



Xu Zhang

ZHANG Xu is a design researcher and data analyst at CCIG, with a Master of Design from Macau University of Science and Technology and a Bachelor of Drama and Film Studies from ShanDong College of Art. His work bridges interior design, visual communication, environmental psychology, user behavior, and computational decision analysis.

His recent research uses Rough Set Theory, DANP, DEMATEL, SEM, machine learning, regression, and clustering methods to examine how built environments, campus green spaces, graffiti, public health advertising, and design attributes shape perception, behavior, restoration, and decision-making outcomes.

Research interests: Multi-Attribute Decision Making; Machine Learning; Design Decision Analytics; User Behavior and Experience; Interdisciplinary Design Research; Design and Environmental Sustainability; Decision-making Optimization; Design and Urban Social Culture.

M.Des. MUST; B.A. SDCA; Data Analyst, CCIG

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Academic qualification

Master of Design 設計學碩士, Macau University of Science and Technology
澳門科技大學

Macau, China · 2022.09–2024.07 · Major: Interior Design 室內設計

Bachelor of Drama and Film Studies 戲劇與影視學學士, ShanDong College of Art
山東藝術學院

Jinan, Shandong Province, China · 2018.09–2022.07 · Major: Animation-Digital Drawing
動畫-數字繪畫

Present academic / professional positions

Data Analyst 數據分析師, CCIG 集智 (珠海) 國際文化發展有限公司

Zhuhai, China · 2024.06–present · Responsible for web crawling, experimental-data collection and organization, data preprocessing, and machine-learning-based analysis.

Intern Designer 實習設計師, 山東實創整裝裝飾集團有限公司

Jinan, China · 2023.06–2023.09 · Assisted designers with scheme development, construction drawings, and material selection.

Awards and practice

- 抗擊“新冠肺炎”公益宣傳設計全球徵集活動 · 入選作品 · 2019.06
- 山東省博物館國寶手繪高校聯合活動 · 入圍獎 · 2019.11
- 濟南市青年美術家協會 · 會員 · 2022.05
- “華夏獎”文化藝術設計大賽 · 銅獎 · 2024.06

Research

Cross-disciplinary design decision-making and behavior research

跨學科設計決策與行為研究 · 2023–present

– Environmental perception and behavior mechanisms: uses mixed methods including RST, DANP, DEMATEL, and machine learning to examine how graffiti, campus green spaces, and public health advertisements influence perception and behavioral decisions.

– Design decision optimization: develops and applies hybrid decision-analysis frameworks such as RST-DEMATEL and mV models for nursing-home information design, EV front-face design, jersey design, and related design-decision scenarios.

– User behavior and consumer psychology: integrates Q methodology and DEMATEL to study blind-box consumption and fan identity, revealing heterogeneous psychological drivers and design-intervention strategies.

– Metaverse and virtual space generation: explores automatic generation of virtual urban tourist-destination spaces based on user preference.

Publication

How Graffiti and Surroundings Shape Visitor' s Perceived Safety: A Multiple Conjunctural Causation Analysis

Published · Cities · SCI Q1 · 2025.09 · Co-first author

Rule Sets for Identifying Conditional Attributes of Campus Green Spaces with Enhanced Mental Restoration Effect

Published · Journal of Urban Planning and Development · SSCI Q3 · 2024.10

Building Community Resilience through Visual Communication: A Theoretical Framework for the Impact of Outdoor Public Health Advertising on Health Perceptions and Behaviors

Under review · Patient Education and Counseling · SSCI Q1 · 2025.10 · First author

A Hybrid Rough Set and DANP-mV Approach to Identify Causal Patterns in Kansei Engineering

Under review · Journal of Engineering Design · SCIE Q1 · 2025.03

Influence Mechanisms of High-End Nursing Home Information Attributes on Consumer Click-Through in Online Channels: An Integrated RSA-DEMATEL Approach

Under review · Social Science & Medicine · SSCI Q1 · 2025.04

The Resonance of 'Wearing the Jersey': An Examination of How Jersey Design Influences Fans' Identity Based on RST-DEMATEL Modeling

Under review · Soccer & Society · SSCI Q3 · 2025.07 · First author

How does the psychological mechanism of blind box consumers affect consumption behavior: a hybrid tQ-DEMATEL approach

Submitted · Journal of Retailing and Consumer Services · SSCI Q1 · 2025.10 · First author

Automatic generation of virtual urban spaces of tourist destination using user preference in the Metaverse

In progress · Target: Technological Forecasting & Social Change · SSCI Q1 · 2025.10

Research Project

Analysis of Design Decision-Making Pathways for Integrating Traditional Intangible Cultural Heritage Furniture into Modern Furniture Lifestyle Settings Based on a Quality-Oriented Mixed-Methods Research Approach

2024 · 基於品質結合研究方法探討傳統非遺傢俱融入新時代傢俱生活場之設計決策路徑分析

This project studies how Lingnan rosewood furniture can be sustainably integrated into contemporary home-living scenarios through interviews, sales/image data, machine-learning-based visual-feature recognition, embodied user-experience experiments, and multi-objective design optimization.

Improvement ideas for the visual communication design of outdoor public health advertisements in old communities of large cities: Evidence from Guangzhou, China

2024 · 大城市老舊社區戶外公共衛生廣告的視覺傳達設計改進思路：來自中國廣州的證據

The study clarifies visual information communication mechanisms in outdoor public health advertising in old communities, tests effects on health literacy and community belonging, extracts significant visual-communication design factors, and develops improvement strategies using Chebei Community in Guangzhou as the case.

Selected manuscripts

[1] How Graffiti and Surroundings Shape Visitor's Perceived Safety: A Multiple Conjunctural Causation Analysis

Published · Cities · SCI Q1 · 2025.09 · Co-first author

Co-author: Yue Mao, Xu Zhang, Bo-Wei Zhu, Lei Xiong*, Guan-Qiang Wang*, Zi-Jie Zou, Gwo-Hshiung Tzeng

[2] Rule Sets for Identifying Conditional Attributes of Campus Green Spaces with Enhanced Mental Restoration Effect

Published · Journal of Urban Planning and Development · SSCI Q3 · 2024.10

Co-author: Bo-Wei Zhu, Cong-Wu Feng, Lei Xiong, Wei-Quan Zheng*, Guan-Qiang Wang*, Xu Zhang, Gwo-Hshiung Tzeng

[3] Building Community Resilience through Visual Communication: A Theoretical Framework for the Impact of Outdoor Public Health Advertising on Health Perceptions and Behaviors

Under review · Patient Education and Counseling · SSCI Q1 · 2025.10 · First author

Co-author: Xu Zhang, Yue Mao, Lei Xiong*, Bo-wei Zhu

[4] A Hybrid Rough Set and DANP-mV Approach to Identify Causal Patterns in Kansei Engineering

Under review · Journal of Engineering Design · SCIE Q1 · 2025.03

Co-author: Yi-Fan Zhang, Xu Zhang, Bo-Wei Zhu, Lei Xiong*

[5] Influence Mechanisms of High-End Nursing Home Information Attributes on Consumer Click-Through in Online Channels: An Integrated RSA-DEMATEL Approach

Under review · Social Science & Medicine · SSCI Q1 · 2025.04

Co-author: Yue Mao, Zi-Jie Zou, Xu Zhang, Si-Jie Li, Guan-Qiang Wang, Gwo-Hshiung Tzeng, Bo-Wei Zhu

[6] The Resonance of 'Wearing the Jersey': An Examination of How Jersey Design Influences Fans' Identity Based on RST-DEMATEL Modeling

Under review · Soccer & Society · SSCI Q3 · 2025.07 · First author

Co-author: Xu Zhang, Yue Mao, Zi-Jie Zou, Lei Xiong*, Guan-Qiang Wang*

[7] How does the psychological mechanism of blind box consumers affect consumption behavior: a hybrid tQ-DEMATEL approach

Submitted · Journal of Retailing and Consumer Services · SSCI Q1 · 2025.10 · First author

Co-author: Xu Zhang, Yue Mao, Zhan-yan Zhou, Yu-yi Zheng, Dan-ni Mei, Lei Xiong, Bo-Wei Zhu*

[8] Automatic generation of virtual urban spaces of tourist destination using user preference in the Metaverse

In progress · Target: Technological Forecasting & Social Change · SSCI Q1 · 2025.10

Co-author: Wang-Yang Lin, Meng-Chen Zhang, Kai-Yang Wang, Xu Zhang, Bo-Wei Zhu, Lei Xiong*

Skills

Research methods: Rough Set Theory (RST), DEMATEL, T-test method, SEM, AHP, ANP, LDA, regression analysis, clustering analysis.

Tools: SPSS, Python, Amos, Rose 2, Nvivo, Depthmap, Adobe Photoshop, Adobe InDesign, 3dMax, SketchUp, Rhino.

Research interests

- Multi-Attribute Decision Making 多屬性決策
- Machine Learning 機器學習
- Design Decision Analytics 設計決策分析
- User Behavior and Experience 用戶行為與體驗
- Interdisciplinary Design Research 跨學科設計研究
- Design and Environmental Sustainability 設計與環境可持續性
- Decision-making Optimization 決策優化
- Design and Urban Social Culture 設計與城市社會文化