Hongsuk Benjamin Choi

PERSONAL DETAILS

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Homepage	Homepage / GitHub / Google Scholar / LinkedIn

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   Mar 2020 - Feb 2022
Seoul National University (SNU), Seoul, South Korea
Advisor: Prof. Kyoung Mu Lee

B.S., Computer Science and Engineering   Mar 2015 - Feb 2020
Seoul National University (SNU), Seoul, South Korea

B.S., Business   Mar 2013 - Feb 2020
Seoul National University (SNU), Seoul, South Korea

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] **Hongsuk Choi**, Gyeongsik Moon, Matthieu Armando, Vincent Leroy, Kyoung Mu Lee, Gregory Rogez, "MonoNHR: Monocular Neural Human Renderer", **3DV 2022**, [ARXIV][VIDEO]

[5] **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]

[6] Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, "NeuralAnnot: Neural Annotator for 3D Human Mesh Training Sets", **CVPR 2022 workshop**, [ARXIV][CODE]

[7] Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, "Accurate 3D Hand Pose Estimation for Whole-Body 3D Human Mesh Estimation", **CVPR 2022 workshop**, [ARXIV][CODE]

[8] JoonKyu Park, Yeonguk Oh, Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, "HandOccNet: Occlusion-Robust 3D Hand Mesh Estimation Network", **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   Mar 2019 - Jun 2019
co-op with NCSOFT

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.