

# Jaehoon Choi

kevchoi@umd.edu • +1-240-264-7719 • <https://jh-choi.github.io>

## EDUCATION

### University of Maryland, College Park

- Ph.D. in Computer Science
- Adviser: Prof. Dinesh Manocha

Jan 2021 – Present

### Korea Advanced Institute of Technology (KAIST)

- M.S. in Electrical Engineering
- Adviser: Prof. Changick Kim

Sep 2017 – Dec 2019

### Korea Advanced Institute of Technology (KAIST)

- B.S. in Electrical Engineering
- Minor: Business and Technology Management
- Korean Augmentation to the United States Army (mandatory military service)

Feb 2011 – Aug 2017

Oct 2014 – Jul 2016

## RESEARCH

## INTERESTS

## PUBLICATIONS

3D Reconstruction, Neural Rendering, and SLAM

### INTERNATIONAL CONFERENCES

- [1] **Jaehoon Choi**, Rajvi Shah, Qinbo Li, Yipeng Wang, Ayush Saraf, Changil Kim, Jia-Bin Huang, Dinesh Manocha, Suhil Alsian, and Johannes Kopf, “LTM: Lightweight textured mesh reconstruction for real-time rendering in unbounded scene.”, *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
- [2] Christopher Maxey\*, **Jaehoon Choi\***, Hyungtae Lee, Dinesh Manocha, and Heesung Kwon, “UAV-Sim: NeRF-based Synthetic Data Generation for UAV-based Perception”, *The IEEE International Conference on Robotics and Automation (ICRA)*, 2024. (\* These two authors contributed equally)
- [3] **Jaehoon Choi**, Dongki Jung, Taejae Lee, Sangwook Kim, Youngdong Jung, Dinesh Manocha, and Donghwan Lee, “TMO: Textured Mesh Acquisition of Objects with a Mobile Device by using Differentiable Rendering”, *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
- [4] **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)
- [5] 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.
- [6] 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)
- [7] **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.
- [8] **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-W) on Machine Learning for Autonomous Driving*, Vancouver, Canada, 2020. (\* These two authors contributed equally)
- [9] 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
- [10] **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

- [11] 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**)
- [12] **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 Internship** at Meta Jun 2023 – Aug 2023
  - Manager: *Ph.D. Rajvi Shah* and *Ph.D. Qinbo Li*
  - Research Scientist Intern on XR Computational Photography.
- **Research Scientist** at NAVER LABS Jan 2022 – Aug 2022
  - Manager: *Ph.D. Donghwan Lee*
  - Developing a Neural Rendering algorithm for Augmented Reality platform.
- **Research Internship** at NAVER LABS Jun 2021 – Aug 2021
  - Manager: *Ph.D. Donghwan Lee*
  - Developed a SLAM algorithm for the mobile robot.
- **Research Internship** at NAVER LABS Jan 2020 – Dec 2020
  - Manager: *Ph.D. Donghwan Lee*
  - Developed a depth estimation algorithm for robotics systems.

#### PROJECT EXPERIENCE

- 3D Object Recognition Algorithm for Autonomous Driving May 2019 – Nov 2019
  - Funded by *LG Electronics Co., Ltd*
  - Aimed at Developing the 2D object detection and depth estimation for stereo RGB images and FIR images.
- Deep Learning Algorithm on Embedded Systems for Vision Tasks Jan 2018 – Dec 2018
  - Funded by *LIG Nex1 Co., Ltd*
  - Developed the visual recognition algorithm on the embedded system, which requires light and efficient deep learning.
- Deep Learning-based Defect Detection Apr 2017 – Dec 2017
  - Funded by *Samsung Electronics Co., Ltd*
  - Aimed at developing the automatic surface defect detection algorithm for mobile phone based on deep learning.

#### TEACHING

- University of Maryland College Park, Teaching Assistant Sep 2022 – Dec 2022
  - CMSC733 – Computer Processing of Pictorial Information
- University of Maryland College Park, Teaching Assistant Sep 2021 – Dec 2021
  - CMSC250 – Discrete Structure
- University of Maryland College Park, Teaching Assistant Feb 2021 – May 2021
  - CMSC426 – Computer Vision
- KAIST, Teaching Assistant Mar 2019 – Jul 2019
  - EE838 – Special Topics in Image Engineering <Optimization for Computer Vision>
- KAIST, Student Tutor Mar 2017 – Jul 2017
  - Student tutor for foreign students: CS101 – Introduction to Programming

#### ACADEMIC ACTIVITIES

- Conference Reviewer
  - CVPR 2020, WACV 2021, ACCV 2020, AAAI 2021, ICRA 2021, CVPR 2021, AAAI 2022
  - Chosen as one of 66 outstanding reviewers of ACCV 2020

#### OTHER ACTIVITIES

- Large-scale 3D Shape Reconstruction and Segmentation from Shapenet Core55 Aug 2017 – Oct 2017
  - Participated in the 3D shape segmentation from ShapeNet challenge held in ICCV 2017.
- Korean Augmentation to the United States Army Oct 2014 – Jul 2016
  - Served in the 6-52 Air Defense Artillery in U.S.Army as a translator (mandatory military duty)

#### LANGUAGES

Korean (Native), English (Fluent)

#### SKILLS

Python, MATLAB, C, C++, CUDA, ROS, Docker, L<sup>A</sup>T<sub>E</sub>X, PyTorch, TensorFlow, Caffe.

## REFERENCES

### ■ **Dinesh Manocha**

Professor of Computer Science and Professor of Electrical and Computer Engineering  
University of Maryland, College Park  
dmanocha@umd.edu

### ■ **Donghwan Lee**

Computer Vision Team Leader @ NAVER LABS  
8 Gumi-ro, Gumi 1(il)-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea  
donghwan.lee@naverlabs.com

### ■ **Changick Kim**

Professor in School of Electrical Engineering,  
Korea Advanced Institute of Science and Technology (KAIST)  
changick@kaist.ac.kr

[CV compiled on 2024-03-07]