Yunxiang Ma

Architecture Designer, Creative HCI Researcher, and XR Explorer
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EDUCATION

Tsinghua University, Department of Architecture Beijing, China
Bachelor of Engineering, GPA: 3.73/4.00 Sept. 2020-Jul. 2025
Selected Major Coursework: *Architecture, City and Landscape Design Studio* (A+), *Architectural Mathematics* (A), *etc.*
Selected Related Coursework: *Programming Fundamentals, Modern Human Factors, CAAD Practice Course, Statistics for Psychology, Discrete Mathematics, Student Research Training Project, etc.*

Carnegie Mellon University, School of Architecture Pittsburgh, USA
Master of Science in Computational Design Sept. 2025-Jul. 2027

PUBLICATIONS

Wang, X., Cen, Q., Bi, W., **Ma, Y.**, Yi, X., & Li, H. *Roomify: Semantic-Preserving Style Transformation for Immersive Mixed Reality Environments.* Submitted to *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI 2026). (in submission)*

HONORS & AWARDS

National Encouragement Scholarship (Three Times, Top 20% Honored) 2021, 2022, 2024
1st Prize of 2023 Tsinghua Software Innovation and Creation Competition 2023
2nd Prize of Tsinghua Field Investigation Competition 2021
2nd Prize of Tsinghua 27th Structure Design Competition 2021
1st Prize of Tsinghua 19th Almamater Social Practice 2021

RESEARCH EXPERIENCE

Thesis: AI Agent Workflow for 2D–3D Multimodal Cultural Heritage Digitalization Beijing, China
Individual Work, Undergraduate Thesis *Mar. 2025-Jun. 2025*

- **Workflow Design & Implementation**: Built a modular AI agent system integrating LangChain, ComfyUI, and Tripo AI, enabling automated transitions from 2D images to 3D models.
- **Multimodal Integration & Evaluation:** Designed a multimodal pipeline with text–image–3D data, achieving FID 188.902 for style transfer and 85.27% contour similarity, significantly improving controllability and efficiency.
- **Innovative Application:** Applied the workflow to the Tangwangcheng archaeological site case study, generating immersive 3D assets for cultural heritage preservation and digital tourism.

Research on Multisensory Integration Design Based on EEG Experiment Beijing, China
Group Work, EEG Experiments, Machine Learning, Data Analysis *Sept. 2024-Dec. 2024*

- Designed and led 3 experiments with 8 testees, and gathered over 1 million pieces of EEG data.
- Data cleaning and preprocessing by filtering and independent component analysis (ICA), and organized into the original dataset.
- Converted the preprocessed data into epochs objects, and extracted time domain features such as mean value and variance as well as power spectral density(PSD).
- Trained four models including SVM and Random Forest to predict emotions through machine learning, and investigated the cross-impact of vision and auditory emotions.
- Proposed an application design for future urban spaces based on prediction results.

2023 Tsinghua Software Innovation and Creation Competition, 1st Prize Beijing, China
Group Work (Group Leader), User Research and UX Design *Sept. 2023-Nov. 2023*

- **Research and Analysis:** Employed market research and analysis of more than 10 competing products in the pet industry.
- **Requirements Management:** Based on 50+ questionnaires and 6 high-quality user research reports, established a user requirements pool, and then analyzed the functional and information architecture diagrams by Persona and Hierarchical Task Analysis (HTA);
- **Prototyping:** Low-fidelity prototyping with Figma, and 20+ high-fidelity pages after refining page interaction logic.

INTERN EXPERIENCE

Institute of Network Sciences and Cyberspace, Tsinghua University Beijing, China
Group Work, User Research and UX Design *Jun. 2025-Aug. 2025*

- **System Development:** Designed an end-to-end VR pipeline that captures real indoor scenes, applies semantic 3D understanding (SpatialLM), and reconstructs immersive environments with user-defined styles.
- **Technical Innovation**: Integrated **AI-driven object decomposition, stylized prompt generation, and Tripo3D modeling**, ensuring functional, stylistic, and environmental consistency across transformed spaces.
- **User Studies**: Conducted **two experiments with 24 participants** (VR users & design students), demonstrating improved immersion, safety, and creative expressiveness compared to baseline MR/VR systems.

SKILLS

Graphic & Rendering: Adobe Suite, AutoCAD, Enscape, D5 Render
Modeling: Rhino, SketchUp, Grasshopper
Game Engine: Unity
UX Design: Figma
Data Analysis: SPSS, R
Language: Mandarin (Native), English, Japanese (Basic)
Coding: Python
Film Editing: Adobe Premiere, FinalCut Pro
Fabrication: CNC, 3D Printing
AIGC: Stable Diffusion, ComfyUI