Sosuke Ichihashi

PhD Student at Georgia Institute of Technology

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Research: systems changing atmosphere interactively

- I create systems that **controls atmosphere to promote certain actions, to enhance well-being, to power and control passive peripheral devices, and to edit physical environments**.
Computers have enabled us to perceive and act on object and data. However, such interactions are done only on our computing devices. Interactive Atmosphere expands them to the entire space: The ambient temperature, light, sound, smells and wind resonate seamlessly with your intentions and actions, just as your arms move.

- I **invent methods to provide atmospheric sensory feedback** and **explore novel interaction opportunities realized with them**. One such example is ThermoBlinds, which remotely provides fast-switching thermal sensation. Immersive thermal experience has been slow and not interactive. ThermoBlinds utilize a shutter mechanism and an infrared source behind it (just like an LCD and a back light) to realize immersive thermal interactions. Its applications include RattlEye, which enables people to feel the temperature of objects they see.

- As the foundation for interactive atmosphere, **my work includes optical and thermal technologies and their applications in fabrication, communication, and power delivery**. Creating and evaluating Interactive Atmosphere also **contributes new insights on human perceptual systems**.

Education

'22– Ph.D. Student (Digital Media) at **Georgia Institute of Technology**
Advisor: **Brian Magerko & Noura Howell**

2022 MS (Interdisciplinary Info. Studies) at **The University of Tokyo**
Advisor: **Masahiko Inami**

2020 BE (Global Eng.) at Kyoto University
Advisor: Takahiro Sayama

2019 Exchange (Elec. & Comp. Eng.) at The University of Texas at Austin

Publications

ACM CHI, UIST, and TEI are regarded as the top-tier publications in Human Computer Interaction (20-25% acceptance rate; CS is a conference-based field).

7 Swell by Light: An Approachable Technique for Freeform Raised Textures
Sosuke Ichihashi, Noura Howell, HyunJoo Oh
In Proc. TEI '25

6 Towards Designing for Everyday Thermal Experiences
Sosuke Ichihashi, Kosha Bedha, Noura Howell
In Proc. TEI '25

5 Hydroptical Thermal Feedback: Spatial Thermal Feedback Using Visible Lights and Water
▶ watch video
Sosuke Ichihashi, Masahiko Inami, Hsin-Ni Ho, Noura Howell
In Proc. UIST '24

4 Swarm Body: Embodied Swarm Robots
▶ watch video
Sosuke Ichihashi, So Kuroki, Mai Nishimura, Kazumi Kasaura, Takefumi Hiraki, Kazutoshi Tanaka, Shigeo Yoshida
In Proc. CHI '24
Popular Choice Honorable Mention Award

3 ThermoBlinds: Non-Contact, Highly-Responsive Thermal Feedback for Thermal Interaction
▶ watch video

Sosuke Ichihashi, Arata Horie, Masaharu Hirose, Zendai Kashino, Shigeo Yoshida, Sohei Wakisaka, Masahiko Inami
In Proc. SIGGRAPH '22 Emerging Technologies

2   High-Speed Non-Contact Thermal Display Using Infrared Rays and Shutter Mechanism
Sosuke Ichihashi, Arata Horie, Masaharu Hirose, Zendai Kashino, Shigeo Yoshida, Masahiko Inami
In Proc. UbiComp-ISWC '21 Adjunct MIMSVAI '21
MIMSVAI Best Paper Award

1   Effects of Thermal Presentation According to the Other's Gaze in Remote Communication
Sosuke Ichihashi, Arata Horie, Zendai Kashino, Shigeo Yoshida, Masahiko Inami
Presentation in ISMCR '21

Exhibit & Demo

6	Swell by Light	TEI '25, GTDM Demo Day	2025
5	Swarm Body	CHI '24	2024
4	Hydroptical Thermal Display	STT Workshop (CHI '23)	2023
3	Thermal Painting	GTDM Demo Day	2023
2	Heat-O-Phone	Guthman Fair '23	2023
1	ThermoBlinds	SIGGRAPH '22 E-Tech	2022

Research Job Experience

2024.07 − 2024.08	**Ho Haptics Lab @ Kyushu University** Research Intern advised by **Prof. Hsin-Ni Ho**	Fukuoka, Japan
2023.08 − 2024.02	**Code Craft Lab @ Georgia Institute of Technology** Independent Study advised by **Prof. HyunJoo Oh**	Atlanta, USA
2023.05 − 2023.08	**Interaction Group @ Omron Sinic X** Research Intern advised by **Dr. Shigeo Yoshida**	Tokyo, Japan

Funding

9	$6k	Georgia Tech LMC Tech Fee	2025
8	$2k	Japan Health & Research Institute Research Fund	2024
7	$5k	CDAIT Student IoT Innovation Capacity Building Challenge	2023
6	$20k	INOAC International Education Scholarship	2022
5	$3k	JST SPRING GX Research Grant	2022
4	$0.5k	SICE SI Haptics Committee Research Grant	2021
3	$2k	Kyoto University Civil Engineering Society Fund	2019
2	$7.5k	Japan Student Services Organization Overseas Study Scholarship	2018
1	$2k	Kyoto University Civil Engineering Society Funds	2017

Selected Awards

3	CHI Interactivity Popular Choice Honorable Mention Award	2024
2	CDAIT IoT Innovation Capacity Building Challenge Honorable Mention	2023
1	MIMSVAI Best Paper Award	2022

Academic Services

I have reviewed 21 papers for HCI and Haptics conferences and have received 2 special recognitions.

3	TEI, CHI (**Special Recognition**)	2026
2	TEI, IEEE VR, DIS, CHI, CHI LBW	2025
1	CHI LBW (**Special Recognition**), DIS, VRST, EuroHaptics, AsiaHaptics	2024

Mentoring

4	Adam M Vaughn (ECE undergrad at Georgia Tech)	2024
3	Luke X Wang (CS undergrad at Georgia Tech)	2022
2	Chang Ye Huang (ME undergrad at Georgia Tech)	2022
1	Sora Satake (MIEP undergrad at UTokyo. Now: Master at UTokyo)	2020

Teaching

I have taught in elementary schools, high schools, undergrad and grad schools in five countries.

8	TA: LMC 2700 Intro to Computational Media	Georgia Tech, USA	2025
7	TA: LMC 2700 Intro to Computational Media	Georgia Tech, USA	2024
6	Instructor: LMC 2400 Intro to Media Studies	Georgia Tech, USA	2024
5	TA: LMC 6313 Principle of Interaction Design	Georgia Tech, USA	2023
5	Instructor: Arduino Workshop	GSU, USA	2022
4	Instructor: JSPS Science Dialogue	Akashi Kita HS, Japan.	2018
3	Instructor: Japanese History	JHP ES, Macedonia	2018
2	Instructor: KU Disaster Prevention School	Five ES's, Indonesia	2017
1	TA: Eng. Sci. Global Communication Program	Ngee Ann Poly, Singapore	2017

References

1. Brian Magerko (PhD Advisor)
Professor, Georgia Tech
✉ magerko@gatech.edu | ⊕ website

2. Masahiko Inami
Professor, University of Tokyo
⊕ website

3. Shigeo Yoshida
Principal Investigator, Omron Sinic X
⊕ website

4. Hsin-Ni Ho
Associate Professor, Kyushu University
⊕ website

5. HyunJoo Oh
Assistant Professor, Georgia Tech
⊕ website

6. Noura Howell (Past PhD Advisor)
Associate Professor, University of Southern Denmark
⊕ website