

# 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: **Dr. Noura Howell**

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

2020 **BE (Global Eng.) at Kyoto University**  
Advisor: **Dr. 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	2025
5	Swarm Body	CHI '24	2024
4	Hydrooptical Thermal Display	STT Workshop (CHI '23)	2023
3	Thermal Painting	Georgia Tech DM Demo Day '23	2023
2	Heat-O-Phone	Guthman Fair '23	2023
1	ThermoBlinds	SIGGRAPH '22 E-Tech	2022

## Research Job Experience

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

## 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

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. Noura Howell (PhD Advisor)

Assistant Professor, Georgia Tech

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### 2. Masahiko Inami

Professor, University of Tokyo

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### 3. Shigeo Yoshida

Principal Investigator, Omron Sinic X

🌐 [website](#)

### 4. Hsin-Ni Ho

Associate Professor, Kyushu University

🌐 [website](#)