

# Jaehoon Choi

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## EDUCATION

### University of Maryland, College Park

- Ph.D. in Computer Science Jan 2021 – Present
  - Adviser: Prof. Dinesh Manocha

### Korea Advanced Institute of Technology (KAIST)

- M.S. in Electrical Engineering Sep 2017 – Dec 2019
  - Adviser: Prof. Changick Kim

### Korea Advanced Institute of Technology (KAIST)

- B.S. in Electrical Engineering Feb 2011 – Aug 2017
  - Minor: Business and Technology Management
  - Korean Augmentation to the United States Army (mandatory military service) Oct 2014 – Jul 2016

## RESEARCH INTERESTS PUBLICATIONS

3D Reconstruction, Neural Rendering, and SLAM

### INTERNATIONAL CONFERENCES

- [1] **Jaehoon Choi\***, Dongki Jung\*, Yonghan Lee, Deokhwa Kim, Dinesh Manocha, and Donghwan Lee, “SelfTune: Metrically Scaled Monocular Depth Estimation through Self-Supervised Learning”, *The IEEE International Conference on Robotics and Automation (ICRA)*, 2022. (\* These two authors contributed equally)
- [2] Taekyung Kim, **Jaehoon Choi**, Seokeon Choi, Dongki Jung, and Changick Kim, “Just a Few Points are All You Need for Multi-view Stereo: A Novel Semi-supervised Learning Method for Multi-view Stereo”, *International Conference on Computer Vision (ICCV)*, 2021.
- [3] Dongki Jung\*, **Jaehoon Choi\***, Yonghan Lee, Deokhwa Kim, Changick Kim, Dinesh Manocha, and Donghwan Lee, “DnD: Dense Depth Estimation in Crowded Indoor Dynamic Scenes”, *International Conference on Computer Vision (ICCV)*, 2021. (\* These two authors contributed equally)
- [4] **Jaehoon Choi**, Dongki Jung, Yonghan Lee, Deokhwa Kim, Dinesh Manocha, and Donghwan Lee, “SelfDeco: Self-Supervised Monocular Depth Completion in Challenging Indoor Environments”, *The IEEE International Conference on Robotics and Automation (ICRA)*, 2021.
- [5] **Jaehoon Choi\***, Dongki Jung\*, Donghwan Lee, and Changick Kim, “SAFENet: Self-Supervised Monocular Depth Estimation with Semantic-Aware Feature Extraction”, *Neural Information Processing Systems Workshop (NeurIPS) on Machine Learning for Autonomous Driving*, Vancouver, Canada, 2020. (\* These two authors contributed equally)
- [6] Dongki Jung, Seunghan Yang, **Jaehoon Choi**, and Changick Kim, “Arbitrary Style Transfer Using Graph Instance Normalization”, *The 27th IEEE International Conference on Image Processing (ICIP)*, Abu Dhabi, UAE, 2020
- [7] **Jaehoon Choi**, Taekyung Kim, and Changick Kim, “Self-Ensembling with GAN-based Data Augmentation for Domain Adaptation in Semantic Segmentation”, *International Conference on Computer Vision (ICCV)*, Seoul, South Korea, 2019
- [8] Seunghyeon Kim, **Jaehoon Choi**, Taekyung Kim, and Changick Kim, “Self-Training with Adversarial Background Regularization for Unsupervised Domain Adaptive One-Stage Object Detection”, *International Conference on Computer Vision (ICCV)*, Seoul, South Korea, 2019 (**Oral**)
- [9] **Jaehoon Choi**, Minki Jeong, Taekyung Kim, and Changick Kim, “Pseudo-Labeling Curriculum for Unsupervised Domain Adaptation”, *British Machine Vision Conference (BMVC)*, Cardiff, UK, 2019

### OTHER PUBLICATIONS

- [1] **Jaehoon Choi**, Daeyeong Kim, Dongwon Yang, Junhee Lee, Dokyung Kim, Changick Kim, “Channel Pruning Scaling Factor of Batch Normalization in Compact Networks”, *Journal of the Institute of Electronics and Information Engineers*, vol. 56, No. 3, Mar 2019.

## PROFESSIONAL EXPERIENCE

- **Research Scientist** at NAVER LABS Jan 2022 – Aug 2022

|                     |   |                     |
|---------------------|---|---------------------|
|                     | <ul style="list-style-type: none"> <li>● Manager: <i>Ph.D. Donghwan Lee</i></li> <li>● Developing a Neural Rendering algorithm for Augmented Reality platform.</li> </ul>   |                     |
|                     | <ul style="list-style-type: none"> <li>■ <b>Research Internship</b> at NAVER LABS</li> <li>● Manager: <i>Ph.D. Donghwan Lee</i></li> <li>● Developed a SLAM algorithm for the mobile robot.</li> </ul>  | Jun 2021 – Aug 2021 |
|                     | <ul style="list-style-type: none"> <li>■ <b>Research Internship</b> at NAVER LABS</li> <li>● Manager: <i>Ph.D. Donghwan Lee</i></li> <li>● Developed a depth estimation algorithm for robotics systems.</li> </ul>  | Jan 2020 – Dec 2020 |
| PROJECT EXPERIENCE  | <ul style="list-style-type: none"> <li>■ 3D Object Recognition Algorithm for Autonomous Driving</li> <li>● Funded by <b>LG Electronics Co., Ltd</b></li> <li>● Aimed at Developing the 2D object detection and depth estimation for stereo RGB images and FIR images.</li> </ul>  | May 2019 – Nov 2019 |
|                     | <ul style="list-style-type: none"> <li>■ Deep Learning Algorithm on Embedded Systems for Vision Tasks</li> <li>● Funded by <b>LIG Nex1 Co., Ltd</b></li> <li>● Developed the visual recognition algorithm on the embedded system, which requires light and efficient deep learning.</li> </ul>  | Jan 2018 – Dec 2018 |
|                     | <ul style="list-style-type: none"> <li>■ Deep Learning-based Defect Detection</li> <li>● Funded by <b>Samsung Electronics Co., Ltd</b></li> <li>● Aimed at developing the automatic surface defect detection algorithm for mobile phone based on deep learning.</li> </ul>  | Apr 2017 – Dec 2017 |
| TEACHING            | <ul style="list-style-type: none"> <li>■ University of Maryland College Park, Teaching Assistant</li> <li>● CMSC733 – Computer Processing of Pictorial Information</li> </ul>   | Sep 2022 – Present  |
|                     | <ul style="list-style-type: none"> <li>■ University of Maryland College Park, Teaching Assistant</li> <li>● CMSC250 – Discrete Structure</li> </ul>   | Sep 2021 – Dec 2021 |
|                     | <ul style="list-style-type: none"> <li>■ University of Maryland College Park, Teaching Assistant</li> <li>● CMSC426 – Computer Vision</li> </ul>  | Feb 2021 – May 2021 |
|                     | <ul style="list-style-type: none"> <li>■ KAIST, Teaching Assistant</li> <li>● EE838 – Special Topics in Image Engineering &lt;Optimization for Computer Vision&gt;</li> </ul>   | Mar 2019 – Jul 2019 |
|                     | <ul style="list-style-type: none"> <li>■ KAIST, Student Tutor</li> <li>● Student tutor for foreign students: CS101 – Introduction to Programming</li> </ul>   | Mar 2017 – Jul 2017 |
| ACADEMIC ACTIVITIES | <ul style="list-style-type: none"> <li>■ Conference Reviewer</li> <li>● CVPR 2020, WACV 2021, ACCV 2020, AAAI 2021, ICRA 2021, CVPR 2021, AAAI 2022</li> <li>● Chosen as one of 66 outstanding reviewers of ACCV 2020</li> </ul>  |                     |
| OTHER ACTIVITIES    | <ul style="list-style-type: none"> <li>■ Large-scale 3D Shape Reconstruction and Segmentation from Shapenet Core55</li> <li>● Participated in the 3D shape segmentation from ShapeNet challenge held in ICCV 2017.</li> </ul>   | Aug 2017 – Oct 2017 |
|                     | <ul style="list-style-type: none"> <li>■ Korean Augmentation to the United States Army</li> <li>● Served in the 6-52 Air Defense Artillery in U.S.Army as a translator (mandatory military duty).</li> </ul>  | Oct 2014 – Jul 2016 |
| LANGUAGES           | <ul style="list-style-type: none"> <li>■ Korean: Native language.</li> <li>■ English: Fluent (speaking, reading, writing).</li> </ul>   |                     |
| SKILLS              | Python, MATLAB, C, C++, ROS, Docker, $\LaTeX$ , PyTorch, TensorFlow, Caffe.   |                     |
| REFERENCES          | <ul style="list-style-type: none"> <li>■ <b>Dinesh Manocha</b><br/>Professor of Computer Science and Professor of Electrical and Computer Engineering<br/>University of Maryland, College Park<br/>dmanocha@umd.edu</li> <li>■ <b>Donghwan Lee</b><br/>Computer Vision Team Leader @ NAVER LABS<br/>8 Gumi-ro, Gumi 1(il)-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea<br/>donghwan.lee@naverlabs.com</li> <li>■ <b>Professor Changick Kim</b><br/>Professor in School of Electrical Engineering,<br/>Korea Advanced Institute of Science and Technology (KAIST)<br/>changick@kaist.ac.kr</li> </ul> |                     |

[CV compiled on 2022-11-14]