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EDUCATION/TRAINING

10/2022–04/2023 **Microsoft Research Asia** (MSRA), China, **Research Intern** (remote)

09/2020–02/2025 **KAIST, Korea, PhD candidate in Computer Science**
– Thesis: Extending Mueller Calculus to the Directional Domain for Polarized Light Transport

03/2018–08/2020 **KAIST, Korea, MS in Computer Science**
– Thesis: Modeling Surround-Aware Contrast Sensitivity for HDR Applications

02/2012–02/2018 **KAIST, Korea, BS in Mathematical Science**
– Double major: Physics
– Minor: Computer Science

AWARDS

- **Stars of Tomorrow Award**, Microsoft Research Asia, 2023
  - Recognized for outstanding performance during internship.
- **Top 10 Research Accomplishments**, KAIST, 2021
  - Developed differentiable transient rendering for None-Line-of-Sight (NLOS) imaging.

PUBLICATIONS

International Journals:

[J1] **Shinyoung Yi**, Donggun Kim, Jiwoong Na, Xin Tong, Min H. Kim (2024), "Spin-Weighted Spherical Harmonics for Polarized Light Transport," ACM transactions on Graphics (TOG), 43(4), Jul. 28 - Aug. 1, 2024, to be presented at **SIGGRAPH** 2024

[J2] **Shinyoung Yi**, Daniel S. Jeon, Ana Serrano, Se-Yoon Jeong, Hui-Yong Kim, Diego Gutierrez, Min H. Kim (2022), "Modelling Surround-aware Contrast Sensitivity for HDR Displays," Computer Graphics Forum (CGF), 2022

[J3] **Shinyoung Yi**, Donggun Kim, Kiseok Choi, Adrian Jarabo, Diego Gutierrez, Min H. Kim (2021), "Differentiable Transient Rendering," ACM transactions on Graphics (TOG), 40(6), Dec. 14 - Dec. 17, 2021, presented at **SIGGRAPH Asia** 2021

[J4] Daniel S. Jeon, Seung-Hwan Baek, **Shinyoung Yi**, Qiang Fu, Xiong Dun, Wolfgang Heidrich, Min H. Kim (2019), "Compact Snapshot Hyperspectral Imaging with Diffracted Rotation," ACM transactions on Graphics (TOG), 38(4), Jul. 28 - Aug. 1, 2019, pp. 117:1–13, presented at **SIGGRAPH** 2019

International Conference Proceedings:

[C1] **Shinyoung Yi**, Daniel S. Jeon, Ana Serrano, Se-Yoon Jeong, Hui-Yong Kim, Diego Gutierrez, Min H. Kim (2021), "Modeling Surround-aware Contrast Sensitivity," Proc. Eurographics Symposium on Rendering (**EGSR**) 2021, Saarbruken, Germany & Virtual, June 30, 2021, also referred to Computer Graphics Forum (CGF)

Academic Service

Reviewer for Journals and Conferences:

2024	IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
2024	Pacific Conference on Computer Graphics and Applications (Pacific Graphics) 2024
2024	Conference on Neural Information Processing Systems (NeurIPS) 2024
2024	IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2024
2023	IEEE Transactions on Visualization and Computer Graphics (TVCG)
2023	ACM SIGGRAPH Asia 2023
2022	ACM SIGGRAPH Asia 2022
2022	IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
2022	Computer & Graphics
2022	ACM SIGGRAPH 2022
2021	Computer Graphics Forum (CGF)

Research Projects

2022-2023	A research project with Microsoft Research Asia (MSRA)
2020-2023	A research project on non-line-of-sight imaging, Samsung Research Funding & Incubation Center for Future Technology
2018-2019	Developing an HDR video compression algorithm for luminance, ETRI

Patents

[1] Se-Yoon Jeong, Tae-Jin Lee, **Shin-Young Yi**, Min Hyuk Kim, "Video Compression Method and Apparatus to Support Content Background Luminance-Adaptive Opto-Electric/Electro-Optic Transfer Functions", KR Patent App.: 10-2019-0156250, published in November 29, 2019.

[2] Se-Yoon Jeong, Min Hyuk Kim, **Shin-Young Yi**, Jung-won Kang, Hui-yong Kim, Ha-kyeong Kim, "Method And Apparatus for Opto-Electric/Elctro-Optic Transfer", KR Patent App.: 10-2019-0150312, published in November 21, 2019.

[3] Se-Yoon Jeong, Min Hyuk Kim, **Shin-Young Yi**, Jung-Won Kang, Hui-Yong Kim, Ha-Kyeong Kim, "Apparatus And Method For Converting Luminance-Adaptive Opto-Electric/Electro-Optic For HDR Video Transfer And Compression", KR Patent App.: 10-2018-0148957, published in November 27, 2018

Teaching

Teaching Assistant

[1] Introduction to Computer Vision, KAIST, Fall 2023

[2] Discrete Mathematics, KAIST, Spring 2023

[3] Introduction to Computer Vision, KAIST, Fall 2022 (**Best Teaching Assistant Award**)

[4] Introduction to Computer Graphics, KAIST, Spring 2021

[5] Introduction to Computer Vision, KAIST, Fall 2019

[6] Computer Vision, KAIST, Spring 2019

[7] Introduction to Computer Vision, KAIST, Fall 2018

[8] Discrete Mathematics, KAIST, Spring 2018

Educational Materials

1. Physics-Based Rendering Using Mitsuba3-Python (Available at Github Repository)
   - Developed comprehensive lecture materials on physics-based rendering. These materials are the first Python-based rendering lecture sources utilizing Mitsuba 3, a widely used research-oriented rendering system. Compared to existing materials based on heavy C++ implementations, the Python interface significantly enhances accessibility, enabling researchers in fields beyond computer graphics, such as computer vision and remote sensing, to effectively learn rendering concepts.

REFERENCES

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