Jooeun Son

Computer Graphics Lab, POSTECH, South Korea

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I am a Ph.D. student at POSTECH working on neural, physically-based, and inverse rendering. I focus on modeling and reconstructing the intricate appearance of complex materials, such as garments and knits, to bring lifelike visual richness to digital worlds.

Last Update: Nov. 2026

Education

- **Ph.D. of Computer Science and Engineering**, *POSTECH*, *Pohang, South Korea* *Expected 2028*
  - Advised by Prof. Seungyong Lee
  - CGPA: 4.12 / 4.3
- **B.S. of Computer Science and Engineering**, *POSTECH*, *Pohang, South Korea* *Mar. 2017 - Aug. 2021*
  - CGPA: 3.66 / 4.3
- **Study Abroad Program**, *University of Illinois at Urbana-Champaign (UIUC)*, *USA Jan. 2021 - May 2021*

Publications

- **Unravelry: Recovering Stitch Graphs from Photographs of Knitted Fabrics**
  Jooeun Son, *Joo Ho Lee, Seungyong Lee*
  (Under Review)
- **Denoise-Rectified Score Distillation for Efficient, High-Quality Visual Synthesis**
  Nuri Ryu, ***Jooeun Son***, *Sunghyun Cho*
  (Under Review)
- **StructureGS: Structure-aware Gaussian Splatting for Articulated Object Reconstruction**
  Gahye Lee, Gyoonseo Kim, Wonjong Jang, ***Jooeun Son***, *Seungyong Lee*
  European Conference on Computer Vision (ECCV), Malmö, Sweden, 2026
- **Camera Splatting for Continuous View Optimization**
  Gahye Lee, Hyomin Kim, Gwangjin Ju, ***Jooeun Son***, *Hyejeong Yoon, Seungyong Lee*
  Computer Graphics Forum (Proc. Pacific Graphics), Singapore, 2026
- **Neural Local Inter-reflection Modeling for Garment Fold Rendering**
  Jooeun Son, *Nuri Ryu, Gyoonseo Kim, Joo Ho Lee, Seungyong Lee*
  Computer Graphics Forum (Proc. Eurographics), Aachen, Germany, 2026
- **LTC-IR: Multiview Edge-Aware Inverse Rendering with Linearly Transformed Cosines**
  Dabeen Park, Junsuh Park, ***Jooeun Son***, *Seungyong Lee, Joo Ho Lee*
  Computer Graphics Forum (Proc. Pacific Graphics), Taipei, Taiwan, 2025
- **Elevating 3D Models: High-Quality Texture and Geometry Refinement from a Low-Quality Model**
  Nuri Ryu, Jiyun Won, ***Jooeun Son***, *Minsu Gong, Joo-Haeng Lee, Sunghyun Cho*
  SIGGRAPH, Vancouver, Canada, 2025
- **Inverse Rendering of Translucent Objects with Shape-Adaptive Importance Sampling**
  Jooeun Son, *Yucheol Jung, Kyungmin Lee, Joo Ho Lee, Seungyong Lee*
  Pacific Graphics (Conference Track), Huangshan, China, 2024
- **High-Quality Geometry and Texture Editing of Neural Radiance Field**
  Soongjin Kim, ***Jooeun Son***, *Gwangjin Ju, Joo Ho Lee, Seungyong Lee*
  Pacific Graphics (Conference Track), Huangshan, China, 2024
- **Toonify3D: StyleGAN-based 3D Stylized Face Generator**
  Wonjong Jang, Yucheol Jung, Hyomin Kim, Gwangjin Ju, Chaewon Son, ***Jooeun Son***, *Seungyong Lee*
  SIGGRAPH, Denver, USA, 2024

Professional Experience

- **Carnegie-Mellon University (CMU)** *Jan. 2022 - Jul. 2022*
  AI Intensive Training Program Participant Pittsburgh, PA, USA
  - Participated in AI training program sponsored by the Korean government (IITP) involving four project-based AI courses and studio project on edge computing.
  - Explored (1) image-based garment editing with generative models (GAN), (2) video-based facial action recognition with change point detection and (3) AI video search assistant on Jetson Nano.

- **Computational Geometry Lab, POSTECH** *Mar. 2019 - Dec. 2019*
  Undergraduate Researcher Pohang, South Korea
  - Technical Skills: C++, OpenGL
  - Implemented algorithm for quickest-pair visibility problem minimizing distance-to-sight.
  - Advised by Prof. Hee-Kap Ahn

- **Mealing (Closed)** *Jan. 2021 - Jul. 2021*
  Front-end Engineer Seoul, South Korea
  - Technical Skills: Javascript, React-Native
  - Cooperated with designers, developers, project managers to develop front-end for food recommendation platform.

Projects

- **Learning Appearance for Multiple Objects using SIRENs** *Sep. 2021 - Dec. 2021*
  Team of 2
  - Technical Skills: Python, PyTorch
  - Implemented neural representation for geometry and appearance of class of objects using SIREN model. Achieved better geometry reconstruction compared to baseline (DeepSDF).
  - Chosen as best project for 3D Vision course (Prof. Jaesik Park).

- **3D Garment Reconstruction from Image to Humanoid** *Sep. 2020 - Dec. 2020*
  Team of 1
  - Technical Skills: Blender, Python
  - Implemented algorithm for transforming garment image to fit arbitrary 3D humans using Laplacian deformation and landmark detection.
  - Honorable Mention for Undergraduate Research course.

Skills, Coursework

- **Skills**
  Programming Language: Python (Proficient), C++(Proficient), C
  Language: Korean (Native), English (TOEFL 118)
  Tools: Docker, Blender, Unity, WandB

- **Selected Coursework**

  POSTECH Computer Graphics , 3D Vision , Human-Computer Interaction , Probabilistic Graphical Models , Convex Optimization , Continuum Mechanics (MECH515)
  CMU Introduction to Deep Learning (11-785), Large-Scale Multimedia Analysis (11-775), Artificial Intelligence Methods for Social Good, Physics-based Rendering (15-468, Audit)
  UIUC Virtual Reality (CS498)

Invited Talks

The 2022 CMU K-12 Summit on Artificial Intelligence for Social Good *Apr. 2022*
Topic: Facial Action Detection (Online) Pittsburgh, PA, USA

Honors & Awards

Best Poster Award, *Korea Computer Graphics Society* *Jul. 2023*
Topic: Efficient Rendering of Translucency under Dynamic Lighting Conditions

Study Abroad Scholarship, *POSTECH* *Mar. 2020*

Global Leadership Program Scholarship, *POSTECH* *Mar. 2017 - Dec. 2018*
Awarded by the Department of Computer Science and Engineering

Leadership Experience

SIGGRAPH Asia 2024 Student Volunteer, *Tokyo, Japan* *Dec. 2024*

SIGGRAPH Asia 2022 Student Volunteer, *Daegu, South Korea* *Dec. 2022*

Student Council of Department of Computer Science and Engineering, *POSTECH* *Mar. 2019 - Dec. 2019*

Teaching

Teaching Assistant for Operating Systems (CSED 312), *POSTECH* *Sep. 2022 - Dec. 2022*

Teaching Assistant for Introduction to Programming (CSED 103), *POSTECH* *Sep. 2025 - Dec. 2025*