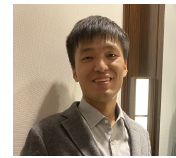


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Research

- Multiscale modeling of concrete material
- Meso-macro translation of durability simulation
- Trans-scale deterioration intelligent evaluation

Education

- 2023 – ···· ■ **Ph.D., Vienna University of Technology (TU Wien)** in Civil Engineering (Professor Bernhard Pichler).
Thesis title: *Durability analysis of bridge structures in a mesoscopic and multiphysics approach.*
- 2019 – ···· ■ **Ph.D., Tongji University** in Civil Engineering (Professor Xin Ruan).
Thesis title: *The theory of the bridge concrete multi-scale modeling and the intelligent prediction of structural durability.*
- 2016 – 2018 ■ **M.E. Tongji University** in Architecture and Civil Engineering (Professor Xin Ruan).
Thesis title: *The meso-macroscopic translation method on the simulation of bridge concrete component chloride ingress.*
- 2012 – 2016 ■ **B.E. Hebei University of Technology** in Road and Bridge Engineering.

Experiences

- 2022 – ···· ■ **Visiting Ph.D. Student** in imws, TU Wien, Austria, (Professor Bernhard Pichler).
Research work: *The prediction of bridge concrete structural durability with multiscale method.*
- 2019 – 2020 ■ **Visiting Research Fellow** in Department of Civil and Environmental Engineering, Waseda University, Japan, (Professor Mitsuyoshi Akiyama).
Research Project: *Durability test of SFRC and material modeling based on X-ray image.*
- 2016 – 2016 ■ **Internship.** in BOLINA Ingegneria s.r.l, Italy, (Professor Tobia Zordan).
Research Project: *Calculation of wind load and check of construction plan, Matagarup Bridge, Perth, Australia.*

Publications

Journal Articles

- 1 Y. Li, X. Ruan, and W. Dou, "Early age behavior of clustered shearing connector pocket in bridge composite girder," *Construction and Building Materials*, vol. 368, p. 130 465, 2023.
- 2 Y. Li, X. Ruan, Y. Yi, and L. Xu, "Multiphysics simulation for concrete early-age hydration behavior with mesoscopic modelling," *Construction and Building Materials*, vol. 362, p. 129 780, 2023.
- 3 Y. Li, X. Ruan, and Z.-Y. Yin, "Mesoscopic simulation method of concrete carbonization based on diffusion path mapping (in chinese)," *Journal of Tongji University (Natural Science Edition)*, vol. 51, no. 1, pp. 58–66, 2023.
- 4 Y. Li, X. Ruan, T. Zhang, B. Fu, and H. Zeng, "Durability design and construction enhancing of concrete structures in mesoscopic approach: A case study of a large-scale anchorage structure," *Case Studies in Construction Materials*, vol. 19, e02404, 2023.

- 5 L. Xu, X. Ruan, T. Fang, Y. Wei, and **Y. Li**, “3d morphology reconstruction-based modelling and mechanical degradation study of corroded low alloy steel specimens,” *Construction and Building Materials*, vol. 400, p. 132 649, 2023.
- 6 M. Zhang, X. Ruan, **Y. Li**, and B. Fu, “Probability-based surface deterioration assessment of bridge pylon and state updating using inspected crack length distribution,” *Structure and Infrastructure Engineering*, pp. 1–19, 2023.
- 7 **Y. Li**, X. Ruan, M. Zhang, and W. Dou, “Rc structures life-cycle probabilistic evaluation method considering mesoscopic material uncertainty with chloride ingress,” *Structure and Infrastructure Engineering*, vol. 18, no. 7, pp. 1034–1048, 2022.
- 8 Z. Ma, **Y. Li**, Z. Cao, *et al.*, “Early age shrinkage and mechanical effect of ultra-high-performance concrete composite deck: A case study with in situ test and numerical simulation,” *Materials*, vol. 15, no. 10, p. 3628, 2022.
- 9 H. Yang, X. Zhao, L. Fu, X. Ruan, **Y. Li**, and D. Chen, “Study of periodical temperature change induced deformation of an inclined steel arch bridge exposed to actual environment based on synchronous multi-member thermal simulation,” *Sustainability*, vol. 14, no. 16, p. 10 042, 2022.
- 10 M. Zhang, X. Ruan, and **Y. Li**, “Corrosion initiation in marine concrete members considering spatial correlation of porosity: A mesoscale probabilistic analysis,” *Materials and Structures*, vol. 55, no. 7, p. 168, 2022.
- 11 M. Zhang, B. Zhou, X. Ruan, and **Y. Li**, “A 3d random porous media model for cement mortar based on x-ray computed tomography,” *Construction and Building Materials*, vol. 341, p. 127 750, 2022.
- 12 **Y. Li**, X. Ruan, M. Akiyama, M. Zhang, J. Xin, and S. Lim, “Modelling method of fibre distribution in steel fibre reinforced concrete based on x-ray image recognition,” *Composites Part B: Engineering*, vol. 223, p. 109 124, 2021.
- 13 Z. Jin, X. Ruan, and **Y. Li**, “Risk evolution of on-bridge crowds through region-level floor field model,” *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, vol. 6, no. 1, p. 04 019 021, 2020.
- 14 X. Ruan, **Y. Li**, X. Zhou, Z. Jin, and Z. Yin, “Simulation method of concrete chloride ingress with mesoscopic cellular automata,” *Construction and Building Materials*, vol. 249, p. 118 778, 2020.
- 15 X. Ruan, Z. Jin, H. Tu, and **Y. Li**, “Dynamic cellular learning automata for evacuation simulation,” *IEEE Intelligent Transportation Systems Magazine*, vol. 11, no. 3, pp. 129–142, 2019.
- 16 X. Ruan, **Y. Li**, Z. Jin, Z. Pan, and Z. Yin, “Modeling method of concrete material at mesoscale with refined aggregate shapes based on image recognition,” *Construction and Building Materials*, vol. 204, pp. 562–575, 2019.
- 17 Z.-r. Jin, X. Ruan, and **Y. Li**, “Evacuation simulation in narrow passage under fire scenario based on cellular automaton (in chinese),” *Journal of Tongji University (Natural Science Edition)*, vol. 46, no. 08, pp. 1026–1034, 2018.
- 18 X. Ruan, **Y. Li**, Z.-R. Jin, and Z.-C. Pan, “Review of two-dimensional meso-modeling methods of concrete aggregate (in chinese),” *Journal of Tongji University (Natural Science Edition)*, vol. 46, no. 05, pp. 0604–0612, 2018.

Conference Proceedings

- 1 **Y. Li**, X. Ruan, T. Li, and W. Dou, “Chloride ingress of concrete structure considering the effect of early-age shrinkage,” in *Life-Cycle of Structures and Infrastructure Systems*, CRC Press, 2023, pp. 4072–4077.
- 2 **Y. Li**, X. Ruan, H. A. Mang, and B. L. Pichler, “Multi-physics simulation of corrosion-induced cracking of concrete by means of a mesoscopic modeling approach,” in *FraMCoS-XI*, 1, vol. 1, 2023, pp. 1–10.

- 3 L. Xu, X. Ruan, **Y. Li**, and Z. Wang, "Intelligent parameter identification of hydration heat and field cracking classification analysis: A case study of concrete bent cap," in *Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability*, CRC Press, 2022, pp. 1226–1231.
- 4 W. Dou, **Y. Li**, and X. Ruan, "Evaluation of prefabricated column hysteretic performance with chloride ingress," in *Life-Cycle Civil Engineering: Innovation, Theory and Practice*, CRC Press, 2021, pp. 1249–1254.
- 5 Z. Jin, X. Ruan, and **Y. Li**, "Load responses analysis of a pedestrian bridge using cellular automata method," in *Bridge Maintenance, Safety, Management, Life-Cycle Sustainability and Innovations*, CRC Press, 2021, pp. 4029–4037.
- 6 **Y. Li**, X. Ruan, Z. Jin, and Z. Xu, "The multi-hazard vulnerability of bridge structure: Case study with heavy vehicle load and chloride ingress," in *Life-Cycle Civil Engineering: Innovation, Theory and Practice*, CRC Press, 2021, pp. 1551–1555.
- 7 **Y. Li**, Y. Wei, and X. Ruan, "Numerical simulation of chloride ingress effect on bridge structures," in *Bridge Maintenance, Safety, Management, Life-Cycle Sustainability and Innovations*, CRC Press, 2021, pp. 4159–4163.
- 8 L. Ren, Z. Sun, and **Y. Li**, "Understanding the interrelation between prototype cognition and creativity in interdisciplinary design course," in *Advances in Creativity, Innovation, Entrepreneurship and Communication of Design: Proceedings of the AHFE 2021 Virtual Conferences on Creativity, Innovation and Entrepreneurship, and Human Factors in Communication of Design, July 25-29, 2021, USA*, 2021, pp. 315–322.
- 9 Z. Jin, X. Ruan, and **Y. Li**, "A study of pedestrian evacuation on bridge sidewalk by simulation method," in *Maintenance, Safety, Risk, Management and Life-Cycle Performance of Bridges*, CRC Press, 2018, pp. 699–705.