BYEONGJOO AHN

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RESEARCH INTERESTS

My research interests are in computational imaging, computer vision, and computer graphics. I am interested in identifying visible hints offered by our physical surroundings such as interreflections, and developing imaging systems extending the visibility far beyond human ability such as the reconstruction of objects that are not in the direct line of sight or those with strong self-occlusions.

EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Ph.D. in Electrical and Computer Engineering — 2017 – 2023
Advisors: Aswin C. Sankaranarayanan and Ioannis Gkioulekas
Thesis: "Full-surround 3D Reconstruction using Kaleidoscopes"
Thesis Committee: Aswin C. Sankaranarayanan (CMU), Ioannis Gkioulekas (CMU), Manmohan Chandraker (UCSD), Shree K. Nayar (Columbia)

Seoul National University — Seoul, Korea
M.S. in Electrical Engineering and Computer Science — 2012 – 2014
Advisor: Kyoung Mu Lee
Thesis: "Occlusion-Aware Motion Deblurring for Bilayer Scenes"
Outstanding Thesis Award

Seoul National University — Seoul, Korea
B.S. in Electrical and Computer Engineering — 2008 – 2012
Summa Cum Laude

PROFESSIONAL EXPERIENCE

Apple — Seattle, WA
Research Scientist — Jan. 2024 – Present

Apple — Seattle, WA
Research Intern with Rick Chang and Karren Yang — Jan. 2023 – Sep. 2023

Snap Inc. — (Remote) New York, NY
Research Intern with Shree K. Nayar and Jian Wang — May. 2020 – Aug. 2020

Carnegie Mellon University — Pittsburgh, PA
Research Assistant — Sep. 2017 – Dec. 2023

Korea Institute of Science and Technology — Seoul, Korea
Research Scientist — Mar. 2014 – Aug. 2017

HP Labs — Palo Alto, CA
Intern with Irwin Sobel — Jan. 2012 – Feb. 2012

PUBLICATIONS

"Novel-view Acoustic Synthesis From 3D Reconstructed Rooms"
Byeongjoo Ahn, Karren Yang, Brian Hamilton, Jonathan Sheaffer, Anurag Ranjan, Miguel Sarabia, Oncel Tuzel, Jen-Hao Rick Chang
Interspeech, 2024

"Neural Kaleidoscopic Space Sculpting"
Byeongjoo Ahn, Michael De Zeeuw, Ioannis Gkioulekas, Aswin C. Sankaranarayanan
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023

"Kaleidoscopic Structured Light"
Byeongjoo Ahn, Ioannis Gkioulekas, Aswin C. Sankaranarayanan
ACM Transactions on Graphics (Proc. SIGGRAPH ASIA), 2021

"Convolutional Approximations to the General Non-Line-of-Sight Imaging Operator"
Byeongjoo Ahn, Akshat Dave, Ashok Veeraraghavan, Ioannis Gkioulekas, Aswin C. Sankaranarayanan
IEEE/CVF International Conference on Computer Vision (ICCV), 2019 (Oral Presentation)

"Occlusion-Aware Video Deblurring with a New Layered Blur Model"
Byeongjoo Ahn, Tae Hyun Kim, Wonsik Kim, Kyoung Mu Lee
arXiv preprint arXiv:1611.09572, 2016

"Reduced Illumination Patterns for Acquisition of Specular and Diffuse Normal Maps"
Byeongjoo Ahn, Junghyun Cho, Taekyung Yoo, Ig-Jae Kim
ACM SIGGRAPH ASIA Poster, 2016

"Dynamic Scene Deblurring"
Tae Hyun Kim, **Byeongjoo Ahn**, Kyoung Mu Lee
IEEE International Conference on Computer Vision (ICCV), 2013

AWARDS AND HONORS

Top Reviewer, NeurIPS 2022 — 2022

Doctoral Study Abroad Scholarship, Korea Foundation for Advanced Studies — 2017

Fulbright Graduate Study Award (gratefully declined), Fulbright — 2017

Best Poster Award, KIST R&D EXPO — 2014

Outstanding Thesis Award, Department of EECS, Seoul National University — 2014

Honorable Mention Award, Samsung Humantech Paper Award — 2014

Graduate Scholarship, Kwanjeong Educational Foundation — 2012

Presidential Science Scholarship, Korea Student Aid Foundation — 2008

TEACHING

Teaching Assistant, Carnegie Mellon University
- 15-463/663/862 Computational Photography — Fall 2020
- Recitation for 18-290 Signals and Systems — Spring 2019, 2020

INVITED TALKS

"Kaleidoscopic Imaging for Full-Surround 3D Reconstruction"

- Connective AI Workshop — Aug. 2023
- KIST, Visual Intelligence Group — Apr. 2023
- Meta Reality Labs Research Pittsburgh, TechTalk — Apr. 2022
- Seoul National University, Topics in 3D Vision Workshop — Jan. 2022

SERVICES

Area Chair, NeurIPS 2024

Program Committee, ICCP (2023, 2024)

Reviewer, CVPR (2019, 2020, 2021, 2022, 2023, 2024), ICCV (2019, 2021, 2023), ECCV (2020, 2024), BMVC (2019), ICLR (2022), NeurIPS (2022, 2023), SIGGRAPH (2022), SIGGRAPH ASIA (2023), TIP (2022–), TCI (2024)

Student Volunteer, ACCV 2012, ICCP 2021

Volunteer, Camera Building Workshop as part of Gelfand Outreach Program at CMU (2019)

Mentor, CMU AI Mentoring Program (2021)

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