

# Naejin Kong

Ph.D. in Computer Science  
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## RESEARCH BACKGROUND:

Scene Understanding, Visual Understanding, Deep Learning, Convolutional Neural Networks, Computer Vision, Graphics, Computational Photography.

*Keywords:* Video, Depth, Motion, Albedo, Shading, Illumination, Intrinsic Images, Reconstruction, Layout, Polarization.

## WORK EXPERIENCE:

JUN. 2017 - PRESENT

*Staff Engineer (formally titled Senior Engineer)*

Samsung Research,

Samsung Electronics Co., Ltd., Seoul, South Korea

JAN. 2016 - APR. 2017

*Research Scientist*

Perceiving Systems Department,

Max Planck Institute for Intelligent Systems, Germany

- Supervisor: Director **Michael J. Black**

JAN. 2013 - DEC. 2015

*Postdoctoral Researcher*

Perceiving Systems Department,

Max Planck Institute for Intelligent Systems, Germany

- Supervisor: Director **Michael J. Black**

FEB. 2012 - NOV. 2012

*Post-Doc*, Information & Electronics Research Institute, KAIST

- Fellow of a project group “Real-world Scale Computing: BK21 Program,” funded by the National Research Foundation of Korea

APR. 2007 - FEB. 2011

*Technical Research Personnel* (military service), KAIST

MAR. 2005 - DEC. 2010

*Teaching Assistant* (Computer Graphics, Algorithms, Discrete Mathematics, etc.), Department of Computer Science, KAIST

FEB. 2007 - JAN. 2011

*Research Assistant* (Ph.D. Course), Computer Graphics Lab.

(Prof. Sung Yong Shin), Department of Computer Science, KAIST

## EDUCATION:

MAR. 2005 - FEB. 2012

Ph.D. (M.S. & Ph.D. integrated), Computer Science KAIST, South Korea

- Thesis: “Physically-based reflection separation using polarized images”
- Advisor: Professor **Sung Yong Shin**

MAR. 2000 - FEB. 2005

B.S., Computer Science

Sogang University, South Korea

- Graduated with honors. (*Magna Cum Laude*)
- Departmental student representative in 2001

## AWARDS:

SEP. 2012

Basic Research Infrastructure Support Program,

Fostering Next-generation Researchers, 1 Year, USD 28,936.

National Research Foundation of Korea

(Gave it away and chose the position at MPI.)

JUN. 2012

Doctoral Consortium, 2012 IEEE Computer Society CVPR

(One of more than 30 noticed invitees from all over the world)

NOV. 2004

Silver Prize, 2004 Graduate Project and Software Contest,

Department of Computer Science, Sogang Univ.

AUG. 2000

AAA grade scholarship for academic excellence, Sogang Univ.

AUG. 2004 / MAR. 2004 / MAR. 2001

AA grade scholarships for academic excellence, Sogang Univ.

## **PUBLICATIONS:**

### *Conferences*

- **Naejin Kong** and Michael J. Black, "Intrinsic Depth: improving depth transfer with intrinsic images," in *Proc. IEEE International Conference on Computer Vision (ICCV)*, pages 3514-3522, December 2015.
- **Naejin Kong**, Peter V. Gehler, and Michael J. Black, "Intrinsic Video," in *Computer Vision – ECCV 2014*, Springer International Publishing, volume 8690, Lecture Notes in Computer Science, pages 360-375, September 2014.
- **Naejin Kong**, Yu-Wing Tai, and Sung Yong Shin, "A physically-based approach to reflection separation," in *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 9-16, June 2012.
- Yu-Wing Tai, **Naejin Kong**, Stephen Lin, and Sung Yong Shin, "Coded exposure imaging for projective motion deblurring," in *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 2408-2415, June 2010.

### *Journals*

- **Naejin Kong**, Yu-Wing Tai, and Joseph S. Shin (formally Sung Yong Shin), "A physically-based approach to reflection separation: from physical modeling to constrained optimization," *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 36(2):209-221, February 2014.
- **Naejin Kong**, Yu-Wing Tai, and Sung Yong Shin, "High-quality reflection separation using polarized images," *IEEE Transactions on Image Processing*, 20(12):3393-3405, December 2011.

## **PATENT:**

**Naejin Kong**, Yu-Wing Tai, and Sung Yong Shin, "A physically-based approach to reflection separation," Korea Patent Publication No. 1020140011675, Jan. 29, 2014. Registration No. 1013904550000, Apr. 23, 2014.

## **ACADEMIC ACTIVITIES: (2012 - PRESENT)**

Journal Reviewer: IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, IPSJ Transactions on Computer Vision and Applications

Conference Reviewer: *Vision* – CVPR, ICCV, ECCV, ACCV, 3DV(Intl. Conf. 3D Vision), ICPR (Intl. Conf. Pattern Recognition). *Machine Learning* – NeurIPS (formally NIPS), ICML. *Graphics* – SIGGRAPH Asia.

## **TALKS:**

- "Intrinsic Properties of Scenes from Video," Europe-Korea Conference on Science and Technology (EKC) 2016, Germany, Jul. 2016.
- "Intrinsic Properties of Scenes from Video," NVIDIA Research / Google Research / Adobe Research, USA, Jul. 2016.
- "Intrinsic Properties of Scenes from Video," EECS Department, UC Berkeley, USA, Jul. 2016.
- "Intrinsic Depth," Scenes from Video 2015 Workshop, Chile, Dec. 2015.
- "Intrinsic Video," Computer Vision Workshop, ETH-MPI Network on Learning Systems, Nov. 2014.
- "A physically-based approach to reflection separation: from Physical Modeling to Constrained Optimization," R3 session in the 35th German Conference on Pattern Recognition (GCPR), Sep. 2013.
- "Physically-based reflection separation using polarized images," KARI (Korea Aerospace Research Institute), Aug. 2012.

## **GRANT PROJECT:**

JUL. 2006 - JUN. 2009 Physics-assisted data-driven real-time character animation technique KAIST

- 3-year government project supported by the Korea Research Foundation, \$240,000 (Participated)
- Managing the 3rd year

## **PROGRAMMING:**

C/C++, Python, Caffe, Tensorflow, Matlab, Java, Shell script, Blender/Maya APIs, OpenCV, OpenGL, Linux

## **LANGUAGES:**

English – proficient, ACTFL OPIc rated AL (highest level). German – intermediate. Korean – native.