

Hiroataka Hiraki

2nd year Phd Student

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I'm 2nd-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

Publications

Peer Reviewed Papers

- 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 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 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 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 Workshop*
- 2022 **Hiroataka Hiraki**, and Jun Rekimoto "SilentWhisper: faint whisper speech using wearable microphone" *In UIST 2022 poster*
- 2021 Takuya Hara, **Hiroataka 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 using GCP, Java, Golang

Awards and Hounors

2022 The Univerisity 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 Scholorships

2023 JST ACT-X, funded \$34,000 for 2.5 years.

2022 Japan Student Services Organization(JASSO) Scholarships, \$6,500 awarded

2021 Univerisity 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