yang Zhang, **Yasha Iravantchi**, Haojian Jin, Swarun Kumar, and Chris Harrison. 2019. Sozu: Self-Powered Radio Tags for Building-Scale Activity Sensing. *In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST '19), 2019* **[Link]**

5. **Yasha Iravantchi**, Yang Zhang, Evi Bernitsas, Mayank Goel, Chris Harrison. Interferi: Gesture Sensing using On-Body Acoustic Interferometry. *In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19), 2019* **[Link]** ***Best Paper Honorable Mention Award***

4. **Yasha Iravantchi**, Mayank Goel, Chris Harrison. BeamBand: Hand Gesture Sensing with Ultrasonic Beamforming. *In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19), 2019* **[Link]**

3. Sunyoung Kim, **Yasha Iravantchi**, Krzysztof Z. Gajos. SwellFit: Developing a Wearable Sensor for Monitoring Peripheral Edema. *In Proceedings of the 52nd Hawaii International Conference on System Sciences (HICSS-52), 2019* **[Link]**

2. Sunyoung Kim, **Yasha Iravantchi**, Krzysztof Z. Gajos, Barbara Grosz. SwellFit: a Wearable Sensor for Patients with Congestive Heart Failure. *In Proceedings of the Workshop on Interactive Systems in Healthcare (WISH) 2016, 2016.* **[LINK]**

1. Sunyoung Kim, **Yasha Iravantchi**, Krzysztof Z. Gajos, Barbara Grosz. Exploring Opportunities for Social Infrastructure in Congestive Heart Failure Management. *In Proceedings of the CSCW 2015 workshop on Moving Beyond e-Health and the Quantified Self, 2015* **[LINK]**

WORK EXPERIENCE

PhD Research Intern - Nimble XR Team — Sep 2021 - Jan 2022
Meta Reality Labs, Redmond, WA
Mentor: Eve (Yi) Zhao

Design Specialist in Electrical Engineering — Jun 2014 - Jun 2017
Active Learning Labs, Harvard University, Cambridge, MA

Product Design and Engineering Intern — Summers 2009-2013
Design Catapult, Inc., Fountain Valley, CA

TEACHING EXPERIENCE

Instructor:

Yasha Iravantchi, Alanson Sample. T4Train: Rapid Prototyping of ML-Driven Interactive Applications. *A Course in the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24), 2024* **[Link]**

Teaching Fellow (a.k.a. Teaching Assistant):

[Harvard] ES155: Biological Signal Processing (Spring 2016, Fall 2016)
[Harvard] ES50: Introduction to Electrical Engineering (Spring 2013, Spring 2014)
[Harvard] BE110: Physiological Systems Analysis (Fall 2013)

Course Assistant:

[Michigan] EECS598: Engineering Interactive Systems (Winters 2020-2023)
[Harvard] ES52: The Joy of Electronics - Part I (Fall/Spring 2014-2017)
[Harvard] ES96: Engineering Problem Solving and Design (Fall/Spring 2014-2017)
[Harvard] ES100: Engineering Design Projects (Fall/Spring 2014-2017)
[Harvard] ES151: Applied Electromagnetism (Spring 2016)

REFERENCES

Alanson Sample
Associate Professor in Electrical Engineering and Computer Science
Interactive, Sensing, and Computing Lab, University of Michigan
e: apsample@umich.edu

Kang G. Shin
Kevin and Nancy O'Connor Professor of Computer Science
Real-Time Computing Laboratory, University of Michigan
e: kgshin@umich.edu

Gregory Abowd
Dean of the College of Engineering, Northeastern University
e: dean@coe.northeastern.edu

Nikola Banovic
Associate Professor in Electrical Engineering and Computer Science
Computational Modeling in Human-Computer Interaction Lab, University of Michigan
e: nbanovic@umich.edu

Anna Kratz
Associate Professor in Physical Medicine & Rehabilitation
Kratz Lab, University of Michigan
e: alkratz@med.umich.edu

SERVICE

President and Founding Member, KIND 2024 - Present
Knowledge, Inclusion, + NeuroDiverse (KIND) is a UM College of Engineering organization with the express goal of supporting NeuroDiverse graduate students in engineering through coordination of stakeholder university entities (e.g., CAPS, Student Disability Office), community building, and securing assistive technologies.

Member at Large, AccessSIGCHI 2023 - Present

Web Chair, AccessSIGCHI 2024 - Present
AccessSIGCHI advocates for disability visibility in conference organizing within SIGCHI, focusing on making conferences and the publication process more accessible to the point where accessibility is the default in conference organization and disabled researchers can participate in all SIGCHI activities comfortably.

Member at Large, AccessComputing 2024 - Present

Mentor & Judge, MHacks 2023, 2024

Paper Reviewer:
CHI 2019-2024, *UIST* 2019-2024, *IMWUT* 2020-2024
DIS 2020, *MobileHCI* 2021, *ISS* 2022, *SIGGRAPH* 2024, *IJHCS* 2024, *TEI* 2024

Special Recognitions for Outstanding Reviews:
IMWUT 2020, *UIST* 2023, *IMWUT* 2023, 2×*CHI* 2024, 2×*UIST* 2024

Student Volunteer:
ACM CHI Conference on Human Factors in Computing, April 2018
ACM CHI Conference Building Devices Committee, Oct 2021 & Oct 2022

LANGUAGES SKILLS

Human Languages:
Persian (Heritage), English (Native), Spanish (Proficient)

Computer Languages:
Python, LaTeX, C/C++, MatLab, Java, HTML, PHP, JavaScript

Last Modified: September 2024