Hyeonbeen Lee

Curriculum Vitae

☎ *+82-10-6236-4693*
✉ *lhbsharp@khu.ac.kr*
↳🖫 *Github: https://github.com/hyeonbeenlee*
M.S. Candidate in Kyunghee University

RESEARCH INTEREST

- Robot intelligence
- Long-horizon control
- Reinforcement learning
- Sim2Real

EDUCATION

Mar. 2022–Present Yongin, South Korea	**Kyung Hee University**, *Master's Course in Mechanical Engineering*, *GPA – 4.09/4.3 (4.33/4.5)* (Advisor: Prof. Jin-gyun Kim).
Mar. 2015–Feb. 2022 Yongin, South Korea	**Kyung Hee University**, *B.S. in Mechanical Engineering*, *GPA – 3.60/4.3 (3.87/4.5)* (Advisor: Prof. Jin-gyun Kim).

PUBLICATIONS

H. Lee, J. Han, T. Yeo, J.G. Kim. *"Multi-horizon force components forecasting of ocean robot using interpretable Transformer and experimental measurements"*, in preparation

H. Lee, S. Han, H.S. Choi, J.G. Kim. *"cNN-DP: Composite neural network with differential propagation for impulsive nonlinear dynamics"*, Journal of Computational Physics (IF=4.645), revised.

S. Han, G.E. Jeong, **H. Lee**, W.S. Choi, J.G. Kim, *"Multi-body dynamics model for spent nuclear fuel transportation system under normal transport test conditions"*, Nuclear Engineering and Technology (IF=2.817), accepted.

PRESENTATIONS

1st Nov. 2023 Incheon, South Korea	**H. Lee**, J. Han, T. Yeo, J.G. Kim. *"Real-time multi-horizon reaction force forecasting of ocean robot using interpretable Transformer"*, Korean Society of Mechanical Engineers (Oral Presentation)
18th May 2023 Busan, South Korea	**H. Lee**, S. Han, H.S. Choi, J.G. Kim. *"Composite neural network with differential propagation for modeling nonlinear impulsive dynamics"*, Conference on Dynamics and Control, Korean Society of Mechanical Engineers (Oral Presentation)
23rd Mar. 2023 Jeju, South Korea	**H. Lee**, S. Han, H.S. Choi, J.G. Kim. *"Meta-modeling of nonlinear impulsive dynamics using composite neural network model with differential propagation"*, Conference on Engineering Reliability, Korean Society of Mechanical Engineers (Oral Presentation)
16th Feb. 2023 Austin, TX, USA	**H. Lee**, S. Han, H.S. Choi, J.G. Kim. *"Composite neural network framework for modeling impulsive nonlinear dynamic responses"*, IMAC XLI 2023 (Oral Presentation)

4th Dec. 2022 Jeju, South Korea	**H. Lee**, S. Han, G.E. Jeong, J.G. Kim. *"Development of multibody dynamics trailer model using normal transportation test data and DNN based surrogate model generation"*, Korean Society for Noise and Vibration Engineering (Oral Presentation).

GRANTS

Ongoing

Jan. 2022–Present	*Deep-learning based reaction force and torque prediction model development for underwater ground cutting robot using experimental measurements and dynamic simulation data*, Korea Research Institute of Ships and Ocean Engineering (KRISO).
May 2022–Present	*Metamodel generation and evolution procedures for flexible multibody dynamics*, FunctionBay Inc.

Completed

Sep. 2021–Oct. 2022	*Development of ground·sea transportation test simulation model using multibody dynamics and DNN-based metamodel*, Korea Atomic Energy Research Institute (KAERI).

SKILLS

- Python & ML Expert
- Linux
- Docker
- MATLAB
- PyTorch
- Git
- C++/C#
- RecurDyn(Multibody Dynamics Simulation)

AWARDS AND HONORS

Sep. 2023	**Excellence Paper Award**, Korean Society of Mechanical Engineers.
Spring 2021	**Academic Excellence Scholarship (Full Tuition)**, Dept. of Mechanical Engineering, Kyunghee University.

CONFERENCES

May 2023 Busan, South Korea	Conference on Dynamics and Control Korean Society of Mechanical Engineers (KSME)
Mar. 2023 Jeju, South Korea	Conference on Engineering Reliability Korean Society of Mechanical Engineers (KSME)
Feb. 2023 Austin, TX, USA	IMAC-XLI Society for Experimental Mechanics (SEM)
Nov. 2022 Jeju, South Korea	Fall Academic Conference Korean Society for Noise and Vibration Engineering (KSNVE)
Aug. 2022 Seoul, South Korea	AI Summer School 2022 Korean Society of Mechanical Engineers (KSME)
Apr. 2022 Suwon, South Korea	Conference on Dynamics and Control Korean Society of Mechanical Engineers (KSME)
Mar. 2022 Jeju, South Korea	Conference on Engineering Reliability Korean Society of Mechanical Engineers (KSME)
Aug. 2021 Online	AI Summer School 2021 Korean Society of Mechanical Engineers (KSME)

Apr. 2021
Online
"AI, Data Driven Models & Machine Learning: How Will Advanced Technologies Shape Future Simulation Processes?"
National Agency Finite Element Methods and Standard (NAFEMS)

MISCELLANEOUS

May 2023 **New TEPS**,
513/600.

2022–Present **Department Office Assistant**,
Dept. of Mechanical Engineering, Kyunghee University.

2022 **Teaching Assistant (Multibody Dynamics)**,
Dept. of Mechanical Engineering, Kyunghee University.

2021–2022 **Undergraduate Research Assistant**,
Modeling and Simulation Lab, Kyunghee University (Advisor: Jin-gyun Kim).
Research Topic: Acceleration of dynamic simulation process using deep learning based approach

2021–2022 **Bachelor's Thesis Project Leader**,
Aerodynamic Design Exploration & Big Data Analysis Lab, Kyunghee University (Advisor: Prof. Shin-kyu Jeong).
Research Topic: Data-driven aerodynamic coefficient prediction using Deep Neural Network and PARSEC airfoil parameterization

2017–2019
Pohang, South Korea
Republic of Korea Marine Corps,
Honorably Discharged as a Sergeant at 1st Marine Division.