Junxian Li

https://dinnodinosaur.github.io/ | junxianli@zju.edu.cn | Tung Chung, Hong Kong

EDUCATION

Zhejiang University, School of Computer Science and Technology **Hangzhou, CN**

M.S. in Design Science 2022 -2025(expected)

- Average Score: 91.5/100
- Relevant coursework: Intelligent Design, Innovation Design, Design Research, Informatics for Design, Integrated Design

B.S in Computer Science and Technology 2017 – 2022

- GPA: 3.37/4.0
- Relevant coursework: Information System Security, Advanced Data Structure & Algorithm Analysis, Computer Networks, Operating System, Computer Architecture, Database System, Compiler Principle, Artificial Intelligence

RESEARCH INTERESTS

My research focuses on creating immersive and multisensory experiences in Virtual Reality, with an emphasis on **Interaction Design**, **User Experience**, and **Immersive Analytics**. I am particularly interested in developing innovative ways to enhance sensory feedback, such as olfactory and tactile interactions, to bridge the gap between physical and digital environments. I aim to design intuitive interfaces that enable users to engage more naturally with complex data and virtual environments. My work spans experimental system development, user-centered design, and evaluating multisensory interfaces to explore how digital interactivity can be both enriching and intuitive.

PUBLICATIONS

1. **Li, J.**, Wang, Y., Cui, Z., Brooks, J, Yan, Y., Lou, Z., Li, Y. Mid-Air Gestures for Proactive Olfactory Interactions in Virtual Reality. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (**CHI '25**). https://doi.org/10.1145/3706598.3713964
2. Li, Y., Wang, Y., …, **Li, J**., Lou, Z. AromaBite：Enhancing Flavor Perception Through Edible Retronasal Scent Release. In Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (**CHI EA '25**). https://doi.org/10.1145/3706599.3720200
3. Lu, Y., **Li, J.**, Cui, Z., Hu, J., Lin, Y., Luo, S. 2024. Designing Spatial Visualization and Interactions of Immersive Sankey Diagram in Virtual Reality. In Proceedings of the 32nd ACM International Conference on Multimedia (**MM '2024, Selected as Oral, 4%**). https://doi.org/10.1145/3664647.3681460
4. Zhou, L., Zhang, Y., An, X., **Li, J.** E-scent Coach: A Wearable Olfactory System to Guide Deep Breathing Synchronized with Yoga Postures. In Proceedings of the Nineteenth International Conference on Tangible, Embedded, and Embodied Interaction (**TEI '25**). https://doi.org/10.1145/3689050.3704927
5. **Li, J.**, Wang, Y., Gong, H., Cui, Z. 2023. AwakenFlora: Exploring Proactive Smell Experience in Virtual Reality through Mid-Air Gestures. In Adjunct Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (**UIST '23 Adjunct**). https://doi.org/10.1145/3586182.3616667
6. Cui, Z., Wang, S., **Li, J.**, Luo S., Ion, A. 2023. MiuraKit: A Modular Hands-On Construction Kit For Pneumatic Shape-Changing And Robotic Interfaces. In Proceedings of the 2023 ACM Designing Interactive Systems Conference (**DIS '23**). https://doi.org/10.1145/3563657.3596108

PROJECT EXPERIENCE

NewSense HCI Research Lab, Donghua University **Shanghai, CN**

Research Intern | Supervisor: ***Yanan Wang*** Jan. 2024 - Sep 2024

- **VR Gesture Proactive Olfactory Interaction System**

  Constructed a design space for olfactory interactions with virtual objects and tasks in virtual reality. Through the user-defined methodology, developed a universal gesture set and gained insights into proactive olfactory interaction through comparative and exploratory experiments. The project resulted in a full paper CHI 2025 [1] and a poster at UIST '23 Adjunct [5].

  Role: Research Lead | Technologies: Unreal Engine, Unity, C#, Leap motion, Arduino, SPASS, Python

  - ✧ Developed a comprehensive gesture set for interacting with virtual odor sources, integrating mid-air gestures for interaction using a Siamese network for gesture recognition.
  - ✧ Implemented real-time odor visualization and interaction, utilizing Unreal Engine and Arduino for system development, including sensory feedback.

- **“AromaBite” for human food interaction**

  An accessible, edible, bio-compatible and ingestible odor storage and release mechanism that integrates natural eating behaviors, providing dynamic retronasal olfactory experiences. The project resulted in a full paper at CHI LBW2025 [2].

  Role: Experimental Designer and Data Analyst | Technologies: JavaScript, SPASS, Python

  - ✧ Developed a testing and analysis program, conducting comprehensive evaluations through controlled experiments with time-intensity (TI) to validate flavor enhancement techniques.

Artificial Intelligence Generated Design Lab, Zhejiang University **Hangzhou, CN**

Master's student | Supervisor: Professor ***Shijian Luo*** Sep. 2022 - present

- **VR Sankey Diagram Interaction System**

  Developed An immersive VR system for spatial visualization and interaction with Sankey diagrams, focusing on enhancing data flow analysis through 3D visualizations. Incorporated user studies to refine interaction techniques and improve comprehension of complex data flows. The project resulted in a full paper at MM 2024 [3].

  Role: Technical Lead and Core Contributor | Technologies: Unity, C#, Python, JavaScript

  - ✧ Developed 3D Sankey diagrams with depth, providing a more intuitive way for users to interact with data.
  - ✧ Optimized the node and line layouts using ILP. For comparative experiments, a 2D Sankey diagram interaction system also developed using JavaScript.

- Participated in the editing of a book. "**Conveying Culture Through Numbers, Illuminating Truth Through Data: The Digital Strategy for Cultural Industries in the New Era**" This work draws on international experiences in cultural industry digitalization and examines the technical pathways for high-quality development. ISBN: 9787308246750.

Interactive Structures Lab, Carnegie Mellon University **Remote**

Research Intern | Supervisor: ***Alexandra Ion, Scott Hudson*** May. 2022 - Sep 2022

- **Origami Robot Simulation and Design Tool**

  Developed MiuraKit, a modular hands-on construction kit for pneumatic shape-changing and robotic interfaces. Focused on creating an intuitive and flexible tool for designing shape-changing structures, incorporating pneumatic actuation to facilitate rapid prototyping and exploration of robotic interactions. The project resulted in a full paper at DIS 2023 [6].

  Role: Developer | Technologies: JavaScript, Arduino

  - ✧ Developed a web-based design tool using JavaScript(three.js) to assist novice users in creating desired shape-changing or robotic structures and previewing their motion with origami actuators.
  - ✧ The tool generates corresponding Arduino control code for the lower-level system.

ACADEMICS SERVICE

- Reviewer: ACM Chinese CHI 2024 Oct. 2024

SELECTED AWARDS AND SCHOLARSHIPS

- ￥7000 Second Prize Scholarship for Hong Kong, Macao, and Overseas Chinese Communities 2024
- ￥20000 Special Award Scholarship for Hong Kong, Macao, and Overseas Chinese Communities （Top 1） 2023
- ￥10000 Huawei Elite Scholarship 2023
- ￥8000 Second Prize Scholarship for Hong Kong, Macao, and Overseas Chinese Communities 2019
- ￥8000 Second Prize Scholarship for Hong Kong, Macao, and Overseas Chinese Communities 2018
- Excellent Graduate Student 2024
- Five Good Graduate Student 2023
- Excellent Graduate Student 2023

SKILLS

- **Language:** Mandarin (Native), Cantonese, English: TOEFL score: 93(goal: 105)
- **Programming**: C#, Python, JavaScript(three.js), C++, Java
- **Software:** Unreal, Unity, Arduino, Android Studio, Rhino (Grasshopper), PS
- **Other:** 3D printing, Laser cutting