

# Curriculum Vitae

April 17, 2025

## Personal information

**Name:** Jike Han      **Nationality:** People's Republic of China      **Gender:** Male  
**Date of Birth, Place of Birth:** 22th July 1995 (29yo), Xian, Shaanxi, China.  
**Language:** Japanese, Chinese, English      **E-mail:** han.jike.8r[at]kyoto-u.ac.jp  
**Link:** Kyoto University, researchmap, ORCID, Google scholar, ResearchGate



## Education

- Apr. 2021–Sep. 2023: Doctor of Philosophy (Ph.D),  
Department of Civil and Environmental Engineering, Tohoku University, Japan.  
Supervisor: Prof. Kenjiro Terada
- Apr. 2019–Mar. 2021: Master of Engineering,  
Department of Civil and Environmental Engineering, Tohoku University, Japan.  
Supervisor: Prof. Kenjiro Terada
- Oct. 2019–Sep. 2020: Research stay,  
Institute for Structural Analysis, Technische Universität Dresden, Germany.  
Supervisor: Prof. Michael Kaliske
- Apr. 2015–Mar. 2019: Bachelor of Engineering,  
Department of Civil Engineering and Architecture, Tohoku University, Japan.  
Supervisor: Prof. Kenjiro Terada

## Academic positions

- Jun. 2024–To date: Program-Specific Assistant Professor,  
Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University
- Apr. 2024–May 2024: Program-Specific Researcher,  
Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University
- Oct. 2023–Mar. 2024: JSPS Research Fellowships for Young Scientists PD,  
International Research Institute of Disaster Science, Tohoku University
- Sep. 2023–Mar. 2024: Guest researcher,  
Institute of Applied Mechanics, RWTH Aachen University
- Apr. 2021–Sep. 2023: JSPS Research Fellowship for Young Scientists DC2,  
Department of Civil and Environmental Engineering, Graduate School of Engineering, Tohoku University

## Research fields

Computational mechanics, Applied mechanics, Optimization, Biomechanics

## Publications (first author)

15. **Han J.**, Matsubara S., Kondoh T., Izui K., Nishiwaki S., “A general formulation of topology optimization for nonlinear materials incorporating internal variables by the continuous adjoint method”, **Under Review**.  
doi:10.13140/RG.2.2.21896.12809
14. **Han J.**, Yokoyama Y., Adachi T., Nishiwaki S., “A thermal-mechanical coupling-inspired inelastic constitutive law for the growth and atrophy of biological soft tissues”, **Under Review**.  
doi:10.13140/RG.2.2.10577.65122
13. **Han J.**, Yamakawa Y., Izui K., Nishiwaki S., Terada K., “Multi-material topology optimization based on finite strain subloading surface nonlocal elastoplasticity”, **Under Review**.  
doi:10.13140/RG.2.2.20456.07688
12. **Han J.**, Furuta K., Kondoh T., Izui K., Nishiwaki S., Terada K., “Topology optimization for nonlocal elastoplasticity at finite strain”, *Computer Methods in Applied Mechanics and Engineering*, **435**, 117678, 2025.  
doi:10.1016/j.cma.2024.117678

11. **Han J.**, Furuta K., Kondoh T., Izui K., Nishiwaki S., Terada K., “Topology optimization with a finite strain nonlocal damage model using the continuous adjoint method”, *Computer Methods in Applied Mechanics and Engineering*, **432**, 117333, 2024.  
doi:10.1016/j.cma.2024.117333
10. **Han J.**, Furuta K., Kondoh T., Nishiwaki S., Terada K., “Topology optimization of finite strain elastoplastic materials using continuous adjoint method: formulation, implementation, and applications”, *Computer Methods in Applied Mechanics and Engineering*, **429**, 117181, 2024.  
doi:10.1016/j.cma.2024.117181
9. **Han J.**, Shintaku Y., Moriguchi S., Terada K., “A diffusive-discrete crack transition scheme for ductile fracture at finite strain”, *International Journal for Numerical Methods in Engineering*, **125(19)**, e7553, 2024.  
doi:10.1002/nme.7553
8. **Han J.**, Hirayama D., Shintaku Y., Moriguchi S., Terada K., “Crack phase-field enhanced finite cover method for dynamic fracture at finite strain”, *International Journal for Numerical Methods in Engineering*, **125(2)**, e7371, 2024.  
doi:10.1002/nme.7371
7. **Han J.**, Matsubara S., Nishi S., Takada K., Muramatsu M., Omiya M., Ogawa K., Oide K., Kobayashi T., Murata M., Moriguchi S., Terada K., “Gradient damage model for ductile fracture introducing degradation of damage hardening modulus: implementation and experimental investigations”, *International Journal of Fracture*, **240**, 183-208, 2023.  
doi:10.1007/s10704-022-00681-9
6. **Han J.**, Shintaku Y., Moriguchi S., Terada K., “A transition scheme from diffusive to discrete crack topologies at finite strain during the course of a staggered iterative procedure”, *International Journal for Numerical Methods in Engineering*, **124(6)**, 1405-1433, 2023.  
doi:10.1002/nme.7169
5. **Han J.**, Matsubara S., Moriguchi S., Terada K., “Variational crack phase-field model for ductile fracture with elastic and plastic damage variables”, *Computer Methods in Applied Mechanics and Engineering*, **400**, 115577, 2022.  
doi:10.1016/j.cma.2022.115577
4. **Han J.**, Matsubara S., Moriguchi S., Kaliske M., Terada K., “Crack phase-field model equipped with plastic driving force and degrading fracture toughness for ductile fracture simulation”, *Computational Mechanics*, **69.1**, 151-175, 2022.  
doi:10.1007/s00466-021-02087-1
3. **Han J.**, Yin B., Kaliske M., Tarada, K., “Incorporation of gradient-enhanced microplane damage model into isogeometric analysis”, *Engineering Computations*, **38.8**, 3388-3415, 2021.  
doi:10.1108/EC-08-2020-0455
2. **Han J.**, Matsubara S., Nishi S., Takada K., Muramatsu M., Omiya M., Ogawa K., Oide K., Kobayashi T., Murata M., Moriguchi S., Terada K., “Ductile fracture crack phase-field model equipped with a novel degrading fracture toughness”, *Transactions of the Japan Society for Computational Engineering and Science*, **2021**, 20210014, 2021.  
doi:10.1142/jscs.2021.20210014 (In Japanese)
1. **Han J.**, Nishi S., Takada K., Muramatsu M., Omiya M., Ogawa K., Oide K., Kobayashi T., Murata M., Moriguchi S., Terada K., “A phase-field ductile fracture model with a variable regularization length parameter”, *Transactions of the Japan Society for Computational Engineering and Science*, **2020**, 20200005, 2020.  
doi:10.1142/jscs.2020.20200005 (In Japanese)

## **Publications (co-author)**

6. Zhang J., **Han J.**, Zhang Q., Reese S., Brepols T., “Tension-Compression Asymmetry Based on Different Energy Decompositions within a Gradient-Extended Two-Surface Damage-Plasticity Framework”, **Under Review**.  
doi:10.2139/ssrn.5022446
5. Sugai R., **Han J.**, Moriguchi S., Terada K., “Diffusive-discrete crack transition without remeshing achieved by extended B-spline-based implicit material point method”, *Computer Methods in Applied Mechanics and Engineering*, **421**, 116771, 2024.  
doi:10.1016/j.cma.2024.116771
4. Yao Z., Omiya M., Ma N., Nishi S., Takada K., Okato K., Oide K., Kobayashi T., **Han J.**, Terada K., “Local Mechanical Characterization and Fracture Prediction Modeling for Resistance Spot-Welded Joints of Advanced High-Strength Steel”, *Materials Today Communications*, **36**, 106787, 2023.  
doi:10.1016/j.mtcomm.2023.106787

3. Sugai R., **Han J.**, Yamaguchi Y., Moriguchi S., Terada K., “Extended B-spline-based implicit material point method enhanced by F-bar projection method to suppress pressure oscillation”, *International Journal for Numerical Methods in Engineering*, **124**(11), 2423-2448, 2023.  
doi:10.1002/nme.7216
2. Omiya M., Arakawa S., Yao Z., Muramatsu M., Nishi S., Takada K., Murata M., Okato K., Ogawa K., Oide K., Kobayashi T., **Han J.**, Terada K., “Influence of strength and notch shape on crack initiation and propagation behavior of advanced high strength steel sheets”, *Engineering Fracture Mechanics*, **271**, 108573, 2022.  
doi:10.1016/j.engfracmech.2022.108573
1. Hirayama D., **Han J.**, Moriguchi S., Terada K., “A numerical simulation method combining gradient damage model and finite cover method for dynamic fracture”, *Transactions of the Japan Society for Computational Engineering and Science*, **2024**, 20240001, 2024.  
doi:10.11421/jscs.2024.20240001 (In Japanese)

## Recent presentations

1. **Han J.**, Izui K., Nishiwaki S., Terada K., “On the formulation of finite strain multi-material topology optimization”, The 9th Asian Pacific Congress on Computational Mechanics and 7th Australasian Conference on Computational Mechanics (APCOM-ACCM2025), Dec. 2025, Brisbane, Australia.
2. **Han J.**, Yokoyama Y., Adachi T., Nishiwaki S., “Continuum-mechanics-based multiphysics modeling for growth and atrophy in biological soft tissues”, The 38th Computational Mechanics Conference of JSME (CMD2025), Sep. 2025, Nagano, Japan.
3. **Han J.**, Matsubara S., Kondoh T., Izui K., Nishiwaki S., “Generalized sensitivity analysis for nonlinear material constitutive laws incorporating internal variables”, The 35th Annual Conference of the Design and Systems Division of JSME (D&S35), Sep. 2025, Tokyo, Japan.
4. **Han J.**, Yokoyama Y., Adachi T., Nishiwaki S., “Finite element simulations of growth and atrophy in biological soft tissues: Continuum mechanics-based modeling”, Joint Meeting of JSCB 77th and JSDB 58th, Jul. 2025, Nagoya, Japan.
5. **Han J.**, Yokoyama Y., Adachi T., Nishiwaki S., “On the growth and atrophy of soft tissues modeled by thermal-mechanical coupling-inspired inelastic constitutive law”, The 30th Computational Engineering Conference of JSCES, Jun. 2025, Omiya, Japan.
6. **Han J.**, Yamakawa Y., Izui K., Nishiwaki S., Terada K., “On the multi-material topology optimization formulation based on finite strain nonlocal elastoplasticity”, The 30th Computational Engineering Conference of JSCES, Jun. 2025, Omiya, Japan. **[Keynote presentation]**
7. **Han J.**, Yamakawa Y., Izui K., Nishiwaki S., Terada K., “Multi-material topology optimization for elastoplastic materials”, The 16th World Congress on Structural and Multidisciplinary Optimization (WCSMO-16), May 2025, Kobe, Japan.
8. **Han J.**, Furuta K., Kondoh T., Izui K., Nishiwaki S., Terada K., “On the formulation of finite strain topology optimization considering damage”, The 37th Computational Mechanics Conference of JSME (CMD2024), Oct. 2024, Sendai, Japan.
9. **Han J.**, Shintaku Y., Moriguchi S., Terada K., “Crack phase-field enhanced finite cover method realizing diffusive-discrete crack transition”, The 16th World Congress on Computational Mechanics and 4th Pan American Congress on Computational Mechanics (WCCM-PANACM2024), Jul. 2024, Vancouver, Canada.
10. **Han J.**, Furuta K., Kondoh T., Nishiwaki S., Terada K., “On the formulation of topology optimization for finite strain elastoplastic materials”, The 29th Computational Engineering Conference of JSCES, Jun. 2024, Kobe, Japan.

## Fundings

1. 2025-2027: Principal Investigator, JSPS Grant-in-Aid for Early-Career Scientists, 25K17528, 3.7m JPY.
2. 2022-2023: Principal Investigator, JSPS Grant-in-Aid for JSPS Fellows, 22KJ0233, 1.5m JPY.
3. 2022-2024: Co-Investigator, JSPS Grant-in-Aid for Challenging Research (Exploratory), 22K18755, 6.37m JPY.

## **Awards**

1. Top Viewed Article Award, WILEY (Publications (first author) No. 8)
2. Top Viewed Article Award, WILEY (Publications (co-author) No. 3)
3. Top Cited Article Award, WILEY (Publications (co-author) No. 3)
4. Young Scientist Award 2024, Asian Society of Structural and Multidisciplinary Optimization
5. PhD Thesis Award 2024, Japan Society for Computational Engineering and Science
6. Tohoku University President's Award 2023, Tohoku University
7. Presentation Awards of JSCES conference 2023, Japan Society for Computational Engineering and Science
8. JSCES Scholarship Award 2022, Japan Society for Computational Engineering and Science
9. Presentation Awards of Applied Mechanics Symposium 2021, Japan Society of Civil Engineers
10. Young Researcher Paper Award 2021, Japan Society for Computational Engineering and Science

## **Peer review experience**

Advances in Engineering Software  
Archives of Computational Methods in Engineering  
International Journal for Numerical Methods in Engineering  
International Journal of Engineering Science  
Engineering Fracture Mechanics  
Theoretical and Applied Fracture Mechanics