Jinsun Park, Ph.D.

CONTACT INFORMATION

Assistant Professor
School of Computer Science and Engineering
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RESEARCH INTERESTS

- Computer Vision
- Deep Learning
- Multi-Modal Sensor Systems
- Depth Completion / Depth Estimation
- Image Processing

EDUCATION

KAIST, Daejeon, Republic of Korea

Ph.D., School of Electrical Engineering, Mar. 2016 – Feb. 2021

- Dissertation: "Multi-Sensor Systems for Robust Visual Perception in Traffic Environment"
- Advisor: Prof. In So Kweon

KAIST, Daejeon, Republic of Korea

M.S., School of Electrical Engineering, Mar. 2014 – Feb. 2016

- Thesis: "A Unified Approach of Deep and Hand-crafted Features for Defocus Estimation"
- Advisor: Prof. In So Kweon (Sep. 2015 – Feb. 2016)
- Advisor: Prof. Yu-Wing Tai (Mar. 2014 – Aug. 2015)

Hanyang University, Seoul, Republic of Korea

B.S., Department of Electronic Engineering, Mar. 2007 – Feb. 2014

RESEARCH EXPERIENCE

Pusan National University, Busan, Korea Sep. 2021 – Present
Assistant Professor, School of Computer Science and Engineering

KAIST, Daejeon, Korea Mar. 2021 – Aug. 2021
Post-doctoral Researcher, Information and Electronics Research Institute

- Advisor: Prof. In So Kweon
- Researched multi-sensor system for robust depth estimation in changing environment.

HikVision USA, CA, USA Jul. 2019 – Jan. 2020
Research Intern, HikVision Research America, Santa Clara, CA

- Advisor: Dr. Zhe Hu
- Researched RGB and LiDAR based non-local spatial propagation network for depth completion.

KAIST, Daejeon, Korea Sep. 2017 – Dec. 2020
Researcher, Korea Electric Power Corporation (KEPCO)

- Advisor: Prof. In So Kweon
- Researched vehicular multi-sensor system for robust electric supply equipments detection and state inference.

KAIST, Daejeon, Korea Jun. 2017 – Jan. 2018
Researcher, Electronics and Telecommunications Research Institute (ETRI)

- Advisor: Prof. In So Kweon
- Researched robust pose estimation under changing environment using deep local features.

KAIST, Daejeon, Korea Jan. 2017 – Jan. 2018
Researcher, Electronics and Telecommunications Research Institute (ETRI)
- Advisor: Prof. In So Kweon
- Researched single image depth estimation using convolutional neural networks (CNN).

KAIST, Daejeon, Korea Jul. 2016 – Aug. 2018
Researcher, Bosch Shared Sensing for Cooperative Cars
- Advisor: Prof. In So Kweon
- Researched place recognition algorithm using convolutional neural networks (CNN).

KAIST, Daejeon, Korea Mar. 2014 – Dec. 2015
Researcher, Samsung Electronics (DMC research center)
- Advisor: Prof. In So Kweon (Sep. 2015 – Feb. 2016)
- Advisor: Prof. Yu-Wing Tai (Mar. 2014 – Aug. 2015)
- Researched depth distortion estimation and compensation for a commercial light-field camera
- Researched high-quality image generation from asymmetric stereo with catadioptric lens.

INTERNATIONAL CONFERENCES

1. Ukcheol Shin, **Jinsun Park**, and In So Kweon, "Deep Depth Estimation from Thermal Image", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), Jun 2023.
2. Donggeun Yoon, **Jinsun Park**, and Donghyeon Cho, "Lightweight Alpha Matting Network Using Distillation-Based Channel Pruning", *Asian Conference on Computer Vision* (**ACCV**), Dec 2022.
3. **Jinsun Park**, Kyungdon Joo, Zhe Hu, Chi-Kuei Liu, and In So Kweon, "Non-Local Spatial Propagation Network for Depth Completion", *European Conference on Computer Vision* (**ECCV**), Aug 2020.
4. Gyumin Shim, **Jinsun Park**, and In So Kweon, "Robust Reference-based Super-Resolution with Similarity-Aware Deformable Convolution", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), Jun 2020.
5. Ho-Deok Jang, Sanghyun Woo, Philipp Benz, **Jinsun Park**, and In So Kweon, "Propose-and-Attend Single Shot Detector", *IEEE Winter Conference on Applications of Computer Vision* (**WACV**), Mar 2020.
6. **Jinsun Park**, Ukcheol Shin, Gyumin Shim, Kyungdon Joo, Francois Rameau, Junhyeok Kim, Dong-Geol Choi, and In So Kweon, "Vehicular Multi-Camera Sensor System for Automated Visual Inspection of Electric Power Distribution Equipment", *IEEE / RSJ International Conference on Intelligent Robots and Systems* (**IROS**), Nov 2019.
7. Ukcheol Shin, **Jinsun Park**, Gyumin Shim, Francois Rameau, and In So Kweon, "Camera Exposure Control for Robust Robot Vision with Noise-Aware Image Quality Assessment", *IEEE / RSJ International Conference on Intelligent Robots and Systems* (**IROS**), Nov 2019.
8. Donghyeon Cho, **Jinsun Park**, Tae-Hyun Oh, Yu-Wing Tai, and In So Kweon, "Weakly- and Self-Supervised Learning for Content-Aware Deep Image Retargeting", *IEEE International Conference on Computer Vision* (**ICCV**), Oct 2017. **[Spotlight Presentation]**
9. **Jinsun Park**, Yu-Wing Tai, Donghyeon Cho, and In So Kweon, "A Unified Approach of Multi-scale Deep and Hand-crafted Features for Defocus Estimation", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), Jul 2017.

10. Donghyeon Cho, **Jinsun Park**, Yu-Wing Tai, and In So Kweon, "Asymmetric stereo with catadioptric lens: High quality image generation for intelligent robot", *IEEE International Conference on Ubiquitous Robots and Ambient Intelligence* (**URAI**), Aug 2016.

11. Hae-Gon Jeon, Jaesik Park, Gyeongmin Choe, **Jinsun Park**, Yunsu Bok, Yu-Wing Tai, and In So Kweon, "Accurate Depth Map Estimation from a Lenslet Light Field Camera", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), Jun 2015.

INTERNATIONAL JOURNALS

1. Junyong Jung, Seungoh Han, **Jinsun Park**, and Donghyeon Cho, "A Comprehensive Real-World Photometric Stereo Dataset for Unsupervised Anomaly Detection", *IEEE Access*, Oct 2022.

2. Yongseop Jeong*, **Jinsun Park***, Donghyeon Cho, Yoonjin Hwang, Seibum B. Choi, and In So Kweon, "Lightweight Depth Completion Network with Local Similarity-Preserving Knowledge Distillation", *Sensors*, Sep 2022. [* *Equal Contribution*]

3. Seungoh Han, **Jinsun Park**, and Donghyeon Cho, "Minifying Photometric Stereo via Knowledge Distillation-Based Feature Translation", *Optics Express*, Sep 2022.

4. **Jinsun Park***, Yongseop Jeong*, Kyungdon Joo, Donghyeon Cho, and In So Kweon, "Adaptive Cost Volume Fusion Network for Multi-Modal Depth Estimation in Changing Environments", *IEEE Robotics and Automation Letters* (**RAL**), Feb 2022 (with *IEEE International Conference on Robotics and Automation* (**ICRA**), May 2022). [* *Equal Contribution*]

5. Byungjoo Chae*, **Jinsun Park***, Tae-Hyun Kim, and Donghyeon Cho, "Online Learning for Reference-Based Super-Resolution", *Electronics*, Mar 2022. [* *Equal Contribution*]

6. Francois Rameau, **Jinsun Park**, Oleksandr Bailo, and In So Kweon, "MC-Calib: A Generic and Robust Calibration Toolbox for Multi-Camera Systems", *Computer Vision and Image Understanding* (**CVIU**), Mar 2022.

7. Francois Rameau, Oleksandr Bailo, **Jinsun Park**, Kyungdon Joo, and In So Kweon, "Real-Time Multi-Car Localization and See-Through System", *International Journal of Computer Vision* (**IJCV**), Feb 2022.

8. Seonggwan Ko*, **Jinsun Park***, Byungjoo Chae, and Donghyeon Cho, "Learning Lightweight Low-Light Enhancement Network using Pseudo Well-Exposed Images", *IEEE Signal Processing Letters* (**SPL**), Dec 2021. [* *Equal Contribution*]

9. Yeong-Hyeon Kim, Ukcheol Shin, **Jinsun Park**, and In So Kweon, "MS-UDA: Multi-Spectral Unsupervised Domain Adaptation for Thermal Image Semantic Segmentation", *IEEE Robotics and Automation Letters* (**RAL**), Oct 2021 (with *IEEE/RSJ International Conference on Intelligent Robots and Systems* (**IROS**), Sep 2021).

10. Hyeokjoon Kweon*, **Jinsun Park***, Sanghyun Woo, and Donghyeon Cho, "Deep Multi-Image Steganography with Private Keys", *Electronics*, Aug 2021. [* *Equal Contribution*]

11. Donggeun Yoon*, **Jinsun Park***, and Donghyeon Cho, "Lightweight Deep CNN for Natural Image Matting via Similarity-Preserving Knowledge Distillation", *IEEE Signal Processing Letters* (**SPL**), Nov 2020. [* *Equal Contribution*]

12. Hae-Gon Jeon, Jaesik Park, Gyeongmin Choe, **Jinsun Park**, Yunsu Bok, Yu-Wing Tai, and In So Kweon, "Depth from a Light Field Image with Learning-Based Matching Costs", *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**TPAMI**), Feb 2019.

13. Oleksandr Bailo, Francois Remeau, Kyungdon Joo, **Jinsun Park**, Oleksandr Bogdan, and In So Kweon, "Efficient Adaptive Non-Maximal Suppression Algorithms for Homogeneous Spatial Keypoint Distribution", *Pattern Recognition Letters* (**PRL**), Apr 2018.

OTHER PUBLICATIONS

1. Francois Rameau, Oleksandr Bailo, **Jinsun Park**, Kyungdon Joo, Jaesung Choe, and In So Kweon, "Real-time Demonstration of Collaborative Localization of a Swarm of Connected Vehicles ", *International Workshop on Frontiers of Computer Vision* (**FCV**), Feb 2018. **[Best Demo Presentation Award]**

2. Ole Johannsen, Katrin Honauer, Bastian Goldluecke, Anna Alperovich, Federica Battisti, Yunsu Bok, Michele Brizzi, Marco Carli, Gyeongmin Choe, Maximilian Diebold, Marcel Gutsche, Hae-Gon Jeon, In So Kweon, Jaesik Park, **Jinsun Park**, Hendrik Schilling, Hao Sheng, Lipeng Si, Michael Strecke, Antonin Sulc, Yu-Wing Tai, Qing Wang, Ting-Chun Wang, Sven Wanner, Zhang Xiong, Jingyi Yu, Shuo Zhang, and Hao Zhu, "A Taxonomy and Evaluation of Dense Light Field Depth Estimation Algorithms ", *IEEE Conference on Computer Vision and Pattern Recognition Workshop - Light Fields for Computer Vision* (**CVPRW-LF4CV**), Jul 2017.

3. **Jinsun Park** and In So Kweon, "Single Image Depth Estimation using Convolutional Neural Networks with NCC-based Loss", *International Workshop on Frontiers of Computer Vision* (**FCV**), Feb 2017.

AWARDS

- Winner, Qualcomm Innovation Fellowship Korea — Dec. 2020
- Best Demo Presentation Award, International Workshop on Frontiers of Computer Vision (**FCV**) — Feb. 2018
- Academic Achievement Award, Hanyang University — Jul. 2013
- National Full Scholarship, Korea Student Aid Foundation — Mar. 2007 – Feb. 2014

IT SKILLS

- C, C++, Python, MATLAB, LaTeX
- PyTorch, TensorFlow, ROS

LANGUAGES

- Korean, English

TEACHING EXPERIENCE

- Advanced Artificial Intelligence for Autonomous Driving — Fall, 2023 – Present
- Engineering Linear Algebra — Spring, 2023 – Present
- Machine Learning — Spring, 2022 – Present
- Statistical Learning — Spring, 2022 – 2023
- Discrete Mathematics (I) — Spring, 2022
- AI Programming — Fall, 2021 – Present
- Data Structures — Fall, 2021 – Present
- Programming Principles and Practice — Fall, 2021 – 2022

- TA for Programming Structure for EE — Sep. 2014 – Jun. 2019
- TA for Advanced Topics in Deep Learning for Robotics and Computer Vision — Mar. 2018 – Jun. 2018
- TA for Signals and Systems — Mar. 2017 – Aug. 2017
- TA for Signals and Systems — Mar. 2014 – Aug. 2014