Ke Jiang

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University of Canterbury, Christchurch, New Zealand

Education Background

07/2019 – 06/2022 **Nanyang Technological University, Singapore**
Ph.D. in Structural Engineering
Main Supervisor: Assoc Prof. Ou Zhao (Special Issues Editor of *Thin-Walled Structures;* Assistant Editor of *Engineering Structures*)
Co-Supervisor: Prof. Leroy Gardner from Imperial College London (Fellow of The Royal Academy of Engineering)
Thesis: Structural Behaviour of High Strength Steel Bolted Connections

09/2017 – 09/2018 **Imperial College London**
M.Sc. & DIC in Structural Engineering, Distinction
Main supervisor: Prof. Ahmer Wadee (Associate Editor of *Thin-Walled Structures*)
Co-Supervisor: Prof. Leroy Gardner
Dissertation: Nonlinear Analysis of Prestressed Stayed Beam–Columns

09/2013 – 07/2017 **University of Nottingham**
B.Eng. in Civil Engineering, First Class Honor

Employment

06/2023 – Present	**University of Canterbury, New Zealand**	**Lecturer (Assistant Professor)**
06/2022 – 06/2023	**Nanyang Technological University, Singapore**	**Postdoctoral Research Fellow**

Key Areas of Research

- High-performance (high-strength and stainless) steel connections
- Steel and composite connections for prefabricated and modular structures
- Machine-learning-based design and optimisation of structures

Awards / Professional Memberships

2024	Member of Institute of Structural Engineering
2023	Women in Engineering, Science and Technology (WiEST) Award, Singapore
2023	Member of Engineering New Zealand (MEngNZ)
2023	LEED GREEN ASSOCIATE, U.S. Green Building Council (Certificate ID: 11493482)
2017	President's Award for Outstanding Graduates (Sole recipient in Civil engineering of University of Nottingham)
2016	Building Information Modelling Engineer, Certificated to Level 1 BIM Skill Proficiency Test (Certificate ID: 1701001023009702)
2016	President's Scholarship (Sole recipient in Civil engineering of University of Nottingham)

Research Projects

01/2024 – 01/2025 ***'RESIlient Structures Using STainless STeel (RESIST)'*** **PI**

- Funding source: QuakeCoRE, New Zealand; Total value of support: NZD 17,135 (HKD 81,000)
- Contributions:
  - Write proposal
  - Conduct laboratory tests and numerical simulations on stainless steel connections under extreme conditions, including earthquake, fire and corrosion
  - Supervise the Ph.D. student working on the project
  - Manage the whole project and disseminate project outcomes

01/2024 – 01/2025 ***'Low-damage floor-frame connections for precast concrete buildings'*** **co-PI**

- Funding source: QuakeCoRE, New Zealand; Total value of support: NZD 79,350 (HKD 377,000)
- Contributions:
  - Contribute to writing proposal
  - Design low-damage steel connections and conduct full-scale tests under quasi-static/dynamic loading
  - Co-supervise the Ph.D. student working on the project
  - Co-manage the project and help disseminate project outcomes

06/2022 – 06/2027 ***'Innovative structure systems for next-generation construction'*** **co-PI**

- Funding source: MCC Singapore; Total value of support: SGD 1,040,000 (HKD 6,084,000)
- Contributions:
  - Took lead in writing proposal
  - Proposed and investigated novel steel-concrete composite connections for Prefabricated Prefinished Volumetric Construction (PPVC) modules
  - Co-supervise the Ph.D. students working on the project
  - Coordinate with the funding agency and organise workshops

01/2021 – 01/2024 ***'High-performance steel built-up section members in sustainable construction'*** **Main Researcher**

- Funding source: Regency Steel Asia; Total value of support: SGD 371,600 (HKD 2,173,000)
- Contributions:
  - Took lead in writing proposal
  - Conducted laboratory tests and numerical simulations on high-performance steel built-up section columns, beams and beam–columns for lightweight steel construction

Publications

Journal papers:

Journal	No. of publications
Thin-Walled Structures (JCR Q1, IF=6.4)	15
Engineering Structures (JCR Q1, IF=5.5)	11
Journal of Constructional Steel Research (JCR Q1, IF=4.1)	2
Journal of Building Engineering (JCR Q1, IF=6.4)	1
Journal of Structural Engineering (JCR Q1, IF=4.1)	1
Total	30

1. **Jiang, K.**, Li, S., Zhong, Y., Zhao, O. (2024). Bearing–curling interaction of austenitic stainless steel thin sheet bolted connections. ***Thin-Walled Structures***, 200, 111912.

2. Li, S., **Jiang, K.**, Chen, MT., Su, A., Guo, T., Zhao, O. (2024). Cross-section behaviour and capacity of cold-formed austenitic stainless steel flat-oval hollow sections under combined compression and bending. ***Thin-Walled Structures****,* 199, 111877.
3. Cheng, J., Li, X., **Jiang, K.**, Li, S., Su, A., Zhao, O. (2024). Machine-learning-assisted design of high strength steel I-section columns. ***Engineering Structures***, 308, 118018.
4. Ma, C., Wei, C., **Jiang, K.**, Zhao, O., Su, A. (2024). Experimental and numerical investigations of high-strength cold-formed steel multi-limb built-up section columns. ***Engineering Structures***, 309, 118012.
5. Jing, Y., **Jiang, K.**, Zhao, O., Gardner, L. (2024). Web crippling of stainless steel built-up I-sections under End-Two-Flange loading: Tests, simulations and design. ***Engineering Structures***, 304, 117576.
6. Su, A., Cheng, J., Li, X., Li, S., Zhong, Y., Zhao, O., **Jiang, K.** (2024). Unified machine-learning-based design method of normal and high strength steel I-section beam–columns. ***Thin-Walled Structures***, 119, 111835.
7. Wang, Z., Zhong, Y., **Jiang, K.**, Su, M., Zhao, O. (2024). Post-fire behaviour and resistances of square recycled aggregate concrete-filled stainless steel tube stub columns. ***Thin-Walled Structures***, 197, 111564.
8. Lu, Z., Liang, Q., Zhou, Y., Luo, W., Li, J., **Jiang, K.** (2024). Novel Thick Layer Damping Rubber Bearing (TLDRB) with Reduced Vertical Stiffness: Laboratory Tests and Mechanical Models. ***Journal of Building Engineering***, 109839.
9. Li, S., **Jiang, K.**, Zhao, O. (2024). Local–flexural interactive buckling behaviour and design of press-braked stainless steel slender Z-section columns. ***Thin-Walled Structures***, 195, 111317.
10. Shang, C., Zhou, Y., Shi, F, Li, J., **Jiang, K.** (2024). Investigation on mechanical behavior of shear panel damper under bidirectional loading. ***Journal of Constructional Steel Research***, 216, 108580.
11. Cui, Y., Zhang, J., Ma, C., Niu, M., **Jiang, K.**, Li, S., Su., A. (2024). Testing, numerical modelling and design of G550 high strength cold-formed steel built-up section columns. ***Thin-Walled Structures****,*196, 111529.
12. Ke, X., Luo, W., Zhou, Y., Liang, Q., Li, J., Wang, S., **Jiang, K.** (2024). Full-scale laboratory investigation on laminated rubber bearings for metro-induced vibration mitigation. ***Engineering Structures***, 314, 118269.
13. **Jiang, K.**, Zhao, O. (2023). Stainless steel built-up section stub columns: Testing, numerical modelling and design. ***Thin-Walled Structures***, 191, 111070.
14. **Jiang, K.**, Zhao, O. (2023). Ferritic stainless steel bolted connections failing by bearing–curling interaction: Tests, modelling and design. ***Engineering Structures***, 283, 115919.
15. **Jiang, K.**, Zhao, O. Unified machine-learning-assisted design of stainless steel bolted connections. ***Journal of Constructional Steel Research***, 211, 108155.
16. Li, S., **Jiang, K.**, Zhao, O. (2023). Press-braked ferritic stainless steel slender channel section beam–columns: Tests, simulations and design. ***Thin-Walled Structures***, 183, 110302.
17. Su, A., **Jiang, K.**, Wang, Y., Zhao, O. (2023). Experimental and numerical investigations into S960 ultra-high strength steel welded I-section stub columns after exposure to elevated temperatures. ***Thin-Walled Structures***, 183, 110349.
18. **Jiang, K.**, Liang, Y., Zhao, O. (2022). Machine-learning-based design of high strength steel bolted connections*.* ***Thin-Walled Structures****,* 179, 109575.
19. **Jiang, K.**, Zhao, O. (2022). Testing, numerical modelling and design of S690 high strength steel channel-to-plate connections. ***Thin-Walled Structures***, 179, 109545.
20. **Jiang, K.**, Zhao, O. Young, B. (2022). Experimental and numerical study of stainless steel channel-to-gusset plate connections. ***Engineering Structures***, 265, 114461.
21. Su, A., **Jiang, K.**, Wang, M., Zhao, O. (2022). S960 ultra-high strength steel slender welded I-section

beam–columns: Testing, numerical modelling and design. ***Thin-Walled Structures***, 177, 109452.

22. **Jiang, K.**, Zhao, O. (2022). Experimental and numerical studies of stainless steel angle-to-plate connections. ***Thin-Walled Structures***, 173, 109026.
23. **Jiang, K.**, Zhao, O. (2022). Net Section Failure of S690 High-Strength Steel Angle-to-Plate Connections. ***Journal of Structural Engineering (ASCE)***, 148(4), 04022021.
24. Zhong, Y., **Jiang, K.**, Zhao, O. (2022). Post-fire behaviour and capacity of high strength concrete-filled high strength steel tub (HCFHST) stub columns under combined compression and bending. ***Engineering Structures***, 253, 113837.
25. Su, A., **Jiang, K.**, Liang, Y., Zhao, O. (2021). Post-fire behaviour and resistances of S690 high strength steel welded I-section stub columns. ***Thin-Walled Structures***, 169, 108422.
26. **Jiang, K.**, Tan, KH., Zhao, O., Gardner, L. (2021). Block tearing of S700 high strength steel bolted connections: Testing, numerical modelling and design. ***Engineering Structures***, 246, 112979.
27. Sun, Y., Su, A., **Jiang, K.**, Liang, Y., Zhao, O. (2021). Testing, numerical modelling and design of stainless steel welded I-sections under minor-axis combined loading. ***Engineering Structures***, 243, 112513.
28. **Jiang, K.**, Tan, KH., Zhao, O. (2021). Net section fracture of S700 high strength steel staggered bolted connections. ***Thin-Walled Structures***, 164, 107904.
29. Sun, Y., **Jiang, K.**, Liang, Y., Zhao, O. (2021). Experimental and numerical studies of high-chromium stainless steel welded I-section beam–columns. ***Engineering Structures***, 236, 112065.
30. **Jiang, K.**, Zhao, O., Tan, KH. (2020). Experimental and numerical study of S700 high strength steel double shear bolted connections in tension. ***Engineering Structures***, 225, 111175.

Conference proceedings:

1. **Jiang, K.**, Zhao, O. Stainless steel member-to-gusset plate connections: Tests, numerical modelling and design. In 11th International Conference on Advances in Steel Structures 2023 (ICASS'2023). Sydney, Australia, 29 November – 1 December 2023.
2. Jing, Y., **Jiang, K.**, Liang, Y., Zhao, O. Web Crippling of Stainless Steel Built-Up I Sections Under End-Two-Flange Loading. In: Ninth International Conference Thin-Walled Structures ICTWS, 2023, Kuching, Sarawak, Malaysia. 5–7 December 2023.
3. **Jiang, K.**, Zhao, O., Sun, Y., Gardner, L. Experimental and numerical investigation of stainless steel built-up sections. In: Sixth International Structural Stainless Steel Expert Seminar, London, UK, 20–21 September 2022, online.

Teaching Experience

06/2023 – Present University of Canterbury, New Zealand Lecturer

- Course coordinator and Lecturer of *Behaviour and Design of Structures 1* (200 undergraduates per semester)
- Lecturer of *Structural Analysis and Systems 1* (200 undergraduates per semester)
- Mentoring **6** undergraduates on final-year projects and **1** undergraduate on summer research scholarship.

07/2020 – 06/2023 Nanyang Technological University, Singapore Teaching Assistant

- Teaching Assistant of *Structural Analysis II* (150 undergraduates per semester)
- Teaching Assistant of *Behaviour and Design of Steel and Composite Structures* (40 master students per semester)
- Delivered tutorials and lab sessions of **2** modules – *Engineering Drawing and 3D Building Information Modelling* (undergraduate) and *Civil Engineering Laboratory* (undergraduate).

- Mentoring **2** master's students on M.Sc. research projects and **10** undergraduates on final-year projects.

Supervision

Period	Ph.D. student	Role	Ph.D. topic	Status
2024 – Present	Yadin Shrestha	Supervisor	Seismic and fatigue performance of high-performance steel connections	Ongoing (UC)
2024 – Present	Binxu Li	Supervisor	Low-damage and demountable bolted connections under cyclic loading	Ongoing (UC)
2023 – Present	Gonzalo Chavez	Co-supervisor	Low-damage floor-frame connections for precast concrete buildings	Ongoing (UC)
2022 – Present	Yuxiao Shi	Co-supervisor	Behaviour and design of composite joints for PPVC modules	Ongoing (NTU)
2021 – Present	Yannan Jing	Co-supervisor	Structural stability and design of novel stainless steel built-up section members	Ongoing (NTU)

Services

2024	Search committee member of UC structural engineering cluster
2024	Workshop leader of Women in Engineering Canterbury camp
2023	Department representative of Open day event
2022, 2021	Mentor of Science Mentorship Programme (by Ministry of Education, Singapore)
2019	Organizing Committee member of the 6th International Conference on Application of Structural Fire Engineering (ASFE 2019)
2019	Organizing Committee member of the RSA Symposium on Innovative Research, Advanced Design & New Construction Technologies on Steel and Composite Structures (RSA 2019)

Referees

Dr. Ou Zhao (Referee comments on Academic and Employment experience)

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Associate Professor, School of Civil and Environmental Engineering, Nanyang Technological University

Prof. Leroy Gardner (Referee comments on Academic)

E-mail: leroy.gardner@imperial.ac.uk
Professor, Department of Civil and Environmental Engineering, Imperial College London

Dr. Wentao Wu (Referee comments on Teaching)

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Senior lecturer (above bar), Department of Civil and Natural Resources Engineering, University of Canterbury