

Jaehoon Choi

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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

3D Reconstruction, Neural Rendering, and SLAM

PUBLICATIONS

INTERNATIONAL CONFERENCES

- [1] Christopher Maxey*, **Jaehoon Choi***, Hyungtae Lee, Dinesh Manocha, and Heesung Kwon, “UAV-Sim: NeRF-based Synthetic Data Generation for UAV-based Perception”, under review. (* These two authors contributed equally)
- [2] **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.
- [3] **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)
- [4] 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.
- [5] 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)
- [6] **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.
- [7] **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)
- [8] 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
- [9] **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
- [10] 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**)
- [11] **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 ● Manager: <i>Ph.D. Rajvi Shah</i> and <i>Ph.D. Qinbo Li</i> ● Research Scientist Intern on XR Computational Photography.	Jun 2023 – Aug 2023
	Research Scientist at NAVER LABS ● Manager: <i>Ph.D. Donghwan Lee</i> ● Developing a Neural Rendering algorithm for Augmented Reality platform.	Jan 2022 – Aug 2022
	Research Internship at NAVER LABS ● Manager: <i>Ph.D. Donghwan Lee</i> ● Developed a SLAM algorithm for the mobile robot.	Jun 2021 – Aug 2021
	Research Internship at NAVER LABS ● Manager: <i>Ph.D. Donghwan Lee</i> ● Developed a depth estimation algorithm for robotics systems.	Jan 2020 – Dec 2020
PROJECT EXPERIENCE	3D Object Recognition Algorithm for Autonomous Driving ● Funded by LG Electronics Co., Ltd ● Aimed at Developing the 2D object detection and depth estimation for stereo RGB images and FIR images.	May 2019 – Nov 2019
	Deep Learning Algorithm on Embedded Systems for Vision Tasks ● Funded by LIG Nex1 Co., Ltd ● Developed the visual recognition algorithm on the embedded system, which requires light and efficient deep learning.	Jan 2018 – Dec 2018
	Deep Learning-based Defect Detection ● Funded by Samsung Electronics Co., Ltd ● Aimed at developing the automatic surface defect detection algorithm for mobile phone based on deep learning.	Apr 2017 – Dec 2017
TEACHING	University of Maryland College Park, Teaching Assistant ● CMSC733 – Computer Processing of Pictorial Information	Sep 2022 – Dec 2022
	University of Maryland College Park, Teaching Assistant ● CMSC250 – Discrete Structure	Sep 2021 – Dec 2021
	University of Maryland College Park, Teaching Assistant ● CMSC426 – Computer Vision	Feb 2021 – May 2021
	KAIST, Teaching Assistant ● EE838 – Special Topics in Image Engineering <Optimization for Computer Vision>	Mar 2019 – Jul 2019
	KAIST, Student Tutor ● Student tutor for foreign students: CS101 – Introduction to Programming	Mar 2017 – Jul 2017
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 ● Participated in the 3D shape segmentation from ShapeNet challenge held in ICCV 2017.	Aug 2017 – Oct 2017
	Korean Augmentation to the United States Army ● Served in the 6-52 Air Defense Artillery in U.S.Army as a translator (mandatory military duty)	Oct 2014 – Jul 2016
LANGUAGES	Korean (Native), English (Fluent)	
SKILLS	Python, MATLAB, C, C++, CUDA, ROS, Docker, L ^A T _E 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**

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