Zhaoyang Yuan

YUAN Zhaoyang | B4 Undergraduate Researcher, Mobile Computing Lab (RM2C)
Ritsumeikan University, College of Information Science and Engineering Ibaraki, Osaka, Japan
chaoyang@rm2c.ise.ritsumei.ac.jp Website | RM2C profile

PROFILE

Undergraduate student in the DUT-RU 2+2 Dual Degree Program. After two years in Digital Media Technology at Dalian University of Technology, I transferred to the third year of Information Science and Engineering at Ritsumeikan University in September 2025. My research interests include virtual reality, haptic interaction, embodied interaction, and human augmentation.

EDUCATION

Ritsumeikan University 2025.09 - 2027.09 (expected)
B.Eng. candidate, Information Science and Engineering (degree expected September 2027)
Real-World Information Course (実世界情報コース); Mobile Computing Lab (RM2C), Shibata Laboratory. Transferred into the third year through the DUT-RU Dual Degree Program.

Dalian University of Technology 2023.09 - 2025.06
B.Eng. candidate, Digital Media Technology (degree expected September 2027)
DUT-RU International School of Information Science & Engineering at DUT (大连理工大学 - 立命馆大学国际信息与软件学院). Completed the first two years of the dual degree curriculum before transferring to Ritsumeikan University.

RESEARCH EXPERIENCE

VR Sword Fighting with a Handheld Multi-Directional Impact Feedback Device

B4 undergraduate researcher | Ritsumeikan University | 2026

- Designed and implemented the Unity-Arduino communication protocol, sword-direction recognition, charge-control logic, and most Unity scenes and gameplay mechanisms.
- Integrated the Arduino-side communication module with the multi-directional impact-feedback hardware developed by the device team.
- Connected directional swing classification in Unity with ESP32-controlled physical impact feedback for a Meta Quest 3 sword-fighting experience.

PUBLICATIONS & DEMONSTRATIONS

Kazuki Hara, Issa Ueno, Aoi Kato, **Zhaoyang Yuan**, Yuya Maekawa, Fumihiko Nakamura, Asako Kimura, and Fumihisa Shibata. *VR Sword Fighting with a Handheld Multi-Directional Impact Feedback Device.* Accepted Research Demo; to be presented at the 32nd ACM Symposium on Virtual Reality Software and Technology (VRST '26), Sendai, Japan, November 16-18, 2026. DOI: 10.1145/3822517.3849969

Issa Ueno, Kazuki Hara, Aoi Kato, **Zhaoyang Yuan**, Yuya Maekawa, Fumihiko Nakamura, Asako Kimura, and Fumihisa Shibata. *VR Sword-Fighting Experience Using a Handheld Multi-Directional Impact Feedback Device.* Human Interface Symposium 2026, Okayama, Japan, September 16-18, 2026. Interactive presentation.

AWARDS

Excellent Presentation Award 2026.09
Human Interface Symposium 2026
Our work received the Excellent Presentation Award (優秀プレゼンテーション賞) at the Human Interface Symposium 2026 for its interactive presentation on the handheld multi-directional impact-feedback VR sword-fighting experience.

SELECTED PROJECTS

1500 Degree: Remote Work VR 2026

Team course project | Unity, Meta Quest 3, Blender, Git/GitHub

A rhythm-based VR experience that imagines remote industrial work through a robot cutting steel pipes in time with music. Implemented core VR mechanics, grabbing and cutting physics, Quest setup, and repository integration.

EMO-BOT 2026

Embedded robotics course project | OpenRB-150, Arduino, Dynamixel

A desk companion robot that reacts to nearby users through sensor input, dual-motor facial movement, and LED expressions.

Object Hunt MR 2026

Mixed reality project | Unity, Meta Quest

A mixed-reality shooting game that maps tagged real-world objects such as bottles, chairs, mice, laptops, and people into timed scoring targets with controller haptics and audio feedback.

Mago no Te 2026

Conversational care prototype | LINE Messaging API, Gemini 2.5, Python/Flask

Designed and implemented a LINE-based companion bot for older adults living alone. The prototype combines context-aware conversation with persistent memory, scheduled check-ins and medication reminders, accessible Flex Message interfaces, and family photos transformed into digital postcards.

TECHNICAL SKILLS

Programming	C, C++, Java, C#, Python, MATLAB
XR & robotics	Unity, Meta Quest 3, mixed reality, haptic interaction, ROS, RViz, SLAM-based robot operation, basic Gazebo exercises
Systems & applications	Linux virtual machines, Android application development, LINE Messaging API, Gemini API, Flask, SQLite, Arduino, ESP32, OpenRB-150
Development	Git, GitHub, Blender, Three.js

PROFESSIONAL MEMBERSHIPS

- The Virtual Reality Society of Japan (VRSJ), Student Member
- Association for Computing Machinery (ACM), Student Member

SELECTED LINKS

Personal website: https://zhaoyangyuan.space

RM2C official member listing: https://www.rm2c.ise.ritsumei.ac.jp/mcmember.html

RM2C official awards listing: https://www.rm2c.ise.ritsumei.ac.jp/awards.html

ACM Digital Library DOI: https://doi.org/10.1145/3822517.3849969