

Joon-Young Lee

CONTACT INFORMATION	Adobe Systems Incorporated 345 Park Ave, A8-419 San Jose, CA 95110	https://joonyoung-cv.github.io/jolee@adobe.com
RESEARCH INTERESTS	<ul style="list-style-type: none">• Computer Vision & Deep Learning• Video Processing and Understanding	
RESEARCH EXPERIENCE	Adobe Research , San Jose, CA <i>Research Scientist</i> , Deep Learning Group, Creative Intelligence Lab	Oct 2015 – present
	Adobe Systems , San Jose, CA <i>Research Intern</i> , Imagination Lab	Jun 2014 – Sep 2014, Mar 2015 – Apr 2015
	Korea Electronics Technology Institute (KETI) , Korea (Part-time) <i>Research Intern</i> , Multimedia IP Research Center	Apr 2013 – May 2014
	Microsoft Research Asia , Beijing, China <i>Research Intern</i> , Visual Computing Group	Sep 2010 – Aug 2011
	KAIST , Daejeon, Korea <i>Research Assistant</i> , Robotics and Computer Vision Lab,	Mar 2008 – Sep 2015
EDUCATION	KAIST , Daejeon, Korea Ph.D., Electrical Engineering, Aug 2015 <ul style="list-style-type: none">• Dissertation: Photometric Approaches for Image Enhancement and Editing• Advisors: Prof. In So Kweon M.S., Electrical Engineering, Aug 2009 <ul style="list-style-type: none">• Advisor: Prof. In So Kweon Yonsei University , Seoul, Korea B.S., Electrical & Electronic Engineering, Feb 2008 <ul style="list-style-type: none">• <i>High Honors at Graduation</i> (GPA: 4.02/4.3)	
PUBLICATIONS	<ol style="list-style-type: none">1. Xingyu Liu, Joon-Young Lee, Hailin Jin, “Learning Video Representations from Correspondence Proposals”, <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2019 (Oral)2. Seoung Wug Oh, Joon-Young Lee, Ning Xu, Seon Joo Kim, “Fast User-Guided Video Object Segmentation by Interaction-and-Propagation Networks”, <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 20193. Dahun Kim*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, “Deep Video Inpainting”, <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2019 (* equal contribution)4. Dahun Kim*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, “Deep Blind Video Decaptioning by Temporal Aggregation and Recurrence”, <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2019 (* equal contribution)5. Jiyoung Jung, Joon-Young Lee, In So Kweon, “One-Day Outdoor Photometric Stereo Using Skylight Estimation”, <i>International Journal of Computer Vision (IJCV)</i>, 20196. Youngbae Hwang, Joon-Young Lee, In So Kweon, and Seon Joo Kim, “Probabilistic Moving Least Squares with Spatial Constraints for Nonlinear Color Transfer Between Images”, <i>Computer Vision and Image Understanding (CVIU)</i>, 2019	

7. Fabian Caba, **Joon-Young Lee**, Hailin Jin, Bernard Ghanem, “What do I Annotate Next? An Empirical Study of Active Learning for Action Localization”, *In Proc. of European Conference on Computer Vision (ECCV)*, 2018
8. Rameswar Panda, Jianming Zhang, Haoxiang Li, **Joon-Young Lee**, Xin Lu, Amit K. Roy-Chowdhury, “Contemplating Visual Emotions: Understanding and Overcoming Dataset Bias”, *In Proc. of European Conference on Computer Vision (ECCV)*, 2018
9. Wei-Chih Hung, Jianming Zhang, Xiaohui Shen, Zhe Lin, **Joon-Young Lee**, Ming-Hsuan Yang, “Learning to Blend Photos”, *In Proc. of European Conference on Computer Vision (ECCV)*, 2018
10. Sanghyun Woo*, Jongchan Park*, Joon-Young Lee, In So Kweon, “CBAM: Convolutional Block Attention Module”, *In Proc. of European Conference on Computer Vision (ECCV)*, 2018 (* equal contribution)
11. Inwook Shim, Tae-Hyun Oh, Joon-Young Lee, Dong-Geol Choi, Jinwook Choi, and In So Kweon, “Gradient-based Camera Exposure Control for Outdoor Mobile Platforms”, *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 2018
12. Jongchan Park*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, “BAM: Bottleneck Attention Module”, *In Proc. of British Machine Vision Conference (BMVC)*, 2018 (**Oral**) (* equal contribution)
13. Jongchan Park, **Joon-Young Lee**, Donggeun Yoo, In So Kweon, “Distort-and-Recover: Color Enhancement using Deep Reinforcement Learning”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018
14. Seoung Wug Oh, **Joon-Young Lee**, Kalyan Sunkavalli, Seon Joo Kim, “Fast Video Object Segmentation by Reference-Guided Mask Propagation”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018 (**Spotlight**)
15. Gyeongmin Choe, Seong-Heum Kim, Sunghoon Im, **Joon-Young Lee**, Srinivasa Narasimhan, and In So Kweon. “RANUS: RGB and NIR Urban Scene Dataset for Deep Scene Parsing”, *IEEE Robotics and Automation Letters (RAL)*, 2018
16. Zhuo Hui, Kalyan Sunkavalli, **Joon-Young Lee**, Sunil Hadap, Jian Wang, Aswin C. Sankaranarayanan, “Reflectance Capture using Univariate Sampling of BRDFs”, *IEEE International Conference on Computer Vision (ICCV)*, 2017
17. Xuaner Zhang, **Joon-Young Lee**, Kalyan Sunkavalli, and Zhaowen Wang, “Photometric Stabilization for Fast-forward Videos”, *Computer Graphics Forum (CGF, Proc of Pacific Graphics)*, Volume 36, Number 7, Pages 105-113, 2017
18. Yinda Zhang*, Shuran Song*, Ersin Yumer, Manolis Savva, **Joon-Young Lee**, Hailin Jin, Thomas Funkhouser, “Physically-Based Rendering for Indoor Scene Understanding Using Convolutional Neural Networks”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017 (* equal contribution)
19. Hao Hu, Zhaowen Wang, **Joon-Young Lee**, Zhe Lin, Guo-Jun Qi, “Temporal Domain Neural Encoder for Video Representation Learning”, *IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW-DV)*, 2017
20. Jinwoong Jung, Beomseok Kim, **Joon-Young Lee**, Byungmoon Kim, Seungyong Lee, “Robust Upright Adjustment of 360 Spherical Panoramas”, *The Visual Computer Journal (TVCG, Proc. Computer Graphics International)*, Volume 33, Number 6–8, Pages 737–747, 2017
21. Jinwoong Jung, **Joon-Young Lee**, Byungmoon Kim, and Seungyong Lee, “Upright Adjustment of 360 Spherical Panoramas”, *IEEE Virtual Reality (VR)* (Poster), 2017
22. Hae-Gon Jeon, **Joon-Young Lee**, Yudeog Han, Seon Joo Kim, and In So Kweon, “Generating Fluttering Pattern with Low Autocorrelation for Coded Exposure Imaging”, *International Journal of Computer Vision (IJCV)*, Volume 123, Number 2, Pages 269–286, 2017

23. Youngjin Yoon, Hae-Gon Jeon, Donggeun Yoo, Joon-Young Lee, and In So Kweon, "Light Field Image Super-Resolution using Convolutional Neural Network", *IEEE Signal Processing Letters (SLP)*, Volume 24, Number 6, Pages 848–852, 2017
24. Hae-Gon Jeon, **Joon-Young Lee**, Yudeog Han, Seon Joo Kim, and In So Kweon, "Multi-Image Deblurring using Complementary Sets of Fluttering Patterns", *IEEE Transactions on Image Processing (TIP)*, Volume 26, Number 5, Pages 2311–2326, 2017
25. Seong-Heum Kim, Yu-Wing Tai, **Joon-Young Lee**, Jaesik Park, and In So Kweon, "Category-specific Salient View Selection via Deep Convolutional Neural Networks", *Computer Graphics Forum (CGF)*, Volume 36, Number 8, Pages 313–328, 2017
26. Youngjin Yoon, Gyeongmin Choe, Namil Kim, **Joon-Young Lee**, and In So Kweon, "Fine-scale Surface Normal Estimation using a Single NIR Image", *In Proc. of European Conference on Computer Vision (ECCV)*, 2016
27. **Joon-Young Lee**, Kalyan Sunkavalli, Zhe Lin, Xiaohui Shen, and In So Kweon, "Automatic Content-Aware Color and Tone Stylization", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2016 (**Spotlight**)
28. Hae-Gon Jeon, **Joon-Young Lee**, Sunghoon Im, Hyowon Ha, and In So Kweon, "Stereo Matching with Color and Monochrome Cameras in Low-light Conditions", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2016
29. Inwook Shim, Seunghak Shin, Yunsu Bok, Kyungdon Joo, Dong-Geol Choi, **Joon-Young Lee**, Jaesik Park, Jun-Ho Oh, and In So Kweon, "Vision System and Depth Processing for DRC-HUBO+", *In Proc. of IEEE International Conference on Robotics and Automation (ICRA)*, 2016
30. Donggeun Yoo, Sunggyun Park, **Joon-Young Lee**, Anthony Paek, and In So Kweon, "AttentionNet: Aggregating Weak Directions for Accurate Object Detection", *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, 2015
31. Hae-Gon Jeon, **Joon-Young Lee**, Yudeog Han, Seon Joo Kim, and In So Kweon, "Complementary Sets of Shutter Sequences for Motion Deblurring", *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, 2015
32. Youngjin Yoon, Hae-Gon Jeon, Donggeun Yoo, **Joon-Young Lee**, and In So Kweon, "Learning a Deep Convolutional Network for Light-Field Image Super-Resolution", *In Proc. of IEEE International Conference on Computer Vision Workshops (ICCVW)*, 2015
33. Jiyoung Jung, **Joon-Young Lee**, Yekeun Jeong, and In So Kweon, "Time-of-flight sensor calibration for a color and depth camera pair", *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Volume 37, Number 7, Pages 1501–1513, 2015
34. Tae-Hyun Oh, **Joon-Young Lee**, Yu-Wing Tai, and In So Kweon, "Robust High Dynamic Range Imaging by Rank Minimization", *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Volume 37, Number 6, Pages 1219–1232, 2015
35. Jiyoung Jung, **Joon-Young Lee**, and In So Kweon, "One-day outdoor photometric stereo via skylight estimation", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2015 (**Oral**)
36. Donggeun Yoo, Sunggyun Park, **Joon-Young Lee**, and In So Kweon, "Multi-scale Pyramid Pooling for Deep Convolutional Representation", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2015
37. Kibaek Park, Seunghak Shin, Hae-Gon Jeon, **Joon-Young Lee**, and In So Kweon, "Motion Deblurring using Coded Exposure for a Wheeled Mobile Robot", *In Proc. of International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, 2014
38. Yukyung Choi, Chaehoon Park, **Joon-Young Lee**, and In So Kweon, "Robust Binary Feature using the Intensity Order", *In Proc. of Asian Conference on Computer Vision (ACCV)*, 2014 (* equal contribution)

39. Inwook Shim, **Joon-Young Lee**, and In So Kweon, “Auto-adjusting Camera Exposure for Outdoor Robotics using Gradient Information”, *In Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2014
40. Youngbae Hwang*, **Joon-Young Lee***, In So Kweon, and Seon Joo Kim, “Color Transfer using Probabilistic Moving Least Squares”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014 (* equal contribution)
41. Jiyoung Jung, **Joon-Young Lee**, and In So Kweon, “Noise aware depth denoising for a time-of-flight camera”, *In Proc. of Korea-Japan Joint Workshop on Frontiers of Computer Vision (FCV)*, 2014
42. Yudeog Han, **Joon-Young Lee**, and In So Kweon, “High Quality Shape from a Single RGB-D Image under Uncalibrated Natural Illumination”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, 2013
43. Hae-Gon Jeon, **Joon-Young Lee**, Yudeog Han, Seon Joo Kim, and In So Kweon, “Fluttering Pattern Generation using Modified Legendre Sequence for Coded Exposure Imaging”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, 2013
44. **Joon-Young Lee**, Jiyoung Jung, Yunsu Bok, Jaesik Park, Dong-Geol Choi, Yudeog Han, and In So Kweon, “Robust Computer Vision Techniques for High-quality 3D Modeling”, *In Proc. of IAPR Asian Conference on Pattern Recognition (ACPR)*, 2013
45. Tae-Hyun Oh, **Joon-Young Lee**, and In So Kweon, “High Dynamic Range Imaging by a Rank-1 Constraint”, *In Proc. of IEEE International Conference on Image Processing (ICIP)*, 2013
46. **Joon-Young Lee**, Yasuyuki Matsushita, Boxin Shi, In So Kweon, and Katsushi Ikeuchi, “Radiometric Calibration by Rank Minimization”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Volume 35, Number 1, Pages 144–156, 2013
47. Tae-Hyun Oh, **Joon-Young Lee**, and In So Kweon, “Real-Time Motion Detection based on Discrete Cosine Transform”, *In Proc. of IEEE International Conference on Image Processing (ICIP)*, 2012
48. Jaesik Park, **Joon-Young Lee**, Yu-Wing Tai, and In So Kweon, “Modeling Photo Composition and Its Application to Photo Re-arrangement”, *In Proc. of IEEE International Conference on Image Processing (ICIP)*, 2012
49. **Joon-Young Lee**, Boxin Shi, Yasuyuki Matsushita, In So Kweon, and Katsushi Ikeuchi, “Radiometric Calibration by Transform Invariant Low-rank Structure”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2011
50. Jiyoung Jung, Yekeun Jeong, **Joon-Young Lee**, Hanbyul Joo, and In So Kweon, “View-invariant Planar Object Detection for VisTRO”, *In Proc. of International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, 2010
51. Jiyoung Jung, Yekeun Jeong, **Joon-Young Lee**, and In So Kweon, “Image Warping for View-invariant Object Matching using Stereo Camera”, *In Proc. of Korea-Japan Joint Workshop on Frontiers of Computer Vision (FCV)*, 2010

HONORS & AWARDS

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| • Adobe MAX 2018 Sneak Demo [video link] | Oct 2018 |
| • 1st Place Award in ChalearnLAP Inpainting Challenge Track 2 – video decaptioning | Sep 2018 |
| • 1st Place Award in The Interactive DAVIS Challenge 2018. | Jun 2018 |
| • Best poster award, The 9th International Workshop on Robust Computer Vision. | Dec 2014 |
| • Research Highlights of the year (2013), KAIST | Mar 2014 |
| • Qualcomm Innovation Award | Sep 2013 |
| • Research Highlights of the year (2012), KAIST | Mar 2013 |
| • Silver prize, 19th HumanTech Paper Award, Samsung Electronics Co., Ltd. | Feb 2013 |
| • Excellent intern award, Microsoft Research Asia | Aug 2011 |
| • High Honors at Graduation, Yonsei University | Feb 2008 |
| • Full scholarship, Jeongsu Scholarship Foundation | Mar 2006 – Feb 2008 |
| • Full scholarship, Yonsei University | Mar 2005 – Feb 2006 |

MEMBERSHIP &
SERVICE

IEEE student member (2010–2015), IEEE member (2016–Present)

Area Chair

- International Conference on Computer Vision (ICCV), 2019

Reviewer

- Conference: CVPR (2016, 2017, 2018, 2019), ICCV (2015, 2017), ECCV (2016, 2018), SIGGRAPH (2018), SIGGRAPH ASIA (2018), 3DV (2015, 2016), ACCV (2016), PG (2015), WACV (2015, 2016), ICRA (2017, 2019), IROS (2016)
- Journal: TPAMI, IJCV, TIP, IPR

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