HARIM JI

PhD student

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📍 Seoul, South Korea 🔗 HarimJi

SUMMARY

I am a PhD candidate at the Department of Mechanical Engineering, Seoul National University, advised by Professor Dongjun Lee. My research goal is to develop an interactive simulator capable of handling large-scale, contact-rich environments involving both rigid and deformable objects—for example, a soft human hand tightening a bolt. Toward this goal, my interests include dynamics modeling, parallelizable solvers, and GPU-accelerated computation.

SKILLS

Languages: C++, CUDA C++

Technologies: Unreal Engine, Unity, MATLAB, Solidworks

EDUCATION

Mar. 2017 - Feb. 2023	**BS, Seoul National University** Mechanical and Aerospace Engineering, Total GPA: 3.54/4.3
Mar. 2023 -	**PhD., Seoul Nation University** Mechanical Engineering, Total GPA: 3.8/4.3, Advisor: Dongjun Lee

PUBLICATIONS

* denotes equal contribution

1. Jinuk Heo, Hyelim Choi, Yongseok Lee, Hyunsu Kim, **Harim Ji**, Hyunreal Park, Youngseon Lee, Chungkee Jung, Hai-Nguyen Nguyen, and Dongjun Lee (2024). *Hand Tracking: Survey*. International Journal of Control, Automation, and Systems.

2. **Harim Ji**, Hyunsu Kim, Jeongmin Lee, Somang Lee, Seoki An, Jinuk Heo, Youngseon Lee, Yongseok Lee, and Dongjun Lee (2025). *GPU-Accelerated Subsystem-Based ADMM for Large-Scale Interactive Simulation*. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*.

CONFERENCES

* denotes equal contribution

1. **Harim Ji**, Hyelim Choi, Jinuk Heo, Youngseon Lee, Hyunsu Kim, Somang Lee, and Dongjun Lee. *A Robust and Accurate System for Data Acquisition of Dexterous Manipulation*. RSS Workshop on Learning Dexterous Manipulation, 2023. Daegu, Korea.

2. Hyelim Choi*, Youngseon Lee*, **Harim Ji***, Hyunsu Kim, Jinuk Heo, Hyunreal Park, Somang Lee, Minji Lee, Jeongmin Lee, and Dongjun Lee. *Interactive Simulation of Dexterous Manipulation with Hand Tracking: Robot Hand Bolting and Multi-User Collaborative Simulation in VR*. ICRA Expo, 2024. Yokohama, Japan.

3. Hyelim Choi, Hyunreal Park, **Harim Ji**, and Donjun Lee. *Visual-inertial Markerless Hand Tracking*. KRoC 2025. Pyeongchang, Korea.

4. **Harim Ji**, Hyunsu Kim, Jeongmin Lee, Somang Lee, Seoki An, Jinuk Heo, Youngseon Lee, Yongseok Lee, Dongjun Lee. *GPU-Accelerated Subsystem-Based ADMM for Large-Scale Interactive Simulation*. ICRA workshop on Handy Moves: Dexterity in Multi-Fingered Hands, 2025. Atlanta, USA.

PROJECTS

Completed	**VIST plugin for Unreal Engine** We developed an Unreal Engine plugin for visualizing hand tracking results from VIST (Visual Inertial Skeletal Tracking). During this project, a systematic routine was established to transform right-handed coordinates into Unreal Engine's native left-handed coordinate system.
Ongoing	**TES: Tetra Encoded SDF** We developed a memory-efficient Signed Distance Field (SDF) representation that remains exact near the surface and supports small geometric deformations. This enables accurate collision detection between complex meshes in both rigid and soft body simulations.

EXPERIENCE

Mar. 2025 - Jun. 2025	**Teaching Assistant, Mechanical System Modeling and Control** Department of Mechanical Engineering, Seoul National University, Professor Dongjun Lee

AWARDS AND HONORS

2025	**Best Presentation Award, SRRC Workshop**	**Seoul National University**
2022	**Excellence Award, Home Appliance Technology Idea Contest**	**Samsung Electronics & SeoulTech**
2021	**Excellence Award, Engineering Textbook Contest**	**Seoul National University**

SERVICES

2019–2020	**Republic of Korea Air Force**	**South Korea**
	Completed mandatory military service as a sergeant in the Korean Air Force.	

Reviewer

- IEEE International Conference on Robotics and Automation workshop (2025)

LANGUAGES

Korean - native, **English** - B2+ (self-assessed)