Sihui Lin

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RESEARCH INTERESTS

I study how people perceive, understand, and interact with intelligent systems, particularly in spatial and visual contexts. My work combines human-computer interaction, visual computing, and data-driven simulation to build human-centered tools that connect machine intelligence with real-world experience.

EDUCATION

2026 – 2028 **Carnegie Mellon University (CMU)**
M.S. Computational Design | Merit Scholarship ($57,000)

2022 – 2026 **University of California, Los Angeles (UCLA)**
B.S. Statistics and Data Science, B.A. Architectural Studies | GPA: 3.93/4.0
Courses: Computation & Optimization, Statistical Modeling & Data Mining, Monte Carlo Methods, Data Analysis & Regression, Computational Statistics, Design & Analysis of Experiments

EXPERIENCE

Jun – Aug 2026 **Autodesk**
San Francisco, CA *HCI and Visualization Research Intern* | advisors: Bon Aseniero, Esen Tütüncü

- Created an immersive Three.js narrative to explore generative agent simulations and test site design interventions, contributing to a demo at Autodesk University.
- Implemented a multimodal agent pipeline combining LLM reasoning with segmentation-grounded VLM perception to model persona-specific environmental comfort.

Oct 2025 – Mar 2026 **UCLA Perceptual Processing and Computation Lab**
Los Angeles, CA *Research Assistant* | advisor: Zili Liu

- Built three interactive Unity VR environments to visualize vision transformer attention across perceptual layers in real time, enabling spatial inspection of model behavior.
- Designed an embodied navigation system linking machine learning outputs with user navigation.

Jun 2025 – Jun 2026 **UCLA cityLAB**
Los Angeles, CA *Undergraduate Research Fellow* | mentors: Dana Cuff, Yang Yang

- Developed participatory mapping interfaces and digital research archives for spatial justice initiatives, translating community research needs into accessible interactive tools.

INDEPENDENT PROJECTS

2025 **Encoding Transitions** | project page

- Designed a masked TimeSformer pipeline that encodes spherical 3D isovists as depth-panorama sequences and learns threshold patterns from synthetic spatial typologies.
- Transferred the learned representations to architectural case studies to identify geometric signatures of perceptual transitions along movement paths.

2025 **Invisible City** | project page

- Built a procedurally generated point-cloud city in Unity with memory-dependent visibility, where perceived spaces persist and forgotten regions decay over time.
- Trained three reinforcement-learning navigation policies and integrated Grasshopper/Python generation, C# runtime logic and HLSL rendering.

CONFERENCES

1. Ziyan Xie, Sihui Lin (2026). “See/Saw: Embodied Probing of Vision Transformer Attention in Virtual Reality”. In *ACM Special Interest*

Group on Computer Graphics and Interactive Techniques Conference Posters (SIGGRAPH Posters'26), Los Angeles, CA. (**Student Research Competition 2nd Place**) paper

2. Sihui Lin (2026). "Encoding Transitions: Self-Supervised Learning of Architectural Thresholds". In *Proceedings of the 31st Computer-Aided Architectural Design Research in Asia* (CAADRIA'26), Hsinchu, Taiwan. paper

3. Sihui Lin (2025). "Invisible City: Simulating Movement, Perception, and Memory". Exhibited at the *18th International Conference on Interactive Digital Storytelling* (ICIDS'25), Valletta, Malta.

AWARDS

2026 **Barbara Bestor Scholarship** ($5,000), Association for Women in Architecture Foundation

2025 **Edith and Lew Wasserman Scholarship** ($6,000), UCLA Undergraduate Research Center

2025 **William Andrews Clark Memorial Library Research Prize**, UCLA

2025 **cityLAB Undergraduate Fellow Award**, UCLA cityLAB

2024 **James T. Henry and Meredith Henry Scholarship** ($4,000), UCLA Undergraduate Research Center

SKILLS

Computer Aided Design
Unity, Unreal Engine, Rhino 3D, Grasshopper, Blender, Adobe Creative Suite, Figma, ArcGIS, QGIS

Programming
Python, C++, C#, R, SQL, HTML/CSS, JavaScript, Three.js, Git/GitHub

Machine Learning
PyTorch, TensorFlow, Scikit-learn, OpenCV, Keras