Changjian Zhou

Ph.D. Student · The University of Melbourne

Department of Infrastructure Engineering

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zhou-changjian.github.io · GitHub: zhou-changjian
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Research interests

Physical AI and mechanics-grounded world models; scientific machine learning and sim-to-real neural PDE surrogates; learned simulators for granular and contact dynamics; constitutive model calibration and uncertainty quantification.

Education

Ph.D. · The University of Melbourne

2025-present · Department of Infrastructure Engineering

Supervisors: Negin Yousefpour and Guillermo A. Narsilio

M.Eng. in Civil and Hydraulic Engineering · Shanghai Jiao Tong University

2021-2024

Supervisor: Guanlin Ye

B.Eng. in Hydraulic and Hydropower Engineering

Hefei University of Technology · 2015-2019

Research experience

Research Assistant · Tsinghua University

2024-2025

Computational modelling of bone cement dispersion, with CT-based reconstruction and computational fluid dynamics.

Selected honours and awards

Yang-Yuqiu Scholarship, Shanghai Jiao Tong University · 2023

Second Prize, 19th China Postgraduate Mathematical Modelling Competition

Distinguished Undergraduate Thesis Award, Hefei University of Technology · 2019

Publications

Changjian Zhou

1. PhysGuard: Fisher-Guided Gradient Projection for Sim-to-Real Neural PDE Surrogates

Changjian Zhou, Junfeng Fang, Negin Yousefpour, Peng Wu, Bin Yan, Guillermo A. Narsilio

NeurIPS 2026 · Poster

arxiv.org/abs/2606.16602

2. A weak-form-based 1D numerical model for guided wave dispersion in subsea buried pipes embedded in saturated poroelastic soil

Anchen Ni, Wenbin Wei, Tao Zhuge, **Changjian Zhou**, Facheng Wang

Ocean Engineering, 363, 126622 (2026)

doi.org/10.1016/j.oceaneng.2026.126622

3. Stochastic Polynomial Surrogate Models for Uncertainty Quantification of Offshore Plate Anchor Capacity

Negin Yousefpour, Bo Wang, **Changjian Zhou**, Alessio Mentani

Geotechnical and Geological Engineering, 44, 305 (2026)

doi.org/10.1007/s10706-026-03824-0

4. A combined machine learning/search algorithm-based method for the identification of constitutive parameters from laboratory tests and in-situ tests

Changjian Zhou, Bin Gao, Bin Yan, Wenxuan Zhu, Guanlin Ye

Computers and Geotechnics, *170, 106268* (2024)

doi.org/10.1016/j.compgeo.2024.106268

Preprints

Changjian Zhou

1. TRACE: A spatiotemporal contact memory graph network simulator for granular dynamics

Changjian Zhou, Negin Yousefpour, Jie Qi, Junfeng Fang, Guillermo A. Narsilio, Hans Petter Jostad

arXiv:2609.02991 (2026) · Preprint

arxiv.org/abs/2609.02991

2. StructureClaw: Traceable LLM Agents and an Executable Benchmark for Structural Engineering Workflows

Sizhong Qin, Yi Gu, Yao Jiang, Ao Cai, **Changjian Zhou**, Shaoxuan Shuai, Jiachang Wang, Tianhao Shen, Yueqiang Li, Xinhao Li, Li Zeng, Yueshi Chen, Dachen Gao, Genrong Xu, Wenjie Liao, Xinzheng Lu

arXiv:2607.14896 (2026) · Preprint

arxiv.org/abs/2607.14896

3. Parameters sensitivity and identification in the Shanghai Model: A numerical analysis for deep excavation

Changjian Zhou, Bin Yan, Weidong Wang, Zhonghua Xu, Wenxuan Zhu, Guanlin Ye

SSRN 5179194 (2025) · Preprint

ssrn.com/abstract=5179194