

MINH-CHIEN TRINH

Citations: **681** ◊ h-index: **12** ◊ i10-index: **13**

Jeonbuk National University, Jeonju-si, Jeollabuk-do 54896, Republic of Korea

E-mail: mctrinh@jbnu.ac.kr ◊ Web: trinhminhchien.com ◊ GitHub: github.com/mctrinh

RESEARCH INTERESTS

Computational mechanics: FEM, Composites, Structural Analysis, Nanomechanics.
Artificial Intelligence: Machine Learning for FEM, Machine Learning for Computer Vision.
DNA nanotechnology: DNA Origami, Programmed Self-Assembly, Design and Analysis.

SKILLS

Language:	Vietnamese, English, Korean.
Programming:	Python, C++, MATLAB, Fortran, Docker, Kubernetes, Git, Visual Studio, Visual Studio Code, LaTeX, Maple18.
ML Framework:	TensorFlow, PyTorch, Keras, scikit-learn, OpenCV, mmLab.
FEM Software:	ADINA, ABAQUS, SAP2000, ETABS, Revit, AutoCAD.
DNA Software & Open Source:	caDNAno, oxDNA, ATHENA, METIS, TALOS, PERDIX.
OS & Cloud Computing:	Ubuntu, Red Hat, AWS, PuTTY, WinSCP, Vim, Nano.

EDUCATION

SEJONG UNIVERSITY Integrated Master's & Ph.D Department of Civil & Environmental Engineering	Seoul, South Korea <i>March 2017 - August 2020</i>
NATIONAL UNIVERSITY OF CIVIL ENGINEERING Bachelor of Engineering Department of Civil & Industrial Engineering	Hanoi, Vietnam <i>September 2010 - February 2015</i>
HANOI UNIVERSITY OF SCIENCE, VIETNAM NATIONAL UNIVERSITY High School Diploma Department of Physics, High School for Gifted Students	Hanoi, Vietnam <i>September 2007 - August 2010</i>

EXPERIENCE

JEONBUK NATIONAL UNIVERSITY <i>Research Assistant Professor</i>	Jeonju, South Korea <i>April 2021 - present</i>
JEONBUK NATIONAL UNIVERSITY <i>Postdoctoral Researcher</i>	Jeonju, South Korea <i>September 2020 - March 2021</i>
SEJONG UNIVERSITY <i>Research Assistant</i>	Seoul, South Korea <i>March 2017 - August 2020</i>
COWAELMIC Joint Stock Company <i>Civil Engineer</i>	Hanoi, Vietnam <i>March 2016 - February 2017</i>
PLC Joint Stock Company <i>Structural Designer</i>	Hanoi, Vietnam <i>March 2015 - February 2016</i>
National University of Civil Engineering <i>Structural Assistant Designer</i>	Hanoi, Vietnam <i>April 2014 - February 2015</i>

RESEARCH PROJECTS & ACTIVITIES

- Project: **Precise monitoring and intelligent feeding management technology for individual poultry**
Fund: *Ministry of Agriculture, Food and Rural Affairs (04.2021 – 12.2024)*
Role: *Research Professor (04.2021 – present)*
- Project: **Development of a virtual system to predict physical and chemical properties for DNA nanostructures**
Fund: *National Research Foundation of Korea, NRF (06.2020 – 05.2024)*
Role: *Postdoctoral Researcher (09.2020 – 03.2021)*
Role: *Research Professor (04.2021 – present)*
- Project: **Smart livestock weight prediction system**
Fund: *Ministry of Education, Ministry of Science and ICT (06.2022 – 12.2022)*
Role: *Research Professor*
- Project: **Development of 3D coronary artery mapping technology for serial CT analysis**
Fund: *AIMEDIC (03.2021 – 02.2022)*
Role: *Research Professor*
- Project: **Basic research lab for cable bridge condition assessment using digital twin**
Fund: *National Research Foundation of Korea, NRF (09.2019 – 02.2022)*
Role: *Research Assistant (09.2019 – 08.2020)*
- Project: **Smart design of steel-concrete composite structure using fiber element**
Fund: *National Research Foundation of Korea, NRF (03.2018 – 02.2021)*
Role: *Research Assistant (03.2018 – 08.2020)*
- Project: **Smart design of steel structure using fiber element**
Fund: *National Research Foundation of Korea, NRF (05.2015 – 04.2018)*
Role: *Research Assistant (07.2017 – 04.2018)*

HONORS & AWARDS

- **Outstanding Research Award (2020)**
Granted by Sejong University, Seoul, South Korea.
- **Brain Korea 21/21 Plus (BK21/21+) Ph.D. Scholarship (2017 - 2020)**
Granted by Sejong University, Seoul, South Korea.
- **Certificate of Merit (2012, 2015)**
Granted by the President of National University of Civil Engineering, Hanoi, Vietnam
- **Second Prize in Experimental Physics, Vietnam National Physics Olympiad (2012)**
Granted by Vietnam Physical Society, Vietnam.
- **Certificate of Merit (2012)**
Granted by Vietnam Red Cross Society, Vietnam.
- **Odon Vallet – Rencontres du Vietnam Scholarship for excellent students (2009)**
Granted by Rencontres du Vietnam.
- **Certificate of Merit (2008, 2009, 2010)**
Granted by Hanoi University of Science, Vietnam National University, Hanoi, Vietnam.

PATENTS

1. Hyungmin Jun, Minh-Chien Trinh, "System for measuring weight of livestock based on deep learning computer vision and method thereof", #10-2022-0151696, 14 Nov 2022 (pending).

PUBLICATIONS

18. Minh-Chien Trinh, Hyungmin Jun, "Geometrically nonlinear analysis of functionally graded composite shells using MITC4 and MITC9 elements", **Thin-Walled Structures**, 185 (2023) 110632 (SCI, Q1, IF. 6.4).
17. Minh-Chien Trinh, Hyungmin Jun, "Stochastic bending and buckling analysis of laminated composite plates using Latin hypercube sampling", **Engineering with Computers**, (2023) 39, 1459–1497 (SCI, Q1, IF. 7.963).
16. Sy-Ngoc Nguyen, Trung Nguyen-Thoi, Minh-Chien Trinh, Thuan Ho-Nguyen-Tan, Jang-woo Han, "Smoothed finite element approach for viscoelastic behaviors of general shell structures", **Thin-Walled Structures**, 176 (2022) 109323 (SCI, Q1, IF. 6.4).
15. Minh-Chien Trinh, Seung-Eock Kim, "Stochastic buckling quantification of porous functionally graded cylindrical shells", **Steel and Composite Structures**, (2022) 44 (5) 637-662 (SCI, Q1, IF. 4.6).
14. Mai-Suong T. Nguyen, Minh-Chien Trinh, Seung-Eock Kim, "Uncertainty quantification of ultimate compressive strength of CCFST columns using hybrid machine learning model", **Engineering with Computers**, (2022) 38(4) , 2719–2738 (SCI, Q1, IF. 7.963).
13. Minh-Chien Trinh, Seung-Eock Kim, "Deterministic and stochastic thermomechanical nonlinear dynamic responses of functionally graded sandwich plates", **Composite Structures**, 274 (2021) 114359 (SCI, Q1, IF.5.407).
12. Minh-Chien Trinh, Tanmoy Mukhopadhyay, "Semi-analytical atomic-level uncertainty quantification for the elastic properties of 2D materials", **Materials Today Nano**, 15 (2021) 100126 (SCI, Q1, IF. 8.109).
11. Minh-Chien Trinh, Hyungmin Jun, "A higher-order quadrilateral shell finite element for geometrically nonlinear analysis", **European Journal of Mechanics / A Solids** 89 (2021) 104283 (SCI, Q1, IF. 4.22).
10. Minh-Chien Trinh, Sy-Ngoc Nguyen, Hyungmin Jun, T. Nguyen-Thoi, "Stochastic buckling quantification of laminated composite plates using cell-based smoothed finite elements", **Thin-Walled Structures**, 163 (2021) 107674 (SCI, Q1, IF. 6.4).
9. Minh-Chien Trinh, Hyungmin Jun, "Stochastic free vibration analysis of functionally graded beams using artificial neural networks", **Structural Engineering and Mechanics** (2021) 78 (5) 529-543 (SCI, Q1, IF. 3.524).
8. Van-Tuong Bui, Viet-Hung Truong, Minh-Chien Trinh, Seung-Eock Kim, "Fully nonlinear analysis of steel-concrete composite girder with web local buckling effects", **International Journal of Mechanical Sciences**, 184 (2020) 105729 (SCI, Q1, IF. 5.329).
7. Minh-Chien Trinh, Tanmoy Mukhopadhyay, Seung-Eock Kim, "A semi-analytical stochastic buckling quantification of porous functionally graded plates", **Aerospace Science and Technology**, 105 (2020) 105928 (SCI, Q1, IF. 5.107).
6. Minh-Chien Trinh, Seung-Eock Kim, "A three variable refined shear deformation theory for porous functionally graded doubly curved shell analysis", **Aerospace Science and Technology**, 94 (2019) 105356 (SCI, Q1, IF. 5.107).

5. Minh-Chien Trinh, Dinh-Duc Nguyen, Seung-Eock Kim, " *Effects of porosity and thermomechanical loading on free vibration and nonlinear dynamic response of functionally graded sandwich shells with double curvature*", **Aerospace Science and Technology**, 87 (2019) 119-132 (SCI, Q1, IF. 5.107).
4. Minh-Chien Trinh, Seung-Eock Kim, " *Nonlinear stability of moderately thick functionally graded sandwich shells with double curvature in thermal environment*", **Aerospace Science and Technology**, 84 (2019) 672-685 (SCI, Q1, IF. 5.107).
3. Pham Hong Cong, Trinh Minh Chien, Nguyen Dinh Khoa, Nguyen Dinh Duc, " *Nonlinear thermomechanical buckling and post-buckling response of porous FGM plates using Reddy's HSDT*", **Aerospace Science and Technology**, 77 (2018) 419-428 (SCI, Q1, IF. 5.107).
2. Minh-Chien Trinh, Seung-Eock Kim, " *Nonlinear thermomechanical behaviors of thin functionally graded sandwich shells with double curvature*", **Composite Structures**, 195 (2018) 335-348 (SCI, Q1, IF.5.407).
1. Nguyen Dinh Duc, Vu Dinh Quang, Pham Dinh Nguyen, Trinh Minh Chien, " *Nonlinear dynamic response of functionally graded porous plates on elastic foundation subjected to thermal and mechanical loads*", **Journal of Applied and Computational Mechanics**, 4 (2018) 245-259 (Scopus, ESCI, Q1, IF. 2.000).

PRESENTATIONS

16. Pilmu Song, Junhyuk Park, Seongjin Jeong, Minh-Chien Trinh, Ah Jin Ryu, Eun Bo Shim, Hyungmin Jun, " *Modal analysis of virtual heart model using anisotropic hyperelastic material model*", **COSEIK 2022** - Computational Structural Engineering Institute of Korea, *November 24-25, 2022, South Korea.*
15. Van-Hoi Nguyen, Minh-Chien Trinh, Hyungmin Jun, " *Fracture Analysis of Zirconia-Alumina Functionally Graded Material Using Phase-field Modeling*", **COSEIK 2022** - Computational Structural Engineering Institute of Korea, *November 24-25, 2022, South Korea.*
14. Pilmu Song, Junhyuk Park, Seongjin Jeong, Minh-Chien Trinh, Eun Bo Shim, Hyungmin Jun, " *Analysis of cardiac dynamics according to left ventricular hypertrophy using a multi-scale cardiac contraction model*", **COSEIK 2022** - Computational Structural Engineering Institute of Korea, *April 13-15, 2022, South Korea.*
13. Minh-Chien Trinh, Van-Hoi Nguyen, Hyungmin Jun, " *Stochastic elastic properties of 2D materials*", **COSEIK 2022** - Computational Structural Engineering Institute of Korea, *April 13-15, 2022, South Korea.*
12. Pilmu Song, Minh-Chien Trinh, Eun Bo Shim, Hyungmin Jun, " *Computational modeling of Cardiac Mechanics for the Modal Analysis of Left Ventricular Hypertrophy*", **COSEIK 2021** - Computational Structural Engineering Institute of Korea, *November 25-26, 2021, South Korea.*
11. Minh-Chien Trinh, Hyungmin Jun, " *Probabilistic Static Behaviors of Laminated Composite Plates*", **COSEIK 2021** - Computational Structural Engineering Institute of Korea, *November 25-26, 2021, South Korea.*
10. Minh-Chien Trinh, Hyungmin Jun, " *Elastic properties of lattice-like 2D materials using continuum mechanics*", **ASEM21** - The 2021 World Congress on Advances in Structural Engineering and Mechanics, *August 23-26, 2021, South Korea.*
9. Abhishek Dewangan, Minh-Chien Trinh, Hyungmin Jun, " *ATHENA: A software suite for Wire-frame Scaffold DNA Origami*", **ASEM21** - The 2021 World Congress on Advances in Structural

Engineering and Mechanics, *August 23-26, 2021, South Korea.*

8. Jongwoo Han, Minh-Chien Trinh, Hyungmin Jun, "Development of finite elements based on Partition of Unity for composite analysis", **KSMTE 2021** - Korea Institute of Production and Manufacturing, *July 7-9, 2021, South Korea.*
7. Hyungmin Jun, Minh-Chien Trinh, "Top-down Computational Design of Scaffolded DNA Origami", **KSME 2020** - Korean Society of Mechanical Engineers, *December 16-19, 2020, South Korea.*
6. Minh-Chien Trinh, Hyungmin Jun, Seung-Eock Kim, "Dynamic behaviors of porous functionally graded sandwich shells in thermal environments", **COSEIK 2020** - Computational Structural Engineering Institute of Korea, *December 14-15, 2020, South Korea.*
5. Minh-Chien Trinh, Seung-Eock Kim, "Buckling and post-buckling analysis of functionally graded sandwich cylindrical shells subjected to thermomechanical loads", **HKICEAS 2018** - Hong Kong International Conference on Engineering and Applied Science, *December 18-20, 2018, Hong Kong.*

TEACHING - GRADUATE COURSES

4. Deep Learning - *Spring 2024*
3. Advanced Solid Mechanics - *Fall 2023*
2. Finite Element Analysis - *Spring 2022, Spring 2023*
1. Nonlinear Finite Element Methods - *Fall 2021, Fall 2022*

JOURNAL REFEREE

1. Acta Mechanica - *Springer, Springer Nature (01).*
2. Advances in Materials Research, An International Journal - *Techno Press (01).*
3. Applied Sciences - *MDPI (03).*
4. Arabian Journal for Science and Engineering - *Springer, Springer Nature (02).*
5. Archive of Applied Mechanics - *Springer, Springer Nature (01).*
6. Axioms - *MDPI (02).*
7. Buildings - *MDPI (02).*
8. C - Journal of Carbon Research - *MDPI (01).*
9. Computers and Concrete - *Techno Press (02).*
10. Data - *MDPI (01).*
11. Experimental Techniques - *Springer, Springer Nature (01).*
12. Geomechanics and Engineering - *Techno Press (01).*
13. International Journal of Structural Stability and Dynamics - *World Scientific Publishing (03).*
14. Iranian Journal of Science and Technology - Transactions of Mechanical Engineering - *Springer, Springer Nature (01).*
15. Journal of Sandwich Structures & Materials - *SAGE Publication (08).*
16. Materials - *MDPI (08).*
17. Mathematics - *MDPI (05).*

18. Mechanics of Composite Materials - *Springer, Springer Nature (02)*.
19. Processes - *MDPI (01)*.
20. Sensors - *MDPI (02)*.
21. Steel & Composite Structures - *Techno Press (01)*.
22. Structural Engineering and Mechanics - *Techno Press (03)*.
23. Thin-Walled Structures - *Elsevier (05)*.

INDUSTRY ACTIVITIES

1. NOVA Inc. (<https://no-va.co.kr/>) - *CTO, Co-founder*

COLLABORATORS

Prof. Hyungmin Jun, Jeonbuk National University, Jeonju, South Korea.

Prof. Seung-Eock Kim, Sejong University, Seoul, South Korea.

Prof. Nguyen Dinh Duc, Vietnam National University, Hanoi, Vietnam.

Prof. Tanmoy Mukhopadhyay, University of Southampton, Southampton, UK.