

Hiroataka Hiraki

3rd year Phd Student

Graduate School of Interdisciplinary
Information Studies The University of Tokyo

✉ hiraki-uts1@g.ecc.u-tokyo.ac.jp

📄 [hirotakahiraki.github.io](https://github.com/hirotakahiraki)



I'm 3rd-year Phd student at the University of Tokyo, advised by Jun Rekimoto. My research topic is Human-Computer Interaction (HCI) and Human-AI Integration focusing on extending humans' ability through speech or language interfaces. I'm particularly interested in extending the range of ability using computers and AI.

Education

- 2022–present **Doctor Course, Computer Science & Engineering**, *The University of Tokyo*, Tokyo.
Human-Computer interaction, Human-AI Integrati, Vocal User Interface, Silent Speech, and Deep Learning
Advisor: Dr. Jun Rekimoto
- 2020–2022 **Master Course, Computer Science & Engineering**, *The University of Tokyo*, Tokyo.
Human-Computer interaction, Human Augmentation, Silent Speech, Telepresence, and Deep Learning
Advisor: Dr. Jun Rekimoto
- 2016–2019 : **Bachelor of Information and Communication Engineering**, *The University of Tokyo*, Tokyo.
Computer Science, Security, Malware Analysis, Computer Network
Advisor: Dr. Hiroshi Esaki

Peer Reviewed Papers

- 2024 **Hiroataka Hiraki**, Shusuke Kanazawa, Takahiro Miura, Manabu Yoshida, Masaaki Mochimaru, and Jun Rekimoto, "WhisperMask: a noise suppressive mask-type microphone for whisper speech", *In Augmented Humans 2024 (AHs 2024)*
- 2024 Shota Imamura, **Hiroataka Hiraki**, Jun Rekimoto, "Serendipity Wall: A Discussion Support System Using Real-time Speech Recognition and Large Language Model", *In Augmented Humans 2024 (AHs 2024)* **Best Paper Honorable Mention Award**
- 2024 Takekazu Kitagishi, **Hiroataka Hiraki**, Hiromi Nakamura, Yoshio Ishiguro, Jun Rekimoto, "Pinching Tactile Display: A Cloth that Changes Tactile Sensation by Electrostatic Adsorption", *17th International Conference on Advanced Visual Interfaces (AVI 2024)*
- 2022 Yusuke Kunimi, Masa Ogata, **Hiroataka Hiraki**, Motoshi Itagaki, Shusuke Kanazawa, Masaaki Mochimaru, "E-MASK: A Mask-Shaped Interface for Silent Speech Interaction with Flexible Strain Sensors" *In Augmented Humans Conference 2022*
- 2021 **Hiroataka Hiraki** and Jun Rekimoto, "SilentMask: Mask-type Silent Speech Interface with Measurement of Mouth Movement", *In Augmented Humans 2021*

Posters, Demos and Workshops

- 2024 Shota Imamura, **Hiroataka Hiraki**, and Jun Rekimoto "Serendipity Wall: A Discussion Support System Using Real-time Speech Recognition and Natural Language Processing Technology" *In IEEE VR 2024 Workshop*
- 2024 Takekazu Kitagishi, **Hiroataka Hiraki**, Hiromi Nakamura, and Jun Rekimoto "Pinching Tactile Display: A Remote Haptic Feedback System for Fabric Texture", *In IEEE VR 2024 Workshop*
- 2023 **Hiroataka Hiraki**, Shusuke Kanazawa, Takahiro Miura, Manabu Yoshida, Masaaki Mochimaru, and Jun Rekimoto, "External noise reduction using WhisperMask, a mask-type wearable microphone", *In Extended Abstracts of 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '23)*

- 2022 **Hirota** **Hiraki**, and Jun Rekimoto "SilentWhisper: faint whisper speech using wearable microphone" *In UIST 2022 poster*
- 2021 Takuya Hara, **Hirota** **Hiraki**, Naoki Kimura, Hiromi Nakamura and Jun Rekimoto, "PoseTuner: Sonification Based Fine-Tuning of Pose with Unsupervised Learning" *In HAA2021 CHI 2021 workshop*

Research Experience

- 2023 – **JST ACT-X Researcher**, *Hardware in Future for Resilience of Real Space*, Development of a Wearable Voice Input/Output Interface for Enhancing Face-to-Face Vocalization.
- 2022 – **Development of Wearable and Speech Communication in Whispring**.
Present Developing wearable microphone and speech recognition system for whispering communication
- Advisor : Dr. Shusuke Kanazawa, *Human Augmentation Research Center, National Institute of Advanced Industrial Science and Technology(AIST)*
- 2021 – 2022 **Development of Wearable Devices Using Printed Circuits**.
Detecting and analyzing human motions using wearable printed circuits.
- Advisor : Dr. Masaaki Mochimaru, *Human Augmentation Research Center, National Institute of Advanced Industrial Science and Technology(AIST)*
- 2019 – 2020 **Computer Network and Cyber Security**.
Analysis of ransomware time series data to identify abnormal processing and verify the possibility of system recovery
- Advisor : Dr. Hiroshi Esaki, *Professor at The University of Tokyo*

Work Experiences

- 2023 – **JST ACT-X Researcher**, *Hardware in Future for Resilience of Real Space*.
Development of Wearable Interface
- 2021 – **National Institute of Advanced Industrial Science and Technology**, *Research Assistant*.
Whisper Speech Recognition, Development of Wearable Interface
- 2021 – 2022 **IPA Mitou Program**, *Creator*.
Development of Wearable 3D Pose Estimation Devices using Unity, Deep Learning
- 2017 – 2021 **Yoshidumi Co.**, *Engineering Internship*.
Development of web services as a backend engineer using GCP, Java, Golang

Awards and Hounors

- 2024 Best Paper Honourable Mention Award in Augmented Humans(AHs) 2024
- 2022 The University of Tokyo, GSII, Best Master's Thesis
Demo Award at Workshop on Interactive Systems and Software
Good Design New Hope Award, Honorable mention
Japan Industry Designer's Association Next Age Award
- 2021 Information-technology Promotion Agency (IPA) MITOU Program
Best Presentation Award at Silent Speech Recogniiton Workshop (Domectic Workshop)
Best Presentation Award at Environmental Art Society (Domectic Conference)

Grants and Scholarships

- 2023 JST ACT-X, funded \$34,000 for 2.5 years.
- 2022 Japan Student Services Organization(JASSO) Scholarships, \$6,500 awarded
- 2021 University of Tokyo PhD Fellowship, funded \$9,000 for 3 years.

Information-technology Promotion Agency (IPA) MITOU Program, funded \$16,000 for 1 year

Teaching

- 2023 Advanced Lectures in Human Augmentation Studies, Teaching Assistant, *GII-AC6312L2*
- 2022 Advanced Lectures in Human Augmentation Studies, Teaching Assistant, *GII-AC6312L2*

Computer skills

- Languages Python, C/C++, C#, TypeScript, Ruby, R, Golang, Java
- Backend Ruby on Rails, Django, React, Apache, Mysql, GCP, AWS, Docker
- Framework Pytorch, Tensorflow, JAX
- Design Illustrator, Indesign, AfterEffect, Premier Pro
- Others Digital Fabrication, Fusion360, Rhinoceros, Eagle, Unity