JaeHyun Lee

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

RESEARCH INTERESTS

Computer Graphics, Physics-based Animation, Deformable bodies, Fluids, Coupling, Scientific Computing, Numerical Analysis

EDUCATION

Korea University — Seoul, Republic of Korea

M.S, Computer Science; — *Sep. 2021 – present*

- Advised by Prof. JungHyun Han
- GPA: 4.24/4.5

Korea University — Seoul, Republic of Korea

B.S, Mechanical Engineering (Double major in Computer Science); — *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.

RESEARCH EXPERIENCE

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. By expanding the dimension, the solver became robust and efficiently resolve complex deformations.

Energy conserving method for Material Point Method (MPM) — Korea University

Researcher — *Aug. 2022 – present*

- Contributed the project by implementing C++, CUDA based state-of-the-art MPM Framework with OpenGL visualize system.

LG Electronics: Air Conditioning Airflow Simulation Visualization System — Korea University

Project Assistant — *Feb. 2023 – May. 2023*

- Contributed the project by implementing Python, GPU based real-time air flow simulator visualized with volume rendering.

Constrained Projective Dynamics (CPD) — Korea University

Reasearch Assistant — *Dec. 2020 – Mar. 2021*

- Implemented tetrahedral collision detection module for ACM SIGGRAPH 2021 paper "Constrained projective dynamics: real-time simulation of deformable objects with energy-momentum conservation".

TEACHING

Computer Graphics — Korea University

Teaching Assistant — *Spring 2022*

- Worked as a Teaching Assistant in the 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*

TECHNICAL SKILLS

Languages: C++, Python, Java

Graphics APIs: OpenGL, CUDA

Other Tools: Git, CMake, Taichi Lang, Blender

LANGUAGE LEVEL

Korean: Native

English: Fluent