# 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 (97/99)

**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: 4.4/4.5 (99/100)
- **Graduated with Great Honor** ***(Summa Cum Laude)***

## 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]
- Seung-wook Kim, **JaeHyun Lee**, HuiSeong Lee, Kiwon Um, JungHyun Han. "Dimension Expansion for Mass-spring Simulation of Elastic Body." (Under review) [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* — *Aug. 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. [code] [video]

**Collision Detection for Constrained Projective Dynamics (CPD)** — Korea University

*Reasearcher* — *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 — *Spring, Fall 2018*

National Science and Engineering Scholarship, Ministry of Science and ICT — *Spring 2019 – Fall 2020*

Research Scholarships, Korea University — *Fall 2021, Fall 2022*

Kwanjeong Educational Foundation Scholarship, Kwanjeong Educational Foundation — *Spring 2022 – Fall 2023*

Teaching Assistant Scholarship, Korea University — *Spring 2022*

## HONORS AND AWARDS

Semester High Honors, Korea University — *Spring 2017 – Spring 2020*

Dean's List, Korea University — *Spring 2018*

President's List, Korea University — *Fall 2018 – Spring 2019*

Great Honor, Korea University — *Graduation*

Best Research award, Korea Electronics Association — *Feb 2021, Aug 2023*

Best Industry-Academic Project Award, Ministry of Trade, Industry and Energy — *Aug 2023*

## 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