Sanghyun Son

Contact Information

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Google scholar:	link

Education

Integrated Ph.D. program in Department of ECE　　　　　　　　　　Mar. 2017 - Present
Seoul National University (SNU), Seoul, Korea
Advisor: Kyoung Mu Lee

B.S. in Department of ECE - *summa cum laude*　　　　　　　　　　Mar. 2013 - Feb. 2017
Seoul National University (SNU), Seoul, Korea

Publications

• Geonwoon Jang, Wooseok Lee, **Sanghyun Son**, and Kyoung Mu Lee, "C2N: Practical Generative Noise Modeling for Real-World Denoising," In International Conference on Computer Vision (**ICCV**), 2021.

• **Sanghyun Son** and Kyoung Mu Lee, "SRWarp: Generalized Image Super-Resolution under Arbitrary Transformation," In Computer Vision and Pattern Recognition (**CVPR**), 2021.

• Seungjun Nah, **Sanghyun Son**, Jaerin Lee, and Kyoung Mu Lee, "Clean Images are Hard to Reblur: A New Clue for Deblurring," *arXiv preprint arXiv:2104.12665*, 2021.

• **Sanghyun Son***, Jaeha Kim*, Wei-Sheng Lai, Ming-Hsuan Yang, and Kyoung Mu Lee, "Toward Real-World Super-Resolution via Adaptive Downsampling Models," IEEE Trans. on Pattern Analysis and Machine Intelligence (**TPAMI**), *accepted*.

• **Sanghyun Son** and Kyoung Mu Lee, "Image Super-Resolution," in Ikeuchi K. (eds) Computer Vision. Springer, Cham, 2021. https://doi.org/10.1007/978-3-030-03243-2_838-1

• Seungjun Nah, **Sanghyun Son**, and Kyoung Mu Lee, "Recurrent Neural Networks with Intra-Frame Iterations for Video Deblurring," Proc. Computer Vision and Pattern Recognition (**CVPR**), 2019.

• **Sanghyun Son**, Seungjun Nah, and Kyoung Mu Lee, "Clustering Convolutional Kernels to Compress Deep Neural Networks," Proc. European Conference on Computer Vision (**ECCV**), 2018.

• Bee Lim, **Sanghyun Son**, Heewon Kim, Seungjun Nah, and Kyoung Mu Lee, "Enhanced Deep Residual Networks for Single Image Super-Resolution," **NTIRE 2017** workshop in conjunction with **CVPR**, 2017. (**Challenge Winners, Workshop Best Paper**)

Challenge Reports and Dataset

- **Sanghyun Son**, Suyoung Lee, Seungjun Nah, Radu Timofte, and Kyoung Mu Lee, "NTIRE 2021 Challenge on Video Super-Resolution," **NTIRE 2021** workshop in conjunction with **CVPR**, 2021.
- Seungjun Nah, **Sanghyun Son**, Suyoung Lee, Radu Timofte, and Kyoung Mu Lee, "NTIRE 2021 Challenge on Image Deblurring," **NTIRE 2021** workshop in conjunction with **CVPR**, 2021.
- **Sanghyun Son**, Jaerin Lee, Seungjun Nah, Radu Timofte, and Kyoung Mu Lee, "AIM 2020 Challenge on Video Temporal Super-Resolution," **AIM 2020** workshop in conjunction with **ICCV**, 2020.
- Seungjun Nah, **Sanghyun Son**, Radu Timofte, and Kyoung Mu Lee, "NTIRE 2020 Challenge on Image and Video Deblurring," **NTIRE 2020** workshop in conjunction with **CVPR**, 2020.
- Seungjun Nah, **Sanghyun Son**, Radu Timofte, and Kyoung Mu Lee, "AIM 2019 Challenge on Video Temporal Super-Resolution: Methods and Results," **AIM 2019** workshop in conjunction with **ICCV**, 2019.
- Seungjun Nah, Sungyong Baik, Seokil Hong, Gyeongsik Moon, **Sanghyun Son**, Radu Timofte, and Kyoung Mu Lee, "NTIRE 2019 Challenge on Video Deblurring and Super-Resolution: Dataset and Study," **NTIRE 2019** workshop in conjunction with **CVPR**, 2019.

Service

Workshop Challenge Co-organizer	Jun. 2021
NTIRE 2021 Challenge on Video Super-Resolution, Video Deblurring	
NTIRE 2021 workshop in conjunction with CVPR, 2021	
Workshop Challenge Co-organizer	Aug. 2020
AIM 2020 Challenge on Video Temporal Super-Resolution	
AIM 2020 workshop in conjunction with ECCV, 2020	
Workshop Challenge Co-organizer	Sep. 2019
AIM 2019 Challenge on Video Temporal Super-Resolution	
AIM 2019 workshop in conjunction with ICCV, 2019	

Conference Reviewer: CVPR, ECCV, ICCV, and the corresponding Workshops
Journal Reviewer: TPAMI, TIP, CVIU, IJCV, TCI

Internship

Student Research Intern	Jan. 2019 - Jun. 2019

Research Topic: Single Image Super-Resolution for the Real-World Images
Google Cloud, Sunnyvale, CA, USA
Mentor: Ming-Hsuan Yang

Teaching Assistant

EE729.003: Advanced Trends in Computer Vision (ATCV)	Sep. 2020 - Dec. 2020
Seoul National University, Seoul, Korea	

Neural Processing Expert (NPEX): Image Restoration Lab.	Sep. 2020
Samsung Electronics SNU Cooperation R&D Center, Seoul, Korea	

EE729.001: Topics in Control and Automation	Sep. 2019 - Dec. 2019
Seoul National University, Seoul, Korea	

Neural Processing Expert (NPEX): Image Restoration Lab.	Jul. 2019
Samsung Electronics SNU Cooperation R&D Center, Seoul, Korea	

EE306: Signal and Systems	Mar. 2017 - Jun. 2017
Seoul National University, Seoul, Korea	

Awards and Honors

- **Winner** of Qualcomm Innovation Fellowship Korea 2021.
- **Highly Cited Paper Award** from Department of ECE, SNU, 2018.
- **1st Place Award** in NTIRE 2017 Challenge on Single Image Super-Resolution.
- **Best Paper Award** of NTIRE 2017 Workshop: Challenge Track.

Scholarships

• Kwanjeong Scholarship, Kwanjeong Educational Foundation	2017 - 2018
• National Scholarship for Science & Engineering, Korea Student Aid Foundation	2015 - 2016
• Scholarship of Academic Excellence, Seoul National University	2013 - 2014

Skills

PyTorch, Python, C++, MATLAB, CUDA, LaTeX

Research Interests

I am interested in deep learning and low-level image restoration problems, especially image super-resolution and deblurring. Recently I mainly working on reconstructing high-resolution images from real-world inputs. My research topics also include network optimization and acceleration to handle practical issues in deep learning.

References

Advisor   Kyoung Mu Lee
Professor
Seoul National University
kyoungmu@snu.ac.kr
https://cv.snu.ac.kr/index.php/kmlee

Mentor   Ming-Hsuan Yang
Professor
UC Merced
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