

SOSUKE ICHIHASHI

Web: sosuke-ichihashi.com

E-mail: sichihashi3@gatech.edu

RESEARCH INTEREST

I create novel tangible and ambient media considering human perceptual mechanisms. Current work involves a **body representation using swarm robots**, a fast-switching **thermal feedback method using light and water**, an **approachable 2.5D fabrication method** using off-the-shelf materials.

EDUCATION

- Ph.D. in Digital Media** (GPA: 4.00/4.00) August 2022 - June 2026 (Anticipated)
Georgia Institute of Technology
Advisor: Dr. Noura Howell
- Master of Arts and Sciences in Information Studies** (GPA: 3.97/4.00) April 2020 - March 2022
The University of Tokyo
Information Somatics Lab (Advisor: Dr. Masahiko Inami)
- Exchange in Electrical and Computer Engineering** (University Honors) August 2018 - May 2019
The University of Texas at Austin
- Bachelor of Engineering, Global Engineering** April 2016 - March 2020
Kyoto University
Innovative Disaster Prevention Technology and Policy Research Lab (Advisor: Dr. Takahiro Sayama)

CONFERENCE PUBLICATIONS & PRESENTATIONS

1. **Sosuke Ichihashi**, So Kuroki, Mai Nishimura, Kazumi Kasaura, Takefumi Hiraki, Kazutoshi Tanaka and Shigeo Yoshida. *Swarm Body: Embodied Swarm Robots*. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24). 2024. [Peer Reviewed Publication](#).
2. **Sosuke Ichihashi**, Arata Horie, Masaharu Hirose, Zendai Kashino, Shigeo Yoshida, Sohei Wakisaka and Masahiko Inami. *ThermoBlinds: Non-Contact, Highly Responsive Thermal Feedback for Thermal Interaction*. In Special Interest Group on Computer Graphics and Interactive Techniques Conference Emerging Technologies (SIGGRAPH '22 Emerging Technologies). 2022. [Peer Reviewed Publication](#).
3. **Sosuke Ichihashi**, Arata Horie, Zendai Kashino, Shigeo Yoshida, and Masahiko Inami. *Effects of Thermal Presentation According to the Other's Gaze in Remote Communication*. International Symposium on Measurement and Control in Robotics 2021 (ISMCR '21). 2021. [Presentation](#).
4. **Sosuke Ichihashi**, Arata Horie, Masaharu Hirose, Zendai Kashino, Shigeo Yoshida, and Masahiko Inami. *High-Speed Non-Contact Thermal Display Using Infrared Rays and Shutter Mechanism*. In Adjunct Proceedings of the 2021 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2021 ACM International Symposium on Wearable Computers (UbiComp-ISWC '21 Adjunct). 2021. The First Workshop on Multiple Input Modalities and Sensations for VR/AR Interactions (MIMSVAI '21) **Best Paper Award**. [Peer Reviewed Publication](#).
5. **Sosuke Ichihashi**, Arata Horie, Zendai Kashino, Shigeo Yoshida, and Masahiko Inami. *The effect of temperature presentation according to the gaze of others on remote communications*. The 26th Annual Conference of Virtual Reality Society of Japan. 2021. [Publication in Japanese](#).
6. **Sosuke Ichihashi**, Arata Horie, Zendai Kashino, Shigeo Yoshida, and Masahiko Inami. *Rapid Thermal Presentation by Controlling Infrared Irradiance using a Shutter Mechanism*. Information Processing Society of Japan Entertainment Computing 2021. 2021. [Publication in Japanese](#).

7. **Sosuke Ichihashi**, Arata Horie, Hiroto Saito, Zendai Kashino, and Masahiko Inami. *Preliminary Study on Orientation Perception with Far Infrared Stimulus*. The Society of Instrument and Control Engineering System Integration Division Conference. 2020. Publication in Japanese.

RESEARCH EXPERIENCE

Research Intern July 2024
 Kyushu University
 Mentored by Dr. Hsin-Ni Ho. TBA.

Research Intern May 2023 - August 2023
 OMRON SINIC X Corporation
 Mentored by Dr. Shigeo Yoshida. Developed an interactive swarm robot system that mimics the hand shape and movements (both VR and real robots). Identified the design parameters including original control algorithms and got a patent on them. Designed and conducted psychophysical experiments to evaluate the levels of embodiment, and analyzed the results. The paper was accepted for CHI 2024.

Master's Student April 2020 - March 2022
 Information Somatics Lab, The University of Tokyo
 Developed a fast-switching, non-contact thermal feedback method using infrared rays and a shutter mechanism, conducted quantitative and qualitative evaluations, examined its applications (UbiComp 2021 MIMSVAI and SIGGRAPH 2022 Emerging Technologies).

Undergraduate Research April 2019 - March 2020
 Innovative Disaster Prevention Technology and Policy Research Lab, Kyoto University
 Optimized a rainfall-runoff-inundation model for 120 rivers in Japan with combinatorial optimization.

FUNDINGS & AWARDS

Japan Health & Research Institute Research Fund (\$2,000) TBA. August 2024 - March 2025

CHI Interactivity Popular Choice Honorable Mention Award in CHI '24 2024

CDAIT Student IoT Innovation Capacity Building Challenge 2023 Honorable Mention (\$5,000)
 Thermal Display for Augmenting Emotional Experience January 2023 - August 2023

INOAC International Education and Scholarship Foundation (\$18,888) August 2022 - July 2024

JST SPRING GX Research Grant (\$3000) Development of Gaze Interaction With Two-Dimensional Thermal Feedback and Establishment of Its Design Theory April - September 2022

MIMSVAI Best Paper Award in UbiComp-ISWC '21 Adjunct 2021

SICE SI Haptics Committee Research Grant (\$500) Five research proposals were awarded. 2021

Kyoto University Civil Engineering Society Funds (\$4,000) 2017, 2019

Japan Student Services Organization Overseas Study Scholarship (\$7,500) 2018 - 2019

TECHNICAL STRENGTHS

Hardware Prototyping	Arduino ¹ , 3D modeling, printing & Laser cutting ¹ , Original fab methods ¹
Software Prototyping	Unity ¹ , p5.js & Processing ¹ Figma ¹ TouchDesigner ²
Programming Language	Python ¹ , Fortran ¹ , C# ¹ , JavaScript ¹ , MATLAB ² , C ² , C++ ²
Others	ArcGIS ¹ , Eye Tracking ¹

TEACHING & MENTORING

Lecturer for LMC 2400 Intro to Media Studies

Spring 2024

Georgia Institute of Technology

Taught an undergrad course on media studies. Discussed the key ideas in media studies from the last few centuries as well as contemporary topics based on the taxonomy and theories.

Teaching Assistant for LMC 6313 Principle of Interaction Design

Fall 2023

Georgia Institute of Technology

Led weekly lab sessions for Figma and other design activities.

Mentor for an undergraduate student

November 2020 - March 2021

Information Somatics Lab, The University of Tokyo

Discussed the design of a haptic device that provides various rotational skin stretch distributions on the forearm and guided the hardware development as well as a psychophysical evaluation. He joined Dr. Hiroyuki Shinoda's lab as a master's student and is continuing his study on haptics.

REFERENCES

Noura Howell

Assistant Professor, The School of Literature, Media, Communication, Georgia Institute of Technology
nhowell8@gatech.edu

Masahiko Inami

Professor, Research Center for Advanced Science and Technology, The University of Tokyo
drinami@star.rcast.u-tokyo.ac.jp

Shigeo Yoshida

Senior Researcher, OMRON SINIC X Corporation
shigeodayo@me.com