

# Violet Yinuo Han

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## RESEARCH INTEREST

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*Keywords:* Physical AI, Multimodal Interaction, Human-AI Interaction, Distributed Robotics.

**My research explores intelligent, robotically augmented everyday environments that enhance rather than replace human experiences in physical spaces.**

I build (1) physical systems that integrate into existing objects and environments, enabling multimodal input/output capabilities such as robotic manipulation, movement, and tactile display, and (2) digital systems that understand users and facilitate interactions through interaction intent inference and proactive assistance.

## EDUCATION

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<b>PhD Student, Carnegie Mellon University, School of Computer Science</b> advised by <b>Professor Alexandra Ion</b>	Started August 2023
<b>M.S., Carnegie Mellon University</b> <i>Thesis:</i> Building a Bidirectional Bridge Between the Digital and Physical Worlds	Graduated May 2023
<b>B.F.A., University of Michigan</b> <i>Thesis:</i> 86 Billions: Experiencing the Human Brain From a Neuron's Perspective	Graduated May 2020

## PUBLICATIONS

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- [1] **Towards Unobtrusive Physical AI: Augmenting Everyday Objects with Intelligence and Robotic Movement for Proactive Assistance.**  
**Violet Yinuo Han**, Jesse T. Gonzalez, Christina Yang, Zhiruo Wang, Scott E. Hudson, Alexandra Ion. In Proceedings of UIST'25, Busan, Korea. Sept. 28 - Oct. 1, 2025.
- [2] **Transforming Everyday Objects into Dynamic Interfaces using Smart Flat-Foldable Structures.**  
**Violet Yinuo Han**, Amber Yinglei Chen, Mason Zadan, Jesse T. Gonzalez, Dinesh K. Patel, Wendy Fangwen Yu, Carmel Majidi, Alexandra Ion. In Proceedings of UIST'25, Busan, Korea. Sept. 28 - Oct. 1, 2025.
- [3] **A Dynamic Bayesian Network Based Framework for Multimodal Context-Aware Interactions.**  
**Violet Yinuo Han**, Tianyi Wang, Hyunsung Cho, Kashyap Todi, Ajoy Savio Fernandes, Andre Levi, Zheng Zhang, Tovi Grossman, Alexandra Ion, Tanya R Jonker. In Proceedings of IUI'25, Cagliari, Italy. March 24 - 27, 2025.
- [4] **Robotic Metamaterials: A Modular System for Hands-On Configuration of Ad-Hoc Dynamic Applications.**  
Zhitong Cui, Shuhong Wang, **Violet Yinuo Han**, Tucker Rae-Grant, Willa Yunqi Yang, Alan Zhu, Scott E Hudson, Alexandra Ion. In Proceedings of CHI'24, Honolulu, HI. May.11 - 16, 2024.
- [5] **Parametric Haptics: Versatile Geometry-based Tactile Feedback Devices.**  
**Violet Yinuo Han**, Abena Boadi-Agyemang, Yuyu Lin, David Lindlbauer, Alexandra Ion. In Proceedings of UIST'23, San Francisco, CA. Oct.29 - Nov.1, 2023.
- [6] **BlendMR: A Computational Method to Create Ambient Mixed Reality Interfaces.**  
**Violet Yinuo Han**, Hyunsung Cho, Kiyosu Maeda, Alexandra Ion, David Lindlbauer. In Proceedings of ISS'23, Pittsburgh, PA. Nov.5 - Nov.8, 2023.  
*Best Paper Award*
- [7] **Permeable Thermistor Temperature Sensors Based on Porous Melamine Foam.**  
Hugo de Souza Oliveira, Niloofar Saeedzadeh Khaanghah, **Violet Yinuo Han**, Alejandro Carrasco-Pena, Alexandra Ion, Michael Haller, Giuseppe Cantarella, Niko Münzenrieder. In IEEE Sensors Letters, Vol. 7, No. 5, pp. 1-4, Art no. 2500904, May 2023.

## TEACHING EXPERIENCE

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- Guest Lecturer at Carnegie Mellon University** April 2025  
*Computational Methods for Interactive Systems* (05-499/899), Prof. Alexandra Ion
- Guest lecture on using dynamic Bayesian networks to model interactions for building interactive systems.
- Teaching Assistant at Carnegie Mellon University** August - December 2022  
*Computational Perception* (15-387/86-375/675), Prof. Tai Sing Lee
- This course investigates human visual perception with computational models. I hosted weekly office hours, created, updated, and graded homework assignments. I created lecture notes to better facilitate students' learning.

## PROFESSIONAL EXPERIENCE

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- Research Scientist Intern, Meta Reality Labs** May - September 2024
- Proposed a dynamic Bayesian network based framework for multimodal context-aware interactions. Led to a publication at IUI'25.
- System Experience Design Intern, OnePlus** May - July 2021
- Worked with designers and engineers to maintain and update OnePlus OxygenOS.
- Interaction Design Intern, WhaleDynamic** Feb - May 2021
- Designed interactions for an autonomous delivery vehicle and presented a prototype at the Shanghai International Automobile Industry Exhibition.

## AWARDS AND GRANTS

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- Best Paper Award** (Top 1) ACM ISS'23 for *BlendMR* [6] 2023
- Snap Creative Challenge Award** (10k) with Prof. David Lindlbauer and Dr. Yukang Yan 2022
- Carnegie Mellon University SoA Commendation** 2022
- Carnegie Mellon University SoA Travel Grant** 2022
- Carnegie Mellon University SoA Merit Scholarship** (10k) 2021
- Dartmouth College Scholarship** (35% of tuition) 2021
- UC Berkeley MDes Distinguished Scholar Award** (10k) 2021
- University of Michigan University Honors** 2020
- University of Michigan University Honors** 2018

## MENTORING

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- Narayan Ashanahalli**, Architecture at CMU, Masters Research Assistant Summer 2025
- Aiden Li**, CS at UCL, Undergraduate Research Assistant Summer 2025
- Invited talk at the Ellis High School**, Pittsburgh April 2025
- Christina Yang**, Design & HCI at CMU, Masters Research Assistant Fall 2025
- Anagha Srinivasan**, CS at CMU, Undergraduate Research Assistant Spring 2024
- Ziyu Li**, ECE at CMU, Undergraduate Research Assistant Fall 2024
- Wendy Yu**, Design & HCI at CMU, Undergraduate Research Assistant Fall 2024, Spring 2024

## ACADEMIC SERVICES

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- UIST Reviewer** 2024, 2025
- CHI Reviewer** 2025
- CHI LBW Reviewer** 2024, 2025
- CHI Assistant to Session Chair** 2024
- UIST Student Volunteer** 2022