

Chen Junming



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Research Areas

Application and improvement of artificial intelligence in digital media, design and architecture; Image generation; Design automation; Aging adaptation

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Individual Resume

Chen Junming has a multidisciplinary background and engages in interdisciplinary research. He holds backgrounds in architecture, design, computer science, and a Ph.D. in digital media. Since 2017, he has been working at the Faculty of Humanities and Arts at the University of Macau, focusing on the application and improvement of artificial intelligence in digital media, design, and architecture. He excels in using parametric and AI technologies in his design practice, having mentored students to complete multiple completed projects and winning over ten international and national design awards, including the A Design Award and Huachan Awards. He is also a certified senior data analyst by the Ministry of Industry and Information Technology. Additionally, his papers have been published in SCI TOP journals, A&HCI, SSCI, and CCF core journals, totaling 24 articles, with 7 as first authors and 7 as corresponding authors. He serves as a reviewer for over 20 SCI and SSCI journals, including 13 JCR Q1 journals, and is a member of the editorial board and guest editor for some SCI journals.

Education Background

2021 - 2024 Macau University of Science and Technology / Digital Media / PhD
2019 - 2021 Macau University of Science and Technology / Applied Mathematics and Data Science / Master
2015 - 2017 Macau University of Science and Technology / Cultural Heritage Conservation / Master
2011 - 2015 Guangzhou College of South China University of Technology / Architectural Design / Bachelor

Work Experience

2025 - at present Macau University of Science and Technology / Faculty of Humanities and Arts / Assistant Professor、 Master supervisor
2017 - 2024 Macau University of Science and Technology / Faculty of Humanities and Arts / Laboratory Technician

Journal Publication

*Corresponding author

1. Peng, Y., Hu, Q., Xu, J., U, K., & **Chen, J.*** (2025). A Novel Deep Learning Zero-Watermark Method for Interior Design Protection Based on Image Fusion. *Mathematics*, 13(6), 947. (SCI JCR Q1)
[Doi:10.3390/math13060947](https://doi.org/10.3390/math13060947)
2. Lei Liang, **Chen, J.***, Jiawei Shi*, Kai Zhang, Xiaodong Zheng. (2025) Noise -Robust Image Edge Detection Based on Multi-Scale Automatic Anisotropic Morphological Gaussian Kernels. *PLOS One*, (SCI JCR Q1)
[Doi:10.1371/journal.pone.0319852](https://doi.org/10.1371/journal.pone.0319852)
3. Zhou, Y., Liu, Y., Shao, Y., & **Chen, J.*** (2025). Fine-tuning diffusion model to generate new kite designs for the revitalization and innovation of intangible cultural heritage. *Scientific Reports*, 15(1), 7519. (SCI JCR Q1)
[Doi:10.1038/s41598-025-92225-z](https://doi.org/10.1038/s41598-025-92225-z)
4. Liu, X., Wang, F., Zeng, H., Chen, Y., Zheng, L., & **Chen, J.*** (2025). PRNet: A Priori Embedded Network for Real-World Blind Micro-Expression Recognition. *Mathematics*, 13(5), 749. (SCI JCR Q1)
[Doi:10.3390/math13050749](https://doi.org/10.3390/math13050749)
5. Zou, Z., Zeng, H., Zheng, X., & **Chen, J.*** (2025). Research on Multi-Center Path Optimization for Emergency Events Based on an Improved Particle Swarm Optimization Algorithm. *Mathematics*, 13(4), 654. (SCI JCR Q1)
[Doi:10.3390/math13040654](https://doi.org/10.3390/math13040654)
6. Lai, Y., **Chen, J.**, Chen, Y., Zeng, H., & Cai, J. (2025). Feedback Tracking Constraint Relaxation Algorithm for Constrained Multi-Objective Optimization. *Mathematics*, 13(4), 629. (SCI JCR Q1)
[Doi:10.3390/math13040629](https://doi.org/10.3390/math13040629)
7. Wang, T., Chen, Y., Wei, Z., **Chen, J.**, Fang, J., Dong, Z., & Zheng, L. (2025). Images of Architectural Landmarks Integrated into Spatial Vision Based on Urban Image Theory: A Case Study on the Wuhan Design Biennale Exhibition Space. *Buildings*, 15(4), 530. (SCI JCR Q2)
[Doi:10.3390/buildings15040530](https://doi.org/10.3390/buildings15040530)
8. Yang, S., Chen, Y., Zheng, L., **Chen, J.**, Huang, Y., Huang, Y., ... & Hu, Y. (2025). Investigating and Identifying the Surface Damage of Traditional Ancient Town Residence Roofs in Western Zhejiang Based on YOLOv8 Technology. *Coatings*, 15(2), 205. (SCI JCR Q2)
[Doi:10.3390/coatings15020205](https://doi.org/10.3390/coatings15020205)
9. Zhang, K., Zhao, S., Zeng, H., & **Chen, J.*** (2025). Two-Stage Archive Evolutionary Algorithm for Constrained Multi-Objective Optimization. *Mathematics*, 13(3), 470. (SCI JCR Q1) [Doi:10.3390/math13030470](https://doi.org/10.3390/math13030470)
10. Tang, Q., Zheng, L., Chen, Y., **Chen, J.**, & Yang, S. (2025). Innovative Design Method for Lingnan Region Veranda Architectural Heritage (Qi-Lou) Facades Based on Computer Vision. *Buildings*, 15(3), 368. (SCI JCR Q2) [Doi:10.3390/buildings15030368](https://doi.org/10.3390/buildings15030368)
11. Liu, Z., Zeng, H., & **Chen, J.*** (2025). Faith' s Frontiers: An Exploration of Religious Syncretism and Cultural Adaptation in the “Guanyin/Madonna and Child ” Painting. *Religions*, 16(1), 36. (A&HCI)
[Doi:10.3390/rel16010036](https://doi.org/10.3390/rel16010036)

12. Cheng, M., Qiao, W., **Chen, J.**, & Li, X. (2025). Learning to Ask About Text Content in an Image with Fine-Grained Features. In *International Conference on Web Information Systems Engineering* (pp. 208-223). Springer, Singapore. (CCF C) [Doi:10.1007/978-981-96-0567-5_16](https://doi.org/10.1007/978-981-96-0567-5_16)
13. Tang, Q., Zheng, L., Chen, Y., **Chen, J.**, & Yang, S. (2025). Innovative Design Method for Lingnan Region Veranda Architectural Heritage (Qi-Lou) Facades Based on Computer Vision. *Buildings*, 15(3), 368. (SCI JCR Q2) [Doi:10.3390/buildings15030368](https://doi.org/10.3390/buildings15030368)
14. Zeng, H., Zhu, J., Lin, H., & **Chen, J.** (2024). Older Users Acceptance of Smart Products: An Extension of the Technology Acceptance Model. *IEEE Access*. (SCI JCR Q2) [Doi:10.1109/ACCESS.2024.3383925](https://doi.org/10.1109/ACCESS.2024.3383925)
15. Liu, R., Pang, W., **Chen, J.**, Balakrishnan, V. A., & Chin, H. L. (2024). The application of scaffolding instruction and AI-driven diffusion models in children ' s aesthetic education: A case study on teaching traditional chinese painting of the twenty-four solar terms in chinese culture. *Education and Information Technologies*, 1-32. (SSCI JCR Q1) [Doi:10.1007/s10639-024-13135-7](https://doi.org/10.1007/s10639-024-13135-7)
16. **Chen, J.**, Zheng, X., Shao, Z., Ruan, M., Li, H., Zheng, D., & Liang, Y. (2024). Creative interior design matching the indoor structure generated through diffusion model with an improved control network. *Frontiers of Architectural Research*. (A&HCI , JCR Q1, Ranking : 1/97) [Doi:10.1016/j.foar.2024.08.003](https://doi.org/10.1016/j.foar.2024.08.003)
17. **Chen, J.**, Zhang, K., Zeng, H., Yan, J., Dai, J., & Dai, Z. (2024). Adaptive Constraint Relaxation-Based Evolutionary Algorithm for Constrained Multi-Objective Optimization. *Mathematics* (2227-7390), 12(19). (SCI JCR Q1) [Doi:10.3390/math12193075](https://doi.org/10.3390/math12193075)
18. Shao, Z., **Chen, J.**, Zeng, H., Hu, W., Xu, Q., & Zhang, Y. (2024). A New Approach to Interior Design: Generating Creative Interior Design Videos of Various Design Styles from Indoor Texture-Free 3D Models. *Buildings*, 14(6), 1528. (SCI JCR Q2) [Doi:10.3390/buildings14061528](https://doi.org/10.3390/buildings14061528)
19. **Chen, J.**, Shao, Z., Zheng, X., Zhang, K., & Yin, J. (2024). Integrating aesthetics and efficiency: AI-driven diffusion models for visually pleasing interior design generation. *Scientific Reports*, 14(1), 3496. (SCI JCR Q1) [Doi:10.1038/s41598-024-53318-3](https://doi.org/10.1038/s41598-024-53318-3)
20. **Chen, J.**, Shao, Z., Cen, C., & Li, J. (2024). HyNet: A novel hybrid deep learning approach for efficient interior design texture retrieval. *Multimedia Tools and Applications*, 83(9), 28125-28145. (SCI JCR Q2, CCF C) [Doi:10.1007/s11042-023-16579-0](https://doi.org/10.1007/s11042-023-16579-0)
21. Cheng, W., Chu, Y., Xia, C., Zhang, B., **Chen, J.**, Jia, M., & Wang, W. (2023). UrbanGenoGAN: pioneering urban spatial planning using the synergistic integration of GAN, GA, and GIS. *Frontiers in Environmental Science*, 11, 1287858. (SCI JCR Q2) [Doi:10.3389/fenvs.2023.1287858](https://doi.org/10.3389/fenvs.2023.1287858)
22. **Chen, J.**, Shao, Z., Zhu, H., Chen, Y., Li, Y., Zeng, Z., ... & Hu, B. (2023). Sustainable interior design: A new approach to intelligent design and automated manufacturing based on Grasshopper. *Computers & Industrial Engineering*, 183, 109509. (JCR Q1) [Doi:10.1016/j.cie.2023.109509](https://doi.org/10.1016/j.cie.2023.109509)

23. **Chen, J.**, Wang, D., Shao, Z., Zhang, X., Ruan, M., Li, H., & Li, J. (2023). Using artificial intelligence to generate master-quality architectural designs from text descriptions. *Buildings*, 13(9), 2285. (SCI JCR Q2)
[Doi:10.3390/buildings13092285](https://doi.org/10.3390/buildings13092285)
24. **Chen, J.**, Shao, Z., & Hu, B. (2023). Generating interior design from text: A new diffusion model-based method for efficient creative design. *Buildings*, 13(7), 1861. (SCI JCR Q2) [Doi:10.3390/buildings13071861](https://doi.org/10.3390/buildings13071861)

Research Grands

1. In 2023, Guangdong Provincial Philosophy and Social Science Planning Project "Research on the Path and Countermeasures of Art Intervention in Rural Revitalization in The Guangdong-Hong Kong-Macao Greater Bay Area" Project number: GD23XYS036 (participated, in progress)

Academic Institutions and Social Positions

Served as a journal reviewer

1. International Journal of Applied Earth Observation and Geoinformation, (SCI, JCR Q1)
2. IEEE Access, (SCI, JCR Q2)
3. Advanced engineering informatics, (SCI, JCR Q1)
4. Engineering applications of artificial intelligence, (SCI, JCR Q 1)
5. Automation in construction, (SCI, JCR Q1)
6. BMC Psychology, (SSCI, JCR Q2)
7. Scientific Reports, (SCI, JCR Q 1)
8. Neural networks, (SCI, JCR Q1)
9. Education and Information Technologies, (SSCI, JCR Q1)
10. Computers & Industrial Engineering (SCI, JCR Q1)
11. Imaging Science Journal, (SCI)
12. Applied Sciences, (SCI, JCR Q1)
13. Buildings, (SCI, JCR Q2)
14. Sustainability, (SSCI, JCR Q2)
15. Applied Soft Computing, (SCI, JCR Q1)
16. PloS one, (SCI, JCR Q1)
- 17 Cluster Computing, (SCI, JCR Q1)
18. Ain Shams Engineering Journal, (SCI, JCR Q1)
19. Visual Computer (SCI, JCR Q2)
20. Land (SSCI JCR Q2)
21. Archives of Computational Methods in Engineering, (SCI, JCR Q1)
22. Sensors (SCI, JCR Q2)

Served as a journal editor

Buildings Guest editor (SCI, JCR Q2)

Invention Patent

1. A patented energy-saving ventilation structure for building design: ZL 2021 1 1674196.9 (authorized)
2. Construction method, device, computer equipment and storage medium Application number: 202210775876.8 (substantive examination)

Award

2024	Municipal level	China International Space Design Competition	Silver Award	"Huiyuedu Bookstore"
2023	International level	A Design Award	Silver Award	Cross-Multifunctional Bookstore
2023	International level	A Design Award	Silver Award	Parametric generation
2023	International level	A Design Award	Winner	Generate images from lines
2023	International level	A Design Award	Winner	Technology Inheritance
2023	National level	Cross-strait New Talent Design Competition. Huachan Award	National Excellence Award	Intelligent design and rendering-interior design and rendering generation with the collaboration of designers and artificial intelligence
2023	National level	Cross-strait New Talent Design Competition. Huachan Award	National Excellence Award	Shi Le Yuan-an indoor trampoline park for children to run and jump
2023	National level	Cross-strait New Talent Design Competition. Huachan Award	National Excellence Award	Parametric town building--inheriting and innovating the culture of eastern Sichuan with Grasshopper technology
2022	Industry level	Anta. Global Sports Equipment Innovation Design Competition	Bronze (prize 50,000)	The work is titled "Meteor Series: Design of Smart Gymnastics Training Clothes and Sports Fashion"
2021	Municipal level	China International Space Design Competition	Bronze	"Shusheng" Xinhua Bookstore design