Hyeonbeen Lee

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Google Scholar: scholar.google.com/citations?user=TiduRxoAAAAJ

PERSONAL INFORMATION

Legal Name:	Hyeonbeen Lee	**Date of birth:**	July 4th, 1996
Nationality:	Republic of Korea (South)	**Address:**	6-3, Hoenamu-ro 39gil, Yongsan-gu, Seoul, South Korea
Military service:	Honorably discharged, Marine Corps Sergeant (May 2017∼Feb. 2019)	**Research interest:**	Time series forecasting, Reinforcement learning, Sequential decision

EDUCATION

Banpo High School, Science-specialized Track — Mar. 2012 — Feb. 2015
Kyung Hee University, Dept. of Mechanical Engineering — Mar. 2015 — Feb. 2022
Bachelor of Engineering (Supervisor: Shin-kyu Jeong, Jin-gyun Kim) — GPA(Major): 3.84/4.5, GPA: 3.87/4.5
Thesis: *'Data-driven aerodynamic coefficient prediction using deep neural network and PARSEC airfoil parameterization'*

Kyung Hee University, Dept. of Mechanical Engineering — Mar. 2022 — Feb. 2024
Master of Engineering (Supervisor: Jin-gyun Kim) — GPA: 4.33/4.5
Thesis: *'Composite neural network with differential propagation for modeling impulsive nonlinear dynamic systems'*

SKILLS

- **Programming:** Python, Docker, Linux, Git, LaTeX, MATLAB, C#, C++, ROS
- **ML and data analysis:** PyTorch, TensorBoard, Pandas, OpenCV, Torchvision
  - *Expertised at handling sequential data and models*
- **English:** Speaks in native level
- **Japanese:** Speaks in intermediate level

PUBLICATIONS

1. **H. Lee**, J. Han, T. Yeo, J.G. Kim. "Stochastic Fourier Transformer for interpretable real-time real-world robot force forecasting", in preparation.
2. **H. Lee**, S. Han, H.S. Choi, J.G. Kim (2024). "cNN-DP: Composite neural network with differential propagation for impulsive nonlinear dynamics", *Journal of Computational Physics (Q1, JCR-IF Top 4.5% in Physics, Mathematical)*, 112578.
3. S. Han, G.E. Jeong, **H. Lee**, W.S. Choi, J.G. Kim (2023), "Multi-body dynamics model for spent nuclear fuel transportation system under normal transport test conditions", *Nuclear Engineering and Technology (Q1, JCR-IF Top 3.5% in Nuclear Science & Technology)*, 55(11), 4125-4133.

PROJECTS

Mar. 2022 — Oct. 2024	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). (github.com/hyeonbeenlee/TimeSeriesSeq2Seq)

Nov 2021 — Jan. 2024	cNN-DP: Composite neural network with differential propagation for impulsive nonlinear dynamics, Modeling & Simulation Lab. (github.com/hyeonbeenlee/cNN-DP)
Sep. 2021 — Jan. 2024	Metamodel generation and evolution procedures for flexible multibody dynamics, FunctionBay Inc.
Mar. 2023 — Jun. 2023	Segment Anyone: Fine-tuned Segment-Anything-Model (SAM) for human-collaborative robots, Kyung Hee University Dept. of Artifical Intelligence. (github.com/hyeonbeenlee/segment-anything-fine-tuning)
Dec. 2022 — Jun. 2023	RecurDyn Automation using Python, Modeling & Simulation Lab. (github.com/hyeonbeenlee/RecurDynPython)
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).

CONFERENCES

Jun. 9 2024 Madison, Wisconsin, USA	J. Han, J.B. Han, S.S. Kim, M.H. Kim, Y.H. Kim, **H. Lee**, J.G. Kim, T.K. Yeu. "Digital twin model of underwater construction robot for real-time grinding simulation", 7th International Conference on Multibody System Dynamics.
Nov. 1 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", Annual Conference, Korean Society of Mechanical Engineers (Oral Presentation).
May 18 2023 Busan, 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).
Mar. 23 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 Dynamics and Control, Korean Society of Mechanical Engineers (Oral Presentation).
Feb. 16 2023 Austin, Texas, USA	**H. Lee,** S. Han, H.S. Choi, J.G. Kim. "Composite neural network framework for modeling impulsive nonlinear dynamic responses", 41th International Modal Analysis Conference (IMAC) (Oral Presentation).
Dec. 4 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", Fall conference, Korean Society for Noise and Vibration Engineering (Oral Presentation).

AWARDS AND CERTIFICATES

- **New TEPS:** 513/600 (equivalent to TOEIC 980/990) — No.0111736, Valid, May 13 2023
- **ACTFL OPI English:** AH (Advanced High) — 2A7617334333, Valid, Nov. 14 2023
- **RA Scholarship (80% tuition)** — Kyung Hee University, Sep. 01 2023
- **Exellence Paper Award** — Korean Society of Mechanical Engineers, No.2023-083, Aug. 25 2023
- **RA Scholarship (80% tuition)** — Kyung Hee University, Mar. 01 2023
- **RA Scholarship (80% tuition)** — Kyung Hee University, Sep. 01 2022
- **Excellence Scholarship (Full tuition)** — Kyung Hee University, Mar. 01 2021
- **TOEIC:** 925/990 — No.605083, Expired, Nov 25 2018

MISCELLANEOUS

Representative Administrative Assistant — Kyung Hee University, Sep 2022 — Present
Seminar: IAS18 Workshop&Tutorials — Intl. Conference on Intelligent Autonomous Systems, Jul 2023
Seminar: AI Summer School 2022 — Korean Society of Mechanical Engineers, Aug 2022
Teaching Assistant (System Dynamics) — Modeling & Simulation Lab, Mar 2022 - Jun 2023

Seminar: AI Summer School 2021 Korean Society of Mechanical Engineers, Aug 2021
Seminar: AI, Data Driven Models&ML National Agency Finite Element Methods and Standard, Apr 2021
Undergraduate Research Internship Modeling & Simulation Lab, Jan 2021 — Feb 2022
48th Student Council Kyung Hee University College of Engineering, Feb 2019 — Jan 2020
R.O.K.-U.S. Combined Marine Corps Interpreter 1st Marine Div., ROKMC, Sep 2017 — Feb 2019