Chenfeng (Jesse) Gao

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SPICELab, Northwestern University

RESEARCH INTERESTS

Human Digitization / XR Experience / Creative Interfaces

AWARDS / HONORS

Red Dot Design Award (User Experience Category)	**2025**
Honorable Mention Award (Shape-Kit paper**),** *ACM-CHI 2025*	**2025**
Jury Honorable Mention Award (Shape-Kit demo**),** *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**
Master Challenges Competition'21, Winner, *IIT Institute of Design & Harvard D-Lab*	**2021**
Master Challenges Competition'20, Winner, *IIT Institute of Design & Verizon*	**2020**

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

1. 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

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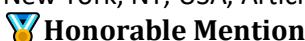
3. **Chenfeng Gao***, Wanli Qian*, Anup Sathya, Ryo Suzuki, and Ken Nakagaki. 2024. SHAPE-IT: Exploring Text-to-Shape-Display for Generative Shape-Changing Behaviors with LLMs. In Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (UIST '24). Association for Computing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

4. **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

OTHER PUBLICATIONS

5. **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

6. **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, 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

IIT Institute of Design EOYS 2021   Chicago, IL (Online), Nov 2021
Digital Ghost: Discursive Design in VR Exhibition

PRESS

"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**

RESEARCH EXPERIENCE

Northwestern University, Sensing, Perception, Interactive Computing and Experiences Lab (SPICELab)
Graduate Researcher *advised by Dr. Karan Ahuja*   Aug 2024- Present

University of Chicago, Actuated Experience Lab (AxLab)   Chicago, IL
Graduate Researcher advised by Dr. Ken Nakagaki   Apr 2022- Apr 2024
- Research topic: TUI, Shape-changing Interface, actuated technologies, robotic.
- Collaborated with Dr. Rana Hanocka on project with Generative AI in 3D application.
- Collaborated with Dr. Sarah Sebo on project with HRI.
- Collaborated with Dr. Ryo Suzuki on project with Shape-changing Interfaces.
- Lead workshops for lab mates covering design methods topics, Unity tutorials, and reviews on AI-integrated tangible research.

Rush University Medical Center   Chicago, IL
Graduate Research Assistant with Dr. Santosh Basapur   Dec 2021 – Apr 2022
- Conducted research with Translational Research team on how Virtual Reality could help problem solving in the medical area. The abstract has been accepted by TE (Transdisciplinary Engineering for Resilience) 2022.
- Built multiplayer social VR prototypes in Unity.
- Write study protocol to lead the test and analyze the human insights, conducted literature review in Design studio in VR.

Harvard University | D-Lab at T.H. Chan School of Public Health   Boston, MA
Graduate Research Assistant with Dr. André Nogueira   May – Dec 2021
- Research for the "Whole Life" project with strategic design methods (the Whole View Model), a global public health study funded by Bill & Melinda Gates Foundation, that studies over 1,200 households in 15 different countries to see how they cope with Covid-19
- Published two activity-focused strategic design reports based on the above project, which received the Notable Health & Wellness Design Award from the Core77 Design Network in 2022

Renmin University of China | LISA lab   Beijing, China
Undergraduate Research advised by Dr. Wei Xu   Jun 2014 – Jun 2015
- Helped team members to understand and apply the mathematical principle behind GA and ANN.
- Collaborated on a financial optimization project, utilizing the Genetic Algorithm to address the challenge.

PROFESSIONAL PRACTICE

Herman Miller   Chicago, IL
MR User Researcher   Sep – Dec 2021
Designed a future scenario by connecting remote and on-site workers via MR aiming to improve socialization in hybrid working space, project was exhibited in Dubai EXPO 2022

iMotions A/S.   Boston, MA
VR Specialist   Jun – Aug 2021
Helped the company integrate Varjo XR-3 headset functions into iMotions software to analyze the study of collected human data in XR environments.

Panorama Innovation   Chicago, IL
User Researcher Intern   Jan – Mar 2021
Put the user research skills learned in ID into practice as a user researcher in a design consulting firm.

Itch.io   (remote) Chicago, IL
Indie game designer/developer   Sep – Dec 2020
Applied spatial design and practiced WebXR-API in 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 center design method.

Startup (AirTune App)   Chicago, IL

UI & Product designer   Mar – Sep 2020

Built and designed a music App where friends can add songs to a queue which can be played by one device.

Zhonglianxin Commercial and Trading Company   Lanzhou, China

Project Manager   Sep 2017 – May 2019

Improved the accounting process in construction sites with customized OCR program.

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.

Startup (Differ App)   Beijing, China

Co-founder & Product Manager   Sep 2015– Nov 2016

Designed an APP that allows users to share their skills/knowledge in video format and held 30+ online sharing activities.

REFERENCES

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

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