

Sosuke Ichihashi

PhD Student at Georgia Institute of Technology

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Research: optical systems for physical interactions

- **I make light brighter until information becomes physical and powering environment.**
My research focuses on moving from traditional visual media to high-energy media. Digital media has used light to communicate information, providing visual representations. However, light can also affect physically if the intensity is high enough. This shift offers us a multimodal way to interact with digital and physical worlds.
- **I invent optical media technologies to provide physical sensations and explore the novel interaction opportunities realized with them.** For example, [Hydrooptical Thermal Feedback](#) creates the feeling of instant water temperature changes by using LEDs to heat the skin. This alters how the water feels without actually changing its temperature. Building on this, [Hydrooptical Bath](#) provides a relaxing experience with measurable physical effects on the user.
- As the foundation for high-energy media, [my work](#) includes optical technologies and their applications in **human-computer interaction, fabrication, communication, and power delivery.**

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).

- 8 Thermal and Tactile Integration in Human Liquid Perception Using Viscous Solutions and Visible Light
Junjie Hua, **Sosuke Ichihashi**, Hsin-Ni Ho
In Proc. IEEE Haptics Symposium '26
Best Technical Long Paper Award
- 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 Hydrooptical 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

7	Thermal Painting	TEI '26	2026
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 Collaborations

2025.11 – Present	Contextual Computing Group & Ka Moamo Lab @ Georgia Tech Prof. Thad Starner & Prof. Josiah Hester	Atlanta, USA
2025.08 – Present	Flavin Neuromachines Lab @ Georgia Tech Prof. Matthew Flavin	Atlanta, USA
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 Group @ Georgia Tech 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 Technology 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

4	IEEE Haptics Symposium Best Technical Long Paper Award	2026
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 (PhD Advisor)

Associate Professor, University of Southern Denmark

🌐 [website](#)