

Hongsuk Benjamin Choi

PERSONAL DETAILS

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EXPERTISE

Machine Learning and Computer Vision. Hands-on experience in realworld applications of 3D Computer Vision, Multi-modal Perception, Robotics Perception, Neural Image Generation, Motion Capture, Object Tracking, and Data Collection and Annotation.

Over **500 citations**, three active GitHub projects with approximate total **900 stars**. Published/submitted 10 papers at top Computer Vision, Machine Learning, and Robotics conferences, such as **CVPR**, **ECCV**, **ICLR**, in three years, 6 as the first author. Got **EB1** (Outstanding Researcher) approval from USCIS.

EDUCATION

M.S. , Electrical and Computer Engineering Seoul National University (SNU), Seoul, South Korea Advisor: Prof. Kyoung Mu Lee	Mar 2020 - Feb 2022
B.S. , Computer Science and Engineering Seoul National University (SNU), Seoul, South Korea	Mar 2015 - Feb 2020
B.S. , Business Seoul National University (SNU), Seoul, South Korea	Mar 2013 - Feb 2020

SKILLS

Professional at:

PYTHON, PYTORCH, PYTORCH3D, OPENCV, OPEN3D, PIL, CAMERA CALIBRATION, HUMAN BODY AND HAND MOTION CAPTURE, VICON, 3D VISUALIZATION, PERFORMANCE REPORT, CONVENTIONAL MULTI-VIEW GEOMETRY CV, IMAGE PROCESSING, MACHINE LEARNING, CONVEX OPTIMIZATION, LATEX

Familiar at:

JAVA, JAVASCRIPT, TENSORFLOW, ROS, ANDROID STUDIO, PYTHON SIMULATION, TACTILE FORCE SCANNING, 3D GRAPHICS

WORK EXPERIENCE

Machine Learning Researcher

Main Team Projects

- User-friendly Floor Plan Generation from Lidar Image
- Manipulation Robot System Development
- Reactive Human Tracking/Following with Mobile Robots

Other Team Projects

- Hand-Object Interaction Scene Reconstruction from a Single RGB
- Metric-scale Human Reconstruction from a Single RGB
- Hand Force Estimation from Vision June 2022 - Present
Samsung AI Center, New York, USA

Visiting Researcher

- Data Augmentation for
3D Human Pose and Shape Estimation Mar 2022 - May 2022
NAVER AI LAB, Seoul, Korea

Research Intern

- Neural Human Rendering for an Arbitrary Person
with Implicit Function (NeRF) Apr 2021 - Oct 2021
NAVER LABS Europe, Grenoble, France
Advisor: [Gregory Rogez](#), Vincent Leroy

Research Intern

- 3D Human Pose Estimation from a Single Image Aug 2019 - Feb 2020
Department of Electrical and Computer Engineering, SNU
Advisor: [Prof. Kyoung Mu Lee](#)
- Pedestrian Tracking from a Drone Captured Video Mar 2019 - Jul 2019
Department of Electrical and Computer Engineering, SNU
Advisor: [Prof. Kyoung Mu Lee](#)

Teaching Assistant

- Introduction to Computer Programming Mar 2019 - Dec 2020
Department of Business Administration, SNU

Software Engineer Intern

- Android App Development for Movie Trailer Play in AR Jun 2018 - Aug 2018
NAVER, Seoul, Korea

Start-Up Team Leader & Software Engineer

- WebApp Development for Workout Social Media Jul 2017 - Feb 2019
Publicly launched at App Store & Google Play Store

PATENTS

In Process

[1] HandNeRF: RGB-BASED HAND-OBJECT INTERACTION RECONSTRUCTION SYSTEM (Samsung A2 patent)

[2] MonoNHR: THREE DIMENSIONAL RENDERING SYSTEMS AND METHODS FROM MONOCULAR IMAGE (Seoul National University & Naver patent)

PUBLICATIONS

- [1] **Hongsuk Choi**, Nikhil Chavan-Dafle, Jiacheng Yuan, Volkan Isler, Hyunsoo Park, “HandNeRF: Learning to Reconstruct Hand-Object Interaction Scene from a Single RGB Image”, under review, [\[ARXIV\]](#)[\[CODE coming soon\]](#) [\[VIDEO\]](#)
- [2] **Hongsuk Choi**, Hyeongjin Nam, Taeryung Lee, Gyeongsik Moon, Kyoung Mu Lee, “Rethinking Self-Supervised Visual Representation Learning in Pre-training for 3D Human Pose and Shape Estimation”, **ICLR 2023**, [\[ARXIV\]](#)[\[VIDEO\]](#)
- [3] Gyeongsik Moon, **Hongsuk Choi**, Sanghyuk Chun, Jiyoung Lee, Sangdoo Yun, “Three Recipes for Better 3D Pseudo-GTs of 3D Human Mesh Estimation in the Wild”, **CVPR 2023 workshop**, [\[ARXIV\]](#)[\[PDF\]](#)[\[HOMEPAGE\]](#)
- [4] Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, “NeuralAnnot: Neural Annotator for 3D Human Mesh Training Sets”, **CVPR 2022 workshop**, [\[ARXIV\]](#)[\[CODE\]](#)
- [5] Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, “Accurate 3D Hand Pose Estimation for Whole-Body 3D Human Mesh Estimation”, **CVPR 2022 workshop**, [\[ARXIV\]](#)[\[CODE\]](#)
- [6] JoonKyu Park, Yeonguk Oh, Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, “HandOccNet: Occlusion-Robust 3D Hand Mesh Estimation Network”, **CVPR 2022**, [\[ARXIV\]](#)[\[CODE\]](#)
- [7] **Hongsuk Choi**, Gyeongsik Moon*, Matthieu Armando, Vincent Leroy, Kyoung Mu Lee, Gregory Rogez, “MonoNHR: Monocular Neural Human Renderer”, **3DV 2022**, [\[ARXIV\]](#)[\[VIDEO\]](#)
- [8] **Hongsuk Choi**, Gyeongsik Moon, Joonkyu Park, and Kyoung Mu Lee, “Learning to Estimate Robust 3D Human Mesh from In-the-Wild Crowded Scenes”, **CVPR 2022**, [\[ARXIV\]](#)[\[CODE\]](#)
- [9] **Hongsuk Choi**, Gyeongsik Moon, Ju Yong Chang, and Kyoung Mu Lee, “Beyond Static Features for Temporally Consistent 3D Human Pose and Shape from a Video”, **CVPR 2021**, [\[ARXIV\]](#)[\[VIDEO\]](#)[\[CODE\]](#)
- [10] **Hongsuk Choi**, Gyeongsik Moon, and Kyoung Mu Lee, “Pose2Mesh: Graph Convolutional Network for 3D Human Pose and Mesh Recovery from a 2D Human Pose”, **ECCV 2020**, [\[ARXIV\]](#)[\[PDF\]](#)[\[VIDEO\]](#)[\[CODE\]](#)

PROJECTS

A Large-scale Dataset for 3D Human Pose and Mesh Estimation May 2020 - Dec 2020
[Dataset link](#) / co-op with SweetK and MotionTechnology

HumanFit: A New Large-scale Dataset for Human Fitness
Evaluation and Feedback May 2020 - Dec 2020
[Dataset link](#) / co-op with SuperbAI, KakaoBrain

Human tracking and counting from Drone images
(Data collection and Model development) Mar 2019 - May 2019
co-op with Ministry of Science and ICT, Korea

Human Part Segmentation for AI-based Animation Coloring
co-op with NCSOFT

Mar 2019 - Jun 2019

HONORS

Distinguished Master Dissertation Award, Seoul National University, 2022

Selected as a finalist in **Qualcomm Innovation Fellowship Korea**, 2020 & 2021

1st place and **2nd place** at the *without association* track of **3D human pose estimation in the wild (3DPW) challenge**, workshop conjunction with **ECCV 2020** (1st in a joint orientation metric and 2nd in a joint position metric), 2020

1st place at the Qualcomm IT Tour presentation competition held by Qualcomm, proposed AR-based workout coaching system and selected as a winner by Jim Cathey (President of Qualcomm Global Business), 2019

SOMETHING DIFFERENT

I enjoy bouldering (indoor climbing) with friends on weekends. I go to a gym almost every day. Benjamin is the English name I used when I lived in Bristol, the U.K. American pop and J-pop are my favorite music. At college, I played an electric guitar in a rock band. I used to play LOL (e-sports) a lot.