

JAEHYUN LEE

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Github: github.com/LEE-JAE-HYUN179 | Website: www.leejaehyun179.com

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: 4.24/4.5

Korea University Seoul, Republic of Korea
B.S. in Mechanical Engineering (Double major in Computer Science and Engineering) *Mar. 2015 – Feb. 2021*

- Including 2 years of Military service
- GPA: 4.4/4.5
- Graduated with Great Honor

PUBLICATIONS

- **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. [\[paper\]](#)[\[video\]](#)

RESEARCH AND PROJECT EXPERIENCE

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

- Contributed the project by implementing C++, CUDA based state-of-the-art MPM Framework with OpenGL visualize system. [\[code\]](#)

Dimension Expansion for Mass-spring Simulation of Elastic Body Korea University
Researcher *Mar. 2023 – present*

- Proposed and implemented a ‘dimension expansion method’ for simulating the mass-spring model, making the solver robust and enabling efficient resolution of complex deformations. [\[video\]](#)

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

- Contributed the project by implementing Python, GPU based real-time air flow simulator visualized with volume rendering. [\[code\]](#) [\[video\]](#)

Collision Detection for Constrained Projective Dynamics (CPD) Korea University
Research Assistant *Dec. 2020 – Oct. 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 2021, Aug 2023</i>
Best Industry-Academic Project Award, Ministry of Trade, Industry and Energy	<i>Aug 2023</i>

TECHNICAL SKILLS

Languages: C/C++, Python, Java

Graphics APIs: OpenGL, CUDA

Other Tools: Git, Eigen, PyTorch, Fusion360, CMake, Taichi Lang, Blender

LANGUAGE LEVEL

Korean: Native

English: Fluent