Joon-Young Lee

CONTACT INFORMATION

Adobe
345 Park Ave, A08-418
San Jose, CA 95110

https://joonyoung-cv.github.io/
jolee@adobe.com

RESEARCH INTERESTS

- Computer Vision & Deep Learning
- Video Processing and Understanding

RESEARCH EXPERIENCE

Adobe Research, San Jose, CA
Senior Research Scientist, Deep Learning Group, Creative Intelligence Lab — Jul 2019 – present
Research Scientist, Deep Learning Group, Creative Intelligence Lab — Oct 2015 – Jun 2019

Adobe Research, San Jose, CA
Research Intern, Imagination Lab — Mar 2015 – Apr 2015
Research Intern, Imagination Lab — Jun 2014 – Sep 2014

Korea Electronics Technology Institute (KETI), Korea
(Part-time) Research Intern, Multimedia IP Research Center — Apr 2013 – May 2014

Microsoft Research Asia, Beijing, China
Research Intern, Visual Computing Group — Sep 2010 – Aug 2011

KAIST, Daejeon, Korea
Research Assistant, Robotics and Computer Vision Lab, — Mar 2008 – Sep 2015

EDUCATION

Ph.D., Electrical Engineering, KAIST, Daejeon, Korea — Aug 2015
Dissertation: Photometric Approaches for Image Enhancement and Editing
Advisors: Prof. In So Kweon

M.S., Electrical Engineering, KAIST, Daejeon, Korea — Aug 2009
Advisors: Prof. In So Kweon

B.S., Electronic Engineering, Yonsei University, Seoul, Korea — Feb 2008
High Honors at Graduation (GPA: 4.02/4.3)

PUBLICATIONS

(* INDICATES EQUAL CONTRIBUTION)

1. Shubham Agarwal, Trung Bui, Joon-Young Lee, Ioannis Konstas, Verena Rieser, "History for Visual Dialog: Do we really need it?", *In Proc. of Annual Meeting of the Association for Computational Linguistics* (**ACL**), 2020

2. Dahun Kim, Sanghyun Woo, Joon-Young Lee, In So Kweon, "Video Panoptic Segmentation", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020

3. Juan Leon, Fabian Caba, Long Mai, Federico Perazzi, Joon-Young Lee, Pablo Arbelaez, Bernard Ghanem, "Active Speakers in Context", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020

4. Zijun Wei, Jianming Zhang, Zhe Lin, Joon-Young Lee, Niranjan Balasubramanian, Minh Hoai Nguyen, Dimitris Samaras, "Learning Visual Emotion Representations from Web Data", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020

5. Jongchan Park*, Sanghyun Woo*, Joon-Young Lee, In-So Kweon, "A Simple and Light-weight Attention Module for Convolutional Neural Networks", *International Journal of Computer Vision* (**IJCV**), 2020

6. Dahun Kim*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, "Recurrent Temporal Aggregation Framework for Deep Video Inpainting", *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**TPAMI**), 2020

7. Seoung Wug Oh, Joon-Young Lee, Ning Xu, Seon Joo Kim, "Video Object Segmentation using Space-Time Memory Networks", *In Proc. of IEEE International Conference on Computer Vision* (**ICCV**), 2019 (**Oral**)

8. Seoung Wug Oh, Sungho Lee, Joon-Young Lee, Seon Joo Kim, "Onion-Peel Networks for Deep Video Completion", *In Proc. of IEEE International Conference on Computer Vision* (**ICCV**), 2019

9. Xin Ye, Zhe Lin, Joon-Young Lee, Jianming Zhang, Shibin Zheng, Yezhou Yang, "GAPLE: Generalizable Approaching Policy LEarning for Robotic Object Searching in Indoor Environment", *IEEE Robotics and Automation Letters* (**RA-L**, Proc. of **IROS**), 2019

10. Xingyu Liu, Joon-Young Lee, Hailin Jin, "Learning Video Representations from Correspondence Proposals", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2019 (**Oral**)

11. Seoung Wug Oh, Joon-Young Lee, Ning Xu, Seon Joo Kim, "Fast User-Guided Video Object Segmentation by Interaction-and-Propagation Networks", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2019

12. Dahun Kim*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, "Deep Video Inpainting", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2019

13. Dahun Kim*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, "Deep Blind Video Decaptioning by Temporal Aggregation and Recurrence", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2019

14. Jiyoung Jung, Joon-Young Lee, In So Kweon, "One-Day Outdoor Photometric Stereo Using Skylight Estimation", *International Journal of Computer Vision* (**IJCV**), 2019

15. 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", *Computer Vision and Image Understanding* (**CVIU**), 2019

16. 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

17. 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

18. 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

19. 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

20. 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

21. Jongchan Park*, Sanghyun Woo*, Joon-Young Lee, In So Kweon, "BAM: Bottleneck Attention Module", *In Proc. of British Machine Vision Conference* (**BMVC**), 2018 (**Oral**)

22. 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**)

23. 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

24. 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* (**RA-L**), 2018

25. Zhuo Hui, Kalyan Sunkavalli, Joon-Young Lee, Sunil Hadap, Jian Wang, Aswin C. Sankaranarayanan, "Reflectance Capture using Univariate Sampling of BRDFs", *In Proc. of IEEE International Conference on Computer Vision* (**ICCV**), 2017

26. 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

27. 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", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2017

28. 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**), 2017

29. Jinwoong Jung, Beomseok Kim, Joon-Young Lee, Byungmoon Kim, Seungyong Lee, "Robust Upright Adjustment of 360 Spherical Panoramas", *The Visual Computer Journal* (**TVCJ**, Proc. Computer Graphics International), Volume 33, Number 6–8, Pages 737–747, 2017

30. Jinwoong Jung, Joon-Young Lee, Byungmoon Kim, and Seungyong Lee, "Upright Adjustment of 360 Spherical Panoramas", *IEEE Virtual Reality* (**VR**) (Poster), 2017

31. 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

32. 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

33. 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

34. 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

35. 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

36. 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**)

37. 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

38. 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

39. 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

40. 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

41. 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

42. 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

43. 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

44. 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**)

45. 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

46. 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

47. 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

48. 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

49. 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

50. 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

51. 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

52. 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

53. 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

54. 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

55. 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

56. 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

57. 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

58. 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

59. 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

60. 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

- 1st (interactive track) / 4th (semi-supervised track) in the DAVIS Challenge 2019 — Jun 2019
- GTC 2019 Top Poster Award — Mar 2019
- 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 Univerisity — Mar 2005 – Feb 2006

MEMBERSHIP & SERVICE

Area Chair
- European Conference on Computer Vision (ECCV), 2020
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- International Conference on Computer Vision (ICCV), 2019

Reviewer
- Conference: CVPR (2016–2019), 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, CVIU, IPR

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

Last updated: April 4, 2020