Chenfeng (Jesse) Gao

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SPICELab, Northwestern University

RESEARCH INTERESTS

Human Digitization / XR Experience / Creative Interfaces

AWARDS / HONORS

PhD Student Research Award, *Northwestern University CS Department* **2026**
Red Dot Design Award (User Experience Category) **2025**
Honorable Mention Award, *ACM-CHI 2025* **2025**
Jury Honorable Mention Award, *ACM-CHI 2025* **2025**
Jury Honorable Mention Award, *ACM-UIST SIC 2022* **2022**
Student Notable Health/Wellness Design Award, *Core77* **2022**
Best Student Design of 2022, Honorable Mentions, *Fast Company* **2022**
$27,500 Merit Scholarship, *University of Chicago* **2022**

EDUCATION

Northwestern University Evanston, IL
PhD in Technology and Social Behavior 2024 – Present
Advisor: Karan Ahuja, PhD

University of Chicago Chicago, IL
Master of Science (M.S.) in Computer Science 2022 – Mar 2024
Advisor: Ken Nakagaki, PhD

IIT Institute of Design Chicago, IL
Master of Design (M.Des.) in Human-computer Interaction 2019 – 2021
Advisors: Anijo Mathew, PhD, Santosh Basapur, PhD and Zach Pino

Renmin University of China Beijing, China
Bachelor of Science (B.S.) in Math and Applied Math 2013 – 2017

PUBLICATIONS

5. Yiquan Li, Taeyoung Yeon, **Chenfeng Gao**, Vasco Xu, Xuanyou Liu, and Karan Ahuja. 2026. MARIO: Motion-Augmented Real-Time Multi-Sensor Inertial Odometry. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR '26), pp. 3460–3469.

4. Vasco Xu, **Chenfeng Gao**, Henry Hoffmann, and Karan Ahuja. 2024. MobilePoser: Real-Time Full-Body Pose Estimation and 3D Human Translation from IMUs in Mobile Consumer Devices. In Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (UIST '24). Association for Computing Machinery, New York, NY, USA, Article 70, 1–11. https://doi.org/10.1145/3654777.3676461

3. Ran Zhou, Jianru Ding, **Chenfeng Gao**, Wanli Qian, Benjamin Erickson, Madeline Balaam, Daniel Leithinger, and Ken Nakagaki. 2025. Shape-Kit: A Design Toolkit for Crafting On-Body Expressive Haptics. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25). Association for Computing Machinery, New York, NY, USA, Article 504, Pages 1–26. https://doi.org/10.1145/3706598.3713981 **Honorable Mention Award**

2. **Chenfeng Gao***, Wanli Qian*, Anup Sathya, Ryo Suzuki, and Ken Nakagaki. 2024. SHAPE-IT: Exploring Text-to-Shape-Display for Generative Shape-Changing Behaviors with LLMs. In Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (UIST '24). Association for Computing Machinery, New York, NY, USA, Article 118, 1–29. https://doi.org/10.1145/3654777.3676348

1. **Chenfeng Gao***, Lilith Yu*, David Wu, and Ken Nakagaki. 2023. AeroRigUI: Actuated TUIs for Spatial Interaction using Rigging Swarm Robots on Ceilings in Everyday Space. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23), April 23–28, 2023, Hamburg, Germany. ACM, New York, NY, USA, 18 pages. https://doi.org/10.1145/3544548.3581437

ADJUNCT PUBLICATIONS

Chenfeng Gao, Wanli Qian, Richard Liu, Rana Hanocka, and Ken Nakagaki. 2024. Towards Multimodal Interaction with AI-Infused Shape-Changing Interfaces. In Adjunct Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (UIST Adjunct '24). Association for Computing Machinery, New York, NY, USA, Article 75, 1–3. https://doi.org/10.1145/3672539.3686315

Chenfeng Gao*, Jiatong Li*, and Ken Nakagaki. 2022. ShadowAstro: Levitating Constellation Silhouette for Spatial Exploration and Learning. In The Adjunct Publication of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22 Adjunct), October 29–November 2, 2022, Bend, OR, USA. ACM, New York, NY, USA, 3 pages. https://doi.org/10.1145/3526114.3561345

EXHIBITION / INVITED DEMO

Qualcomm Demo – Invited Technical Showcase San Diego, CA, Feb 2026
MobilePoser

Meta Demo – Invited Technical Showcase Redmond, WA, Feb 2026
MobilePoser

Rivet Demo – Invited Technical Showcase Palo Alto, CA, Jan 2026
MobilePoser

Qualcomm Demo – Invited Technical Showcase San Diego, CA, Oct 2025
MobilePoser

MSI (Museum of Science + Industry Chicago) Robot Block Party Chicago, IL, Apr 2023
Traffic Data, AeroRigUI

Axhibition 2023 (held by AxLab, University of Chicago) Chicago, IL, Mar 2023
AeroRigUI, SHAPE-IT

Expo 2020 Dubai via virtual portal in Herman Miller showroom Chicago, IL, Nov 2021
Orgo: Hybrid Socialization in workspace

PRESS

"Creative Agency in the Age of AI" *Northwestern Engineering News* **2026**
"ID Team Wins Red Dot Award for Autonomous Shuttle Experience" *Institute of Design* **2025**
"MobilePoser puts motion capture into mobile devices" *The Engineer* **2024**
"Ceiling robots can reconfigure room lights and curtains" *NewScientist* **2023**

ACADEMIC SERVICE

Organizing Committee
TEI Student Volunteer Chair **2026**

Student Volunteer
UIST **2024**

Reviewer	*recognized for outstanding review
UIST Papers	2024*, 2025*, 2026
CHI Papers	2025
CHI Interactivity	2024
CHI Late-Breaking Work	2026
IMWUT	2026
TEI Papers	2026
TEI WIP	2025, 2026
ICMI	2026
MobileHCI Late-Breaking Work	2025

RESEARCH & PROFESSIONAL EXPERIENCE

Northwestern University | **SPICE Lab** Evanston, IL
Graduate Researcher, advised by Dr. Karan Ahuja Aug 2024 – Present
Developing wearable sensing systems for IMU-based 6DoF spatial tracking and embodied AR interaction on commodity smartwatches and AR glasses.

University of Chicago | **Actuated Experience Lab (AxLab)** Chicago, IL
Graduate Researcher, advised by Dr. Ken Nakagaki Apr 2022 – Apr 2024
Researched tangible, shape-changing, and actuated interfaces across collaborations with Dr. Rana Hanocka (generative AI for 3D), Dr. Sarah Sebo (HRI), and Dr. Ryo Suzuki (shape-changing interfaces), and led lab workshops on design methods, Unity, and AI-integrated tangible research.

Rush University Medical Center Chicago, IL
Graduate Research Assistant, with Dr. Santosh Basapur Dec 2021 – Apr 2022
Built multiplayer social VR prototypes in Unity and authored study protocols investigating VR-supported problem-solving in medical settings, with an abstract accepted to TE 2022.

Harvard University | **D-Lab, T.H. Chan School of Public Health** Boston, MA
Graduate Research Assistant, with Dr. André Nogueira May – Dec 2021
Applied strategic design methods to the Gates Foundation–funded "Whole Life" global health study (1,200+ households across 15 countries coping with COVID-19), co-authoring two design reports

recognized with a Core77 Notable Health & Wellness Design Award.

Herman Miller Chicago, IL
MR User Researcher Sep – Dec 2021
Designed a future scenario connecting remote and on-site workers via MR to improve socialization in hybrid workspaces; the project was exhibited at Expo 2020 Dubai.

iMotions A/S Boston, MA
VR Specialist Jun – Aug 2021
Integrated Varjo XR-3 headset capabilities into the iMotions software platform for analyzing human data collected in XR environments.

Itch.io (remote) Chicago, IL
Indie Game Designer/Developer Sep – Dec 2020
Applied spatial design and the WebXR API to independent game design.

Verizon Wireless (remote) Chicago, IL
MR UX Prototyper May – Aug 2020
Designed a virtual club experience system in Mixed Reality by applying post-human-centered design methods.

LesPark Beijing, China
Product Manager Intern Nov 2016 – Jan 2017
Collaborated with the design team to establish and implement design standards and principles tailored to the company's objectives.

Renmin University of China | **LISA Lab** Beijing, China
Undergraduate Researcher, advised by Dr. Wei Xu Jun 2014 – Jun 2015
Applied genetic algorithms and artificial neural networks to a financial optimization project, supporting teammates on the underlying mathematical principles.

REFERENCES

Karan Ahuja Assistant Professor, Computer Science, Northwestern University kahuja@northwestern.edu

Ken Nakagaki Assistant Professor, Computer Science, University of Chicago knakagaki@uchicago.edu