JIAN ZHANG

PhD Student

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EDUCATION

The University of Melbourne, Melbourne, VIC, Australia *Mar 2024 - Present*
Degree: Ph.D **Topic**: Haptics in VR

Tokyo Institute of Technology, Tokyo, Japan *Sep 2021 – Sep 2023*
Degree: Master of Engineering **Major**: Artificial Intelligence **Grade**: 94.1/100

Shanghai Jiao Tong University, Shanghai, China *Sep 2017 – Jun 2021*
Degree: Bachelor of Engineering **Major**: Mechanical Engineering **Grade**: 80.86/100

RESEARCH EXPERIENCE

Current PhD Study, **Visuo-Illusion Based Active Haptic Device for Grasping in XR** *Sep 2024 - Present*

- Developed a haptic feedback controller based on visuo-haptic illusion
- Conducted a user study to evaluate the controller
- More details to be updated after anonymous review process

PhD Study, **[CHI'25] Illusion Spaces in VR: The Interplay Between Size and Taper Angle Perception in Grasping** *Mar 2024 – Sep 2024*
https://doi.org/10.1145/3706598.3714162 **https://doi.org/10.48550/arXiv.2504.05791**

- Designed the user study to estimate the threshold of visuo-haptic illusions of size and angle perception in VR
- Found pattern of the interplay between size and angle perception with psychometric methods
- Calculated and summarised the results into mathematical expressions and models of "illusion spaces", and provided codes for calculation for designers in VR
- Wrote a full paper on the study and it's accepted at ACM CHI 2025 (Yokohama, Japan)

Master's Degree Thesis, **IMU-based Lower Body Trajectory Estimation with Kinematic Constraint** *Oct 2021 – Jul 2023*

- Developed a system to estimate human lower body trajectory using inertial measurement units (IMUs) and kinematic constraints. Optical motion capture system is used for ground truth.
- Presented the research on two conferences: General Conference of the Institute of Electronics, Information and Communication Engineers (IEICE) in March, 2023, and the 14th Annual Meeting of Japanese Society for Neural Repair and Neurorehabilitation (JSNRNR) in April, 2023.

Bachelor's Degree Thesis, **Design of Navigation System for 3D Microsurgery Robot System** *Dec 2020 – Jun 2021*

- Participated in the design of a 3D Microsurgery robot system in cooperation with a related company.
- Designed the navigation system for the robot, including the visual calibration method, visual target mechanical structure, recognition system and trajectory planning method. Tools such as SolidWorks and MATLAB are used for the system and modelling

ACADEMIC ACTIVITIES

Paper accepted at CHI'25, **Illusion Spaces in VR: The Interplay Between Size and Taper Angle Perception in Grasping**
Poster Presentation, **The University of Melbourne 2024 CIS Doctoral Colloquium**
Demo Presentation, **Ubicomp 2024 visiting tour to the University of Melbourne**
Supervision, **Co-supervising a master's project: Enhancing immersion in VR with human-robot collaboration**
Tutor, **Graphics and Interaction (undergraduate subject); Designing Novel Interaction (master subject)**

ADDITIONAL INFORMATION

- **Languages:** English, Mandarin.
- **Skills**: Experienced in HCI studies. Proficient in Unity, 3D Printing, Python, MATLAB, C#, OptiTrack, Ansys, modelling tools, various machine tools