

Dr. Wuwu Ran

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PROFILE

Researcher and designer specialising in AI-Driven Urbanism, Smart Cities and Digitally Augmented Public Spaces. PhD (Architecture, University of Liverpool, 2025). Research expertise in media architecture, computational urban analytics and immersive technologies (VR/AR), with publications at leading international conferences like ACADIA and Media Architecture Biennale (accepted). Experienced in large consortia grant applications (contributor to a £6.75M AHRC Creative Cluster). Bilingual English/Mandarin with a UK–China practice background (Shanghai SUPDRI).

EDUCATION

University of Liverpool, Centre for Architecture and Visual Arts

PhD in Architecture

Liverpool, UK

April 2020 – June 2025

- Supervisor: Prof. Richard Koeck, Dr. Francesca Piazzoni.
- Thesis: Chinese Urban Screens Evolution
- Specialisation: Urban Screens, AI-Driven Urban Analysis, VR-Based Spatial Visualisation, Augmented Public Spaces
- Mixed-methods research combining ethnography, interviews, AI-driven typology analysis, and VR-based user testing; Developed APSI framework to evaluate digitally enhanced urban environments, integrating social, cultural, and spatial quality dimensions.

University of Sheffield

Master of Arts in Urban Design

Sheffield, UK

September 2018– September 2019

- Thesis: 'Careful Urban Renewal' – Participatory design fieldwork in Kreuzberg, Berlin
- Studio focus: Inclusive urban design engaging diverse stakeholders in social housing contexts

Soochow University

Bachelor of Landscape Architecture

Soochow, China

September 2009 – June 2013

RESEARCH EXPERIENCE & EXPERTISE (SELECTED)

Augmented Public Space Index (APSI) Development | 2023–2024

- Authored comprehensive quality assessment framework for digitally augmented public spaces, advancing the established Public Space Index (PSI) by integrating media urbanism theory
- Developed metrics for evaluating social, experiential, environmental, and governance quality dimensions applicable to smart city planning and responsible technology deployment
- Framework provides reproducible methodology for urban planners and designers working with digital twins, urban screens, and IoT-enabled public spaces (manuscripts in preparation).

VR-Based Urban Spatial Practice Simulation | 2022–2024

- Addressed risks of social decline in public spaces posed by ubiquitous immersive devices by using design fiction to create XR prototypes.
- Built interactive systems with Unity, Arduino, and TouchDesigner to revitalise urban environments through *phygital* feedback loops. (manuscripts in preparation)

Machine Learning-Driven Urban Morphology Analysis | 2022–2023

- Developed AI-driven typological analysis of screen-based building clusters using computer vision and clustering
- Created reproducible computational methodology for urban form analysis applicable to smart city planning and urban analytics
- Demonstrated integration of AI tools with traditional urban design methodologies

Grant Development: AHRC Creative Cluster Liverpool MusicFutures (£6.75 million) | 2024

- Role: Contributing Researcher (Work Package: Immersive Experience and Creative Economies)
- Contributed to the drafting and research design of the MusicFutures funding proposal (PI: Prof. Richard Koeck).
- Assisted in developing the research framework, impact pathways, and interdisciplinary methodology, integrating music industry and creative technology approaches within creative cluster research.
- Responsible for writing background sections on immersive experience, defining research questions, and producing visual schematics for the proposal submission.

PROFESSIONAL EXPERIENCE

Shanghai Urban Planning and Design Research Institute (SUPDRI), Shanghai, China

| 2013-2018

Urban Designer & Planner

- Developed conceptual urban and architectural plans from client briefings, research, and site visits through to sketches, presentations, and iterative revisions, coordinating with managers to finalise accurate documentation and contract specifications.
- Contributed to 20+ large-scale urban design and regeneration projects (5–180 km²) across China, focusing on ecological planning, sustainable urban development, heritage preservation, and industrial area upgrading
- Independently responsible for key design components such as ecological landscape systems, sponge city strategies, water heritage protection, and urban quality improvement frameworks; collaborated with international design teams on open competitions.
- Orchestrated collaborations between municipal authorities, private developers, and design consultancies to ensure seamless implementation of urban development initiatives.
- Contributed to the Shanghai Urban Master Plan (2017–2035) research project on urban design system reform and co-authored two chapters in the official Lujiazui Financial and Trade Zone Planning publication (China Architecture & Building Press, 2015).
- Projects received multiple national and provincial awards including 3rd Prize China National Urban & Rural Planning Excellence (2019), 2nd Prize Shandong Province (2018)

Researcher, SUPDRI Research Project

- **Special Research Project on Urban Design for the Shanghai Urban Master Plan (2017-2035)**
The System and Measures for Overall Urban Design of Shanghai | 2014-2015
Integrated welfare economics principles (Pareto Efficiency, Rawlsian justice) to classify Shanghai's urban design policies into five types. Responsible for Quality Improvement Area research focusing on underdeveloped suburbs and ageing inner-city neighbourhoods, balancing heritage preservation with spatial enhancement.
- **Infrastructure Research: 104 Industrial Area, Shanghai** | 2016 – 2017
Researched facility demands in Shanghai's 104 Industrial Area using fieldwork and GIS analysis. Developed spatially equitable solutions to improve resource distribution and urban functionality for industrial communities.

PUBLICATIONS (SELECTED)

- Ran, W. (2025, November). 'The Evolution and 'Chineseness' of Urban Screens in China'. Media Architecture Biennale 2025 (MAB25), Bangkok, Thailand. (Accepted)
- Ran, W. (2024). 'Challenging Surveillance Capitalism in Urban Public Spaces Through Gamified Spatial Practice Simulation with Virtual Reality: A Case Study of Piccadilly Circus'. ASCAAD 2024 Conference Proceedings, Barcelona, pp. 553-564.
- Ran, W., Yin, L., & Yu, J. (2023). 'Machine Learning-driven Comparative Study: Morphological Taxonomy in Screen-Based Building Clusters'. ACADIA 2023 Conference Proceedings, Denver, pp. 596-605.
- Ran, W. (2018). 'Ecological Water Environment Planning with Lingnan Water Town Characteristics: A Case Study of the Urban Design for Foshan University Town Satellite City', Regional Governance, 186–188.
- He, H., Gao, Q., Shen, X., Wang, M., Ran, W., et al. (2015). Lujiazui: Where All Dreams Begin – Collection of Shanghai Lujiazui Finance and Trade Zone Planning and Construction Series, China Architecture & Building Press. ISBN 978-7-112-18439-2.

ACADEMIC ACTIVITIES & KNOWLEDGE-EXCHANGE EXPERIENCE

- **Conference Presentations:** ASCAAD Conference (Mixed Realities session), Barcelona, 2024; ACADIA Conference (Gestured Sequences session), Denver, 2023; ANPC (Urban & Rural Planning in Mountainous Regions session), Guiyang, 2015.
- **Workshop:** Participant and Group Leader, DigitalFUTURES Global Workshop (Tongji University), Interactive Content Design in Mixed Reality, 2022 and 2023.
- **Volunteer Conference Organiser,** Media Architecture Biennale (MAB) | Toronto, 2023

TECHNICAL EXPERTISE

- **Urban Analytics & Computational Design:** GIS, Python, Rhino/Grasshopper, Blender
- **Smart Cities & AI Tools:** Machine learning (computer vision, clustering), digital twins, data visualisation
- **Immersive Technologies:** Unity (C#), TouchDesigner, VR/AR development, Arduino
- **Certifications:** Google Project Management Professional Certificate; Certified Intermediate Professional Engineer (Shanghai Housing and Urban-Rural Construction Committee)
- **Languages:** English (Fluent), Mandarin (Native)