

Seokjun Choi

[sʌk-dʒu:n tʃwe] (approx. "Suk-jun Choi")

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Korean (Native) · English (Advanced) · Available for U.S.-based internship

Research Overview

Research Interests: Practical 3D Appearance Acquisition, Computational Imaging, Inverse Rendering

Technical Skills: PyTorch, Python, and optical system design for polarization imaging

My research focuses on **practical 3D reconstruction, relighting & materials**, and **computational imaging**, using **desktop-scale display-camera systems**.

- First author of **Differentiable Display Photometric Stereo (CVPR 2024)** and **A Real-world Display Inverse Rendering Dataset (ICCV 2025)**, developing methods and datasets for **surface normal** and **material analysis** under **programmable display illumination**. My work spans both **illumination optimization** and **real-world calibrated capture pipelines**.
- Contributed to **Differentiable Point-based Inverse Rendering (CVPR 2024)** and **Differentiable Inverse Rendering with Interpretable Basis BRDFs (CVPR 2025)**, with a focus on **practical 3D reconstruction, inverse rendering**, and **physically-based relightable scene representations**.
- Currently studying **polarization-aware display inverse rendering** using **transformer-based models** for improved **shape** and **material understanding**.

Education

POSTECH (Pohang University of Science and Technology), Pohang, Korea

Feb. 2022 – Feb. 2028 (Expected)

Ph.D. Student, Department of Computer Science and Engineering

Advisor: [Seung-Hwan Baek](#)

Member of [Computational Imaging Group](#), in [Computer Graphics Lab](#)

Chung-Ang University, Seoul, Korea

Feb. 2015 – Aug. 2021

B.S. in Integrative Engineering and B.S. in Software

GPA: 4.11/4.5, Magna Cum Laude

Publications

Seokjun Choi, Hoon-Gyu Chung, Yujin Jeon, Giljoo Nam, and Seung-Hwan Baek.

“A Real-world Display Inverse Rendering Dataset.”

Proceedings of the IEEE/CVF International Conference on Computer Vision [ICCV 2025]

Hoon-Gyu Chung, **Seokjun Choi**, and Seung-Hwan Baek.

“Differentiable Inverse Rendering with Interpretable Basis BRDFs.”

Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition [CVPR 2025]

Juhyung Choi, Jinnyeong Kim, **Seokjun Choi**, Jinwoo Lee, Samuel Brucker, Mario Bijelic, Felix Heide, and Seung-Hwan Baek.

“Dual Exposure Stereo for Extended Dynamic Range 3D Imaging.”

Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition [CVPR 2025]

Seokjun Choi, Seungwoo Yoon, Giljoo Nam, Seungyong Lee, and Seung-Hwan Baek.

“Differentiable Display Photometric Stereo.”

Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition [CVPR 2024]

Hoon-Gyu Chung, **Seokjun Choi**, and Seung-Hwan Baek.

“Differentiable Point-based Inverse Rendering.”

Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition [CVPR 2024]

Suhyun Shin, **Seokjun Choi**, Felix Heide, and Seung-Hwan Baek.

“Dispersed Structured Light for Hyperspectral 3D Imaging.”

Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition [CVPR 2024]

Reviewer Services

Conference Reviewer

- IEEE VR 2026
- NeurIPS 2025

Patents

U.S. Patent Application

- Seung-Hwan Baek, **Seokjun Choi**, Seungwoo Yoon, Seungyong Lee, Jinwoo Park, Nahyup Kang, and Jiyeon Kim.
“Method of determining illumination pattern for three-dimensional scene and method and apparatus for modeling three-dimensional scene.”
US-2024-0394964-A1.
- Seung-Hwan Baek, Suhyun Shin, **Seokjun Choi**
“System, method, and apparatus for 3D hyperspectral imaging.”
US-2025-0369800-A1.

Teaching

Teaching Assistant @ POSTECH

- **POSCO AI Expert** 2022, 2023, 2024
- **CSED490F**: Computational Signal Processing Fall 2025
- **CSED233**: Data Structure Fall 2023
- **CSED700G**: Computational Imaging Spring 2022

Honors and Awards

First Prize, Outstanding Paper Award

2025

BK21 End-to-End Big Data Innovation Talent Development Program.
POSTECH, Pohang, Korea.

Top-ranked admission scholarship and full tuition support

2015–2016, 2018–2020

Awarded for all enrolled semesters.
Chung-Ang University, Seoul, Korea.

Research Projects

Neural Rendering for Acquisition of Realistic 3D Assets

Sponsored by SAIT (Samsung Advanced Institute of Technology).

Mar. 2023 – Dec. 2023

Performance Analysis of 2D Image-Based Semantic Segmentation Algorithm

Sponsored by ETRI (Electronics and Telecommunications Research Institute).

Jun. 2022 – Nov. 2022

Visual Memory Network-based Cognitive Imitation

Developed network compression algorithms for surveillance cameras.

Sponsored by ETRI (Electronics and Telecommunications Research Institute).

Apr. 2020 – Nov. 2020

Experiences

Republic of Korea Air Force

Sergeant in charge of administration, 256th Tactical Airlift Squadron, 15th Combat Group.
15th Special Activity Wing, Republic of Korea Air Force.

Jul. 2016 – Jul. 2018