

JAEHYUN LEE

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RESEARCH INTERESTS

Computer Graphics, Physics-Based Animation, Deformable bodies, Fluids, Coupling, Scientific Computing, Numerical methods, Optimization

EDUCATION

Korea University Seoul, Republic of Korea
M.S. in Computer Science and Engineering Sep. 2021 – present

- Advised by Prof. JungHyun Han
- GPA: 3.93/4.0

Korea University Seoul, Republic of Korea
B.S. in Computer Science and Engineering (Double major) Mar. 2019 – Feb. 2021

B.S. in Mechanical Engineering Mar. 2015 – Feb. 2021

- Including 2 years of military service
- GPA: 3.98/4.0
- Graduated with Great Honor (*Summa Cum Laude*)

PUBLICATIONS

- Seung-wook Kim, **JaeHyun Lee**, HuiSeong Lee, Kiwon Um, JungHyun Han. “Dimension Expansion for Mass-spring Simulation of Elastic Body.” (Submitted) [\[paper\]](#) [\[video\]](#)
- **JaeHyun Lee**, Seung-wook Kim, Kiwon Um, Min Hyung Kee, JungHyun Han. “Inversion alleviation for stable elastic body simulation.” In Computer Animation and Virtual Worlds (CAVW), Vol. 34, No. 3-4, May 2023, pp. e2183. [\[paper\]](#) [\[video\]](#)

INTERNATIONAL CONFERENCES

- **JaeHyun Lee**, Seung-wook Kim, Kiwon Um, Min Hyung Kee, and JungHyun Han, “Inversion Alleviation for Stable Elastic Body Simulation,” Computer Animation and Social Agents (CASA), May 29-31, 2023, Limassol, Cyprus. [\[paper\]](#) [\[video\]](#)

RESEARCH AND PROJECT EXPERIENCE

Energy conservation for Material Point Method (MPM) Korea University
Researcher Oct. 2023 – present

- Developed C++, CUDA-based state-of-the-art MPM framework, with visualization system using OpenGL. [\[code\]](#)

LG Electronics: Air Conditioning Airflow Simulation Visualization System Korea University
Project Assistant Mar. 2022 – Aug. 2022

- Contributed to the project by implementing Python-based, GPU-accelerated real-time airflow simulator visualized with volume rendering. The project won the **first prize** among 489 teams. [\[code\]](#) [\[video\]](#)

Collision Detection for Constrained Projective Dynamics (CPD) Korea University
Researcher Dec. 2020 – May. 2021

- Implemented tetrahedral collision detection module for ACM Transactions on Graphics 2021 paper titled ‘Constrained Projective Dynamics: Real-Time Simulation of Deformable Objects with Energy-Momentum Conservation’. [\[paper\]](#) [\[video\]](#) [\[code\]](#)

TEACHING

Computer Graphics Korea University
Teaching Assistant Spring 2022

- Teaching Assistant for COSE331 Computer Graphics at Korea University. (Instructor: Prof. JungHyun Han)

SCHOLARSHIPS

Special Scholarships, Korea University	<i>Spring, Fall 2018</i>
National Science and Engineering Scholarship, Ministry of Science and ICT	<i>Spring 2019 – Fall 2020</i>
Research Scholarships, Korea University	<i>Fall 2021, Fall 2022</i>
Kwanjeong Educational Foundation Scholarship, Kwanjeong Educational Foundation	<i>Spring 2022 – Fall 2023</i>
Teaching Assistant Scholarship, Korea University	<i>Spring 2022</i>

HONORS AND AWARDS

Semester High Honors, Korea University	<i>Spring 2017 – Spring 2020</i>
Dean's List, Korea University	<i>Spring 2018</i>
President's List, Korea University	<i>Fall 2018 – Spring 2019</i>
Great Honor, Korea University	<i>Graduation</i>
Best Research award, Korea Electronics Association	<i>Feb 2022, Dec 2022, Aug 2023</i>
Best Industry-Academic Project Award, Ministry of Trade, Industry and Energy	<i>Nov 2023</i>

TECHNICAL SKILLS

Languages: C/C++, Python, Java

APIs: OpenGL, CUDA, OpenMP

Other Tools and Libraries: Git, Eigen, Partio, ImGui, Assimp, PyTorch, Fusion360, CMake, Taichi Lang, Blender

LANGUAGE LEVEL

Korean: Native

English: Fluent