

# Jas Brooks

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**Jas Brooks** (they/them) is a Computer Science Ph.D. candidate at the University of Chicago, advised by Professor Pedro Lopes. Their research focuses on integrating senses like temperature, touch, and taste into everyday interfaces. For this, **they engineer chemical interfaces, devices that trick the body into internally producing sensations.** These **chemical interfaces are power-efficient**, reducing the power consumption of temperature feedback; **versatile and compact**, miniaturizing many sensation with one actuator for touch technologies; **and selective, enabling new interactive possibilities** such as altering the taste of real foods. In addition to chemical interfaces, Jas explores how to interface with our sense of smell, such as through new sensations like stereo-smell or via lo-fi prototyping toolkits. Jas has published work at top Human-Computer Interaction (HCI) venues, including ACM CHI and UIST, of which 2 **received Best Paper Awards.** Their work has also been covered in media publications like *WIRED*, *Fast Company*, *Digital Trends*, and *IEEE Spectrum*. Jas is a 2023 **Rising Star in EECS** and a 2024 **Siebel Scholar**, and was a **National Science Foundation Graduate Research Fellow**. In 2023, they completed a Research Internship at Microsoft Research.

For Jas's [Arts & Culture CV](#), please [click here](#).

## Education & Experience

- Exp. 2025 **Ph.D.**, Computer Science, University of Chicago, Chicago, US  
*Advisor:* Pedro Lopes. *Committee:* Pattie Maes, Tanzeem Choudhury, Ben Zhao.
- 2023 **M.Sc.**, Computer Science, University of Chicago, Chicago, US
- 2023 **Research Internship**, Microsoft Research New England, Cambridge, US  
*Mentor:* Judith Amores (Human Understanding & Empathy Group)
- 2016 **B.Sc.**, Computer Science, University of Chicago, Chicago, US

## Publications


ACM CHI and UIST are the premier venues for technical Human-Computer Interaction (HCI) publications, which are fully peer-reviewed and have an acceptance rate of 20-25%. These are considered top-tier in the field, even when considering HCI journals, and Computer Science is a conference-focused discipline.

*Key Publications from PhD Thesis: **Chemical Interfaces** (Fully Refereed)*

- 🏆 [7] **Brooks, J.**, Amin, N., Lopes, P. "Taste Retargeting via Chemical Taste Modulators." *In Proc. UIST 2023*. [doi:10.1145/3586183.3606818](https://doi.org/10.1145/3586183.3606818). **Jury's Honorable Mention for Best Demonstration.**
- 🏆 [1] **Brooks, J.**, Nagels, S., Lopes, P. "Trigeminal-Based Temperature Illusions." *In Proc. CHI 2020*. [doi:10.1145/3313831.3376806](https://doi.org/10.1145/3313831.3376806). **Best Paper Award** (top 1%).
- [4] **Brooks, J.**, Teng, S., Wen, J., Nith, R., Nishida, J., Lopes, P. "Stereo-Smell via Electrical Trigeminal Stimulation." *In Proc. CHI 2021*. [doi:10.1145/3411764.3445300](https://doi.org/10.1145/3411764.3445300).
- [5] Lu, J., Liu, Z., **Brooks, J.**, Lopes, P. "Chemical Haptics: Rendering Haptic Sensations via Topical Stimulants." *In Proc. UIST 2021*. [doi:10.1145/3472749.3474747](https://doi.org/10.1145/3472749.3474747).

- [6] **Brooks, J.**, Lopes, P. "Smell & Paste: Low-Fidelity Prototyping for Olfactory Experiences." *In Proc. CHI 2023*. [doi:10.1145/3544548.3580680](https://doi.org/10.1145/3544548.3580680).

### *Additional Publications in HCI (Fully Refereed)*

- [8] Mazursky, A., **Brooks, J.**, Desta, B., Lopes, P. "ThermalGrasp: Enabling Thermal Feedback even while Grasping and Walking." *In Proc. IEEE VR 2024*.
-  [3] Takahashi, A., **Brooks, J.**, Kajimoto, H., Lopes, P. "Increasing Electrical Muscle Stimulation's Dexterity by means of Back of the Hand Actuation." *In Proc. CHI 2021*. [doi:10.1145/3411764.3445761](https://doi.org/10.1145/3411764.3445761). **Best Paper Award** (top 1%).
- [2] Je, S., Lim, H., Moon, K., Teng, S., **Brooks, J.**, Lopes, P., Bianchi, A. "Elevate: A Walkable Pin-Array for Large Shape-Changing Terrains." *In Proc. CHI 2021*. [doi:10.1145/3411764.3445454](https://doi.org/10.1145/3411764.3445454).

### *Other Publications*

Lu, J., Liu, Z., **Brooks, J.**, Lopes, P. "Learning to work with chemicals as a haptic technology." *ACM Interactions*, Vol. 29, Iss. 4. (Magazine Article)

**Brooks, J.** "Promises of the virtual museum." *ACM Crossroads Magazine for Students*, January 2019. [doi:10.1145/3301483](https://doi.org/10.1145/3301483). (Magazine Article)

**Brooks, J.** "Chemical Interfaces: New Methods for Interfacing with the Human Senses." *UIST 2023*, November 2023. (Part of the UIST Doctoral Symposium)

**Brooks, J.**, Lopes, P. "HC<sup>2</sup>I: Human-Computer Chemosensory Interfaces." *Association for Chemoreception Sciences 2021 Virtual Meeting*, April 2021. (Poster)

### *Demos*

Taste Retargeting, ACM UIST 2023.

Stereo-smell & Trigeminal-based Temperature Illusions, ACM CHI 2021.

## Awards, Grants, & Fellowships

2023–24 **Siebel Scholar**, Thomas and Stacey Siebel Foundation.

2023 **Rising Star in EECS**, Georgia Institute of Technology.

2018–23 **NSF Graduate Research Fellow**, National Science Foundation.

2023 **Jury's Honorable Mention for Best Demonstration**, ACM UIST 2023 for "Taste Retargeting via Chemical Taste Modulators."

2022 **Snap Creative Challenge**, Snap Inc. for "Re-Experiencing Moments via Smell."

2021 **Innovation by Design Award Honorable Mention in Experimental Design**, Fast Company for "Stereo-Smell."

2021 **Best Paper Award**, ACM CHI 2021 for "Increasing Electrical Muscle Stimulation's Dexterity by means of Back of the Hand Actuation."

2020 **Best Paper Award**, ACM CHI 2020 for "Trigeminal-based Temperature Illusions."

2018 **NSF Travel Award** to MoBI 2018.

## Selected Talks

### *Panels*

- 2024 [Pa.3] Panelist, “Re-conceptualizing the experience of architecture as tangible object” at AIS Week 2024.
- 2023 [Pa.1] Panelist and lead co-organizer, “Third Wave or Winter? The Past and Future of Smell in HCI” at ACM CHI 2023, with Dr. Jofish Kaye (Elevance Health), Prof. Marianna Obrist (UCL), Dr. Judith Amores (Microsoft Research), and Prof. Pedro Lopes (UChicago).

### *Invited Talks*

- 2024 [T.26] Cornell Tech (US), hosted by Prof. Tanzeem Choudhury
- 2024 [T.24] Harvard GSD (US), hosted by Prof. Allen Sayegh
- 2023 [T.21] MIT Media Lab (US), hosted by Prof. Pattie Maes
- 2022 [T.18] Smart Haptics 2022 (US) – industry conference
- 2021 [T.12] MIT Media Lab (US), hosted by Prof. Pattie Maes
- 2021 [T.10] Northwestern University (US), hosted by Prof. Nabil Alshurafa
- 2020 [T.06] Dagstuhl Seminar (DE) on “Physiological Interfaces” (Canceled due to COVID-19)
- 2018 [T.03] University of Sussex (UK), hosted by Prof. Marianna Obrist

## Service & Outreach

### *Program Committee*

- ACM UIST** Papers (2022, 24).
- ACM CHI** Papers (2024), Late-Breaking Work (2020–23).
- ACM DIS** Papers (2023–24).
- ACM TEI** Pictorials (2024), Papers (2023), Work In Progress (2021–22).
- MUM** Papers (2024).

### *Organizing Committee*

- 2021 SIGCHI Operations Committee
- 2021 Augmented Humans Social Media Chair
- 2019 ACM UIST Video Chair

### *Session Chair*

- 2022–23 **ACM CHI** “VR/AR/XR Play Experiences” (2023), “Mouth-based Interaction” (2022).
- 2021–22 **ACM UIST** “Mind & Body” (2022), “Illustration & Information Management” (2021).
- 2021 European Chemoreception Research Organization (**ECRO**): “Chemosenses beyond science.”

### *Peer Reviewing*

I regularly review for conferences and journals (over 150 reviews since 2018). I received special recognition for outstanding reviews (formal distinction): three from ACM CHI, four from ACM UIST, one from IEEE WHC, and four from ACM DIS. I have reviewed for ACM CHI, ACM UIST, IEEE VR, IEEE WHC, ACM IMWUT, ACM CSCW, AHs, ACM DIS, Frontiers in VR, ACM IUI, SIGGRAPH Asia, ACM TEI, ACM VRST, ACM IMX, and IEEE Access.

## *Academic Workshops & Symposia Organized*

- 2023 Lead Co-organizer, ACM CHI [Smell, Taste, & Temperature Interfaces Workshop](#)
- 2021 Co-organizer, ACM UIST Haptics Social Meetup
- 2021 Lead Co-organizer, ACM CHI [Smell, Taste, & Temperature Interfaces Workshop](#)
- 2020 Lead Co-organizer, [Smell, Taste, & Temperature Symposium](#) (Independent)

## *Selected Outreach*

- 2020–Present Arts & Cultural research and collaborations ([see Arts & Culture CV](#)).
- 2022 Committee member, Humanities UX Program, University of Chicago.
- 2021 Invited speaker, Rewriting the Code, University of Illinois at Chicago.
- 2020 Co-organizer, [Ada Lovelace Week](#), University of Chicago (4-day symposium celebrating minority-gender technologists in art, industry, and academia).
- 2020–21 Membership Engagement Committee (2021) and Non-Affiliated Members Committee (2020) member, Institute of Food Technologists Student Association.

# Experience

## *Research*

- 2018–Present **Graduate Research Assistant**, Human-Computer Integration Lab  
Department of Computer Science, University of Chicago  
*Advisor:* Assist. Prof. Pedro Lopes
- 2023 **Research Intern**, Microsoft Research  
*Mentor:* Dr. Judith Amores

## *Teaching*

- 2020–Present **Teaching Assistant**, Introduction to Human-Computer Interaction (CMSC 20300)  
Department of Computer Science, University of Chicago  
*Instructor of Record:* Pedro Lopes  
*Responsibilities:* Designed major project assignment and Unity template for HCI design. Adapted to work both on laptops and port to the Oculus Quest 2. Had 100+ students develop user interfaces for a VR diving simulation. Designed an optional assignment and Unity template for interactive haptic design with Oculus Quest 2.
- Spring 2019 **Teaching Assistant**, Engineering & Understanding Interactive Devices (CMSC 23220)  
Department of Computer Science, University of Chicago  
*Instructor of Record:* Pedro Lopes  
*Responsibilities:* Assisted with assignment grading and office hours. Designed lecture and problem set introducing students to Unity for VR. Had 35 students successfully create a VR experience including visuals, haptics, and wireless communication to a microcontroller in under one week.
- Fall 2018 **Lecturer**, Virtual Reality (ATS 4135)  
Department of Arts & Technology Studies, School of the Art Institute of Chicago  
*Teaching Assistant:* Zhong Ren  
*Responsibilities:* Designed and taught Master's art course on VR (14 students; 6 hours per week) integrating both theory and practice. Additionally offered optional, weekly introduction to programming concepts.

## *Mentoring*

### **Undergraduate Students**

- 2023–Present Katherine Waterman (MADD), University of Chicago (contributed to ongoing paper).  
2024 Janice Hixon (CS), University of Chicago (contributed to paper in submission).  
2021–23 Noor Amin (MADD & Neuroscience), University of Chicago (contributed to published paper, “Taste Retargeting,” ACM UIST 2023). Now at Riot Games.  
2022 Eva McCord (Neuroscience), University of Chicago (contributed to pilot project).  
2021 Oishee Chakrabarti (Computer Science), University of Chicago (contributed to pilot project). Now at Deloitte.  
2019 Daniel Steinberg (Computer Science), University of Chicago (collaborated on demonstration scenes for paper, “Trigeminal-based Temperature Illusions,” ACM CHI 2020 Best Paper). Now at Accenture.

### **Master’s Students**

- 2019–20 Jinxuan Wen (Computer Science), University of Chicago (major contributor to paper, “Stereo-Smell,” ACM CHI 2021).  
2019 Nitesh Nath (Computer Science), University of Chicago (contributed to pilot project).

## *Professional*

- 2016–18 **Associate Software Developer**, Argonne Leadership Computing Facility, Argonne National Laboratory, Lemont, IL, USA.  
*Advisors:* Joseph Insley, Silvio Rizzi  
*Responsibilities:* Co-advised undergraduate interns. Explored immersive visualizations and simulations primarily using Kasthuri Lab’s electron microscopy imaging of a mouse’s brain. Represented Argonne at a military conference amongst national labs.

## Selected Press

- 2023 [Pr. 20] “Finally, the Scratch-and-Sniff Cassette Tapes You Crave Are Here”, *Hackster.IO*.  
2022 [Pr. 19] “VR Still Stinks Because It Doesn’t Smell”, *WIRED*.  
2022 [Pr. 17] “The Metaverse, in Glorious Smell-O-Vision!”, *Built In*.  
2021 [Pr. 14] “Smell-O-Vision: nose-zapping wearable simulates smell.” *Digital Trends*.  
2021 [Pr. 13] “Self-Contained Device Lets Users Smell in Stereo.” *Hackster.IO*.  
2021 [Pr. 12] “Digital Nose Stimulation Enables Smelling in Stereo.” *IEEE Spectrum*.  
2020 [Pr. 8] “VR wearable can simulate temperature changes using chemicals.” *Digital Trends*.  
2020 [Pr. 7] “VR System Hacks Your Nose to Turn Smells Into Temperatures.” *IEEE Spectrum*.

**Last Update:** May 2024