

# Hyo-Jin Kim

## CONTACT INFORMATION

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## EDUCATION

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2015.02-2020.08 **KAIST (Korea Advanced Institute of Science and Technology)**  
**Ph.D.** in Mechanical Engineering, Laboratory of Computational Mechanics and  
Structural System (Advisor: Phill-Seung Lee)

Daejeon,  
Korea

2013.03-2015.02 **KAIST (Korea Advanced Institute of Science and Technology)**  
**M.S.** in Mechanical Engineering, Laboratory of Computational Mechanics and  
Structural System (Advisor: Phill-Seung Lee)

2008.03-2013.02 **KOREA UNIVERSITY**  
**B.S.** in Civil Engineering (major), Statistics (minor)  
- Undergraduate research assistant in Transportation and Logistics System  
Laboratory (2012)  
- Undergraduate research assistant in Steel Structural Laboratory (2011)

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## PUBLICATIONS

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### INTERNATIONAL JOURNAL (SCI)

#### (Published Articles)

1. Lee S., **Kim, HJ.**, Son, E., Bae, Y., Lee, S., Kim, J., Kim, JG., Chae, Y., Jang, IS., Lee, IS. (2026). Laser acupuncture in the treatment of musculoskeletal disorders: systematic review and meta-analysis. *Frontiers in Neurology*.
2. Lee H., **Kim, HJ.**, Jung, J. (2025). Multi-agent LLM framework integrating CAD, FEA, and optimization. *Structural Engineering and Mechanics*, 96(6).
3. **Kim, HJ.**, Kim, J., Park, H. (2025). Graph neural network modeling of free-surface flows in non-Newtonian power-law fluids. *Physics of Fluids*, 37, 123114
4. **Kim, HJ.**, Huynh TN., Lee, JW., Lee, IS. (2025). Patient-Specific Prediction of 3D Ablation Zones via Oncological Feature-Conditioned Deep Generative Modeling. *Computer Methods and Programs in Biomedicine*.
5. Kim, J, **Kim, HJ.**, Park, HJ. (2025). Comparative Analysis of Granular Material Flow: Discrete Element Method and Smoothed Particle Hydrodynamics Approaches. *Physics of Fluids*, 37, 053309.
6. Cho, S., Kim, SW., **Kim, HJ.** (2024). Fault Detection in Blade Pitch Systems of Floating Wind Turbines Utilizing Transformer Architecture. *Structural Engineering and Mechanics*, 92(2).
7. Park, HJ., Kim, J., **Kim, HJ.** (2024). Segment-based wall treatment model for heat transfer rate in smoothed particle hydrodynamics, *Physics of Fluids*, 36(7).
8. **Kim, HJ.**, Jung, S., Cho, S. (2023). Evaluation of dynamic behaviors of gravity-based structures under seismic load considering fluid–structure–ground interactions. *Structural Engineering and Mechanics*, 88(3), 251-262

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9. Shin, M., Peng, Z., **Kim, HJ.**, Yoo, SS., Yoon, K. (2023). Multivariable-Incorporating Super-Resolution Residual Network for Transcranial Focused Ultrasound Simulation. Under Review in Computer Methods and Programs in Biomedicine.
  10. **Kim, HJ.**, Um, SH., Kang, YG., Shin, M., Jeon, H., Kim, BM., Lee, D., Yoon, K. (2023). Laser-tissue interaction simulation considering skin-specific data to predict photothermal damage lesion during laser irradiation. Journal of Computational Design and Engineering.
  11. Park, TY., **Kim, HJ.**, Park, SH., Chang, WS., Kim, H., Yoon, K., Lee, PS. (2022). Differential evolution method to find optimal configuration of a single-element transducer for transcranial focused ultrasound therapy. Computer Methods and Programs in Biomedicine, 219, 106777.
  12. Brinker, ST., Balchandani, P., Seifert, AC., **Kim, HJ.**, Yoon, K. (2022). Feasibility of Upper Cranial Nerve Sonication in Human Application via Neuronavigated Single-Element Pulsed Focused Ultrasound. Ultrasound in Medicine and Biology, 48(6), 1045-1057.
  13. **Kim, HJ.**, Lee, DH., Yoon, K., Lee, PS. (2021). A multi-director continuum beam finite element for efficient analysis of multi-layer strand cables. Computers and Structures, 256, 106621.
  14. Oh, MH., **Kim, HJ.**, Yoon, K., Lee, PS. (2021). Direct Evaluation of the Local Stability of Structures using Nonlinear FE solutions. Structural Engineering and Mechanics, 80(4), 477-490
  15. Lee, DH., **Kim, HJ.**, Lee, PS. (2021) Direct calculation of interface warping functions for considering longitudinal discontinuities in beams. Structural Engineering and Mechanics, 80(5), 625-643
  16. Yoon, K., **Kim, HJ.**, Yeo, S., Hong, Y., Cha, J., Chung, H. (2020). Ballasting plan optimization for operation of a 2D floating dry dock. Structural Engineering and Mechanics, 74(4), 521-532.
  17. **Kim, HJ.**, Yoon, K., Lee, PS. (2020). Continuum mechanics based beam elements for linear and nonlinear analyses of multi-layered composite beams with interlayer slips. Composite Structures, 235, 111740.
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