Curriculum Vitae

Personal Information

Name	Jeongun Ha
Nationality	Republic of Korea
Birth date	1996.04.02 (Male)
Affiliation	Korea University
Address	145 Anam-ro, Seongbuk-gu, Seoul 02841, Republic of Korea
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Education

Korea University *Seoul, Republic of Korea*
The integrated Master and Philosophy of Doctor, Mathematics *2020.08 -*

- Major in Artificial Intelligence
- Advisor : Prof. Donghun Lee

Korea University *Seoul, Republic of Korea*
The integrated Master and Philosophy of Doctor, Mathematics *2019.03 - 2020.08*

- Major in Group Representation
- Advisor : Prof. Sangjib Kim

Korea University Sejong Campus *Sejong, Republic of Korea*
Bachelor of Science, Mathematics *2015.03 - 2019.02*

- Major in Algebraic Topology

Research Interests

Physics-informed Neural Network

- PINN-based loss and model construction

Neural Operator

- theoretical approaches and applications for effective operator learning

Generative Model

- Interest for several generative model methods.

Publications

*: Equal contribution

1. **Jeongun Ha**, Donghun Lee, *Best of Both Worlds: Bridging Laplace and Fourier for Generalizable and Efficient Operator Learning.* (Openreview)
   NeurIPS 2025 Workshop - ML4PS: Machine Learning and the Physical Sciences

2. Keunsuk Cho*, **Jeongun Ha***, Jihun Lim*, Jongwon Han, Seungryong Kim, Donghun Lee, *PPSD GAN: PPSD-informed Generative Model for Ambient Seismic Noise Synthesizing.* (url)
IEEE Geoscience and Remote Sensing Letters (Volume: 21)

Preprints

*: Equal contribution

1. Jaeheun Jung*, Woonryong Kim*, **Jeongun Ha**, Donghun Lee, Jaekyung Shim *Data-Driven Dimensional Synthesis of Diverse Planar Four-bar Function Generation Mechanism via Direct Parameterization*, (arXiv link)

Under Reviews

1. **Jeongun Ha**, Donghun Lee, *LFNO: Bridging Laplace and Fourier for Effective Operator Learning.*

Patents

Jaeheun Jung, Woonryong Kim, Jeongun Ha, Donghun Lee and Jaekyung Shim, 'Training method for dimensional synthesis of function generation mechanism in linkage apparatus and apparatus thereof', KR10-2025-0083085, Patent pending.

Jaeheun Jung, Woonryong Kim, Jeongun Ha, Donghun Lee and Jaekyung Shim, 'Training method for dimensional synthesis of function generation mechanism in slider-crank apparatus and apparatus thereof', KR10-2025-0083095, Patent pending.

Jeongun Ha, Keunsuk Cho, Jihun Lim, Donghun Lee, 'Seismic Waveform Generation Device Using Power Spectrum Density and Method Thereof, and Storage Medium Storing the Method', KR10-2024-0116937, Patent pending.

Jeongun Ha, Keunsuk Cho, Jihun Lim, Donghun Lee, 'PPSD-Based Synthetic Seismic Waveform Generation Device and Method', KR10-2024-0159796, Patent pending.

Projects, Awards

Project Neural Operator
Since 2025 -

- Collaborator: Sanga Yoon from AIMLK.
- Bridging Laplace Neural Operator and Fourier Neural Operator mechanism for effective operator learning.
- Role: Project leader. Designed for all theoretical foundations, evaluations, and model architectures.
- Status: 1 paper accepted to NeurIPS 2025 Workshop-ML4PS, 1 paper under review for ICLR 2025.

Project Autokinematics
2023 - 2025

- Collaborators: Jaeheun Jung (Project leader) from AIMLK and Woonryong kim from Mechanical Design and CAD lab in Korea University.
- Automated machine design problem on kinematics, starting with four-bar joint problem with arbitrary number of precision points.
- Role: Model architecture development. Designed for LSTM model architectures.
- Status: Manuscript uploaded to arXiv and 2 patents are pending.

Project Earthquake
2023 - 2024

- Collaborators: Keunsuk Cho (Project leader), Jihun Lim from AIMLK.
- Noise generation subproject: Synthesizing ambient noise waveform using information and metadata for a single station.
- Role: Implementation of qualitative metrics and model hyperparameter tuning. Proposed ppsd metric and model architecture.
- Status: 1 paper accepted to IEEE GRSL, 2 patents pending.

AI Grand Challenge: Policy Supporting AI open track
2022 - 2022

- Collaborators: Taehun Cha (Project co-leader), Jaeheun Jung (Project co-leader), Yanggee Kim, Hanyoung Kim, Jaehyuk Lee, Keunsuk Cho, Changhae Jung, Yejin Jeong and Sanga Yoon from AIMLK.
- Continued from 2022.
- Status: 2nd winner.

AI Grand Challenge: Policy Supporting AI 1st competition
2022 - 2022

- Collaborators: Taehun Cha (Project co-leader), Jaeheun Jung (Project co-leader), Hansol Jeon, Yanggee Kim, Hanyoung Kim, Jaehyuk Lee and Keunsuk Cho from AIMLK.
- NLP task on document processing for structured & muti-hop QA with retrieval on open-domain conditions.
- Status: Achieved 7th place out of 54 teams.