

畅翔宇

18434449515 | XIANGYU005@e.ntu.edu.sg



教育经历

安徽建筑大学, 道路桥梁与渡河工程, 本科	2014.09 - 2018.06
东南大学, 工程力学, 硕士	2018.09 - 2021.06
东南大学, 研究助理	2021.06 - 2022.07
南洋理工大学, 土木工程, 博士	2022.08 – 至今

学术论文

关键词: Digital Twin, Underground Structure, Smart City, Computer Vision, Surrogate Strategy

1. **Xiangyu Chang**, Rui. Zhang, et al. 2024. Digital Twins in Transportation Infrastructure: An Investigation of the Key Enabling Technologies, Applications, and Challenges. *IEEE Transactions on Intelligent Transportation Systems*, 25(7), 6449-6471.
2. **Xiangyu Chang**, Youqi Zhang, et al. 2026. Structural evaluation of cracked shield tunnels using computer-vision-based model updating techniques. *Advanced Engineering Informatics*, 69, 103818.
3. **Xiangyu Chang**, Hao Wang, Yiming Zhang, et al. 2021. Bayesian Prediction of Tunnel Convergence Combining Empirical Model and Relevance Vector Machine. *Measurement*, 188.
4. **Xiangyu Chang**, Youqi Zhang, Yuguang Fu. 2024. A Computer-vision-based Model Updating Strategy for Shield Tunnels with Cracks. *World Tunnel Congress 2024*. (Conference paper)
5. **Xiangyu Chang**, Rui Zhang, et al. 2025. Modeling and Quantitative Assessment of Critical Defects in Shield Tunnels with Cascading Effects. *Geotechnical and Geological Engineering*, 43, 194.
6. **Xiangyu Chang**, Hao Wang, and Yiming Zhang. 2023. Back Analysis of Rock Mass Parameters in Tunnel Engineering Using Machine Learning Techniques. *Computers and Geotechnics*, 163.
7. Hongyun Fan, Liping Li, Yuguang Fu, **Xiangyu Chang**. 3D DDA-MPM coupling method for fluid-solid interaction: Theory, validation and application in tunnels. *Computers and Geotechnics*. 2025.
8. Yintao Chen, Xin Shao, **Xiangyu Chang**, et al. 2025. Prediction of Surrounding Rock Deformation in a Highway Tunnel Using an LSTM-RF Hybrid Model. *Journal of Engineering*, 6652758.
9. Yishun Xie, **Xiangyu Chang**, Jianxiao Mao, et al. 2023. Prediction and Early Warning of Extreme Winds for High-Speed Railway Bridge Construction Using Machine-Learning Methods. *Sustainability*, 15(24), 16921.
10. Shiqi Wang, **Xiangyu Chang**, et al. 2024. Off-design performance optimization for steam-water dual heat source ORC systems. *Process Safety and Environmental Protection*, 191.
11. Yiming Zhang, Hao Wang, Yu Bai, Jianxiao Mao, **Xiangyu Chang**, et al. 2021. Switching Bayesian Dynamic Linear Model for Condition Assessment of Bridge Expansion Joints Using Structural Health Monitoring Data. *Mechanical Systems and Signal Processing*, 160107879.

12. Shiqi Wang, Zhongyuan Yuan, Kim Tiow Ooi, **Xiangyu Chang**, et al. 2025. Optimization of performance under off-design conditions for dual-pressure organic Rankine cycle with hot source splitting. *Energy Nexus*, 17.

13. Zhaozhong Li, **Xiangyu Chang**, Hao Wang, et al. 2023. Back-analysis Method of Rock Mass Properties in Tunnel Engineering Using Multiple Monitoring Data Based on LS-SVR Algorithm. *Journal of Southeast University (English Edition)*, 1:1-7.

14. 王浩, **畅翔宇**, 张一鸣, 等. 高速铁路隧道围岩力学参数反演研究. *铁道工程学报*, 2020, 37(9): 47-53.

15. 李照众, 王浩, **畅翔宇**, 等. 基于支持向量回归优化的高铁隧道围岩收敛变形预测研究. *东南大学学报(自然科学版)*.

发明专利和软件著作权

1. 王浩, **畅翔宇**, 梁瑞军, 等 一种基于神经网络技术的超前小导管设计方法. 发明专利, 2019

2. 王浩, **畅翔宇**, 祝青鑫, 等. 一种隧道初期支护钢拱架安装装置及使用方法. 发明专利, 2020

3. 王浩, **畅翔宇**, 刘奕辰, 等. 一种土压力盒安装装置及安装方法. 发明专利, 2021

4. 张一鸣, 王浩, **畅翔宇**. 耦合数值天气预报与实测数据的风速多点同步预测方法.发明专利, 2022

5. 王浩, 何祥平, **畅翔宇**. 高铁隧道施工安全监测及分析软件[简称: SMAHT]. 软件著作, 2019

参与科研项目

1. 国家万人计划青年拔尖人才项目. W03070080. (参与)

2. 江苏省重点研发计划(产业前瞻与共性关键技术)项目. BE2018120. (参与)

3. 跨断层高铁隧道施工智能监控及安全预警研究. 横向课题. (参与)

4. 大角度倾斜箱涵顶进施工智能控制及风险预警技术研究. 横向课题. (参与)

5. A smart digital twin framework using advanced modelling and data analytics for monitoring and management of underground transportation infrastructure. Ministry of Education Tier 1 Seed Fund. (参与)

6. Novel context-aware multivariate time series modelling for underground transportation infrastructure monitoring and management. AI Singapore. (参与)

科研奖励

大学生数学建模竞赛（二等奖）	2015
国家励志奖学金	2015
三好学生	2015
Mathematical Contest In Modeling (MCM/ICM) (三等奖)	2016
优秀毕业生	2018
一等、二等奖学金（8次）	2014-2018
先进个人	2019
三好学生	2020

东大设计院奖学金	2020
南洋理工大学奖学金	2022