Hongsuk Benjamin Choi

PERSONAL DETAILS

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VISA	Green Card Holder

INTRODUCTION

I am interested in a broad range of machine learning and computer vision topics. I have in-depth experience in 3D reconstruction and neural image generation.

- Published **9 papers** at top conferences in **2 years of my Master's program**.
- I am the **first author on 7 papers** out of 11 papers.
- My work has over 600 Google Scholar citations, an H-index of 6 in 3 years.
- I maintain GitHub projects with around 1000 stars.

EDUCATION & SERVICE

M.S., Electrical and Computer Engineering — Mar 2020 - Feb 2022
Seoul National University (SNU), Seoul, Korea
Advisor: Prof. Kyoung Mu Lee

Military Service, Sergeant Squad Leader — Mar 2015 - Mar 2017
Air Force, Korea

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

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

WORK EXPERIENCE

Samsung AI Center, New York, USA
Research Engineer, June 2022 - Present

Projects I led
- FineControlNet: Fine-level Text Control for Image Generation with Spatially Aligned Text Control Injection
- HandNeRF: Hand-Object Interaction Scene Reconstruction from a Single RGB
- Metric-scale Human Reconstruction from a Single RGB
- Hand Force Estimation from Vision

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

NAVER AI LAB, Seoul, Korea
Visiting Researcher, Mar 2022 - May 2022

- Project: Data Augmentation for 3D Human Pose and Shape Estimation using Image Generation and Pseudo-labeling
- NAVER AI LAB is the largest AI lab in Korea

NAVER LABS Europe, Grenoble, France
Research Intern, Apr 2021 - Oct 2021

- Project: Neural Image Generation for an Arbitrary Person with Implicit Function (NeRF) from a Single RGB Image
  Advisor: Gregory Rogez, Vincent Leroy
- NAVER LABS Europe is a former Xerox Research Centre Europe

Seoul National University, Seoul, Korea
Teaching Assistant, Mar 2019 - Dec 2020

- Lecture: Introduction to Computer Programming

NAVER Webtoon, Seoul, Korea
Software Engineer Intern, Jun 2018 - Aug 2018

- Project: Android App Development for Movie Trailer Play in AR
- NAVER Webtoon has 85.6 million users

Start-Up
Team Leader & Software Engineer, Jul 2017 - Feb 2019

- WebApp Development for Workout Social Media
- Publicly launched at App Store & Google Play Store

PUBLICATIONS (SELECTED)

[1] **Hongsuk Choi**, Isaac Kasahara, Selim Engin, Moritz Alexander Graule, Nikhil Chavan-Dafle, Volkan Isler, "FineControlNet: Fine-level Text Control for Image Generation with Spatially Aligned Text Control Injection", under review

[2] **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] [VIDEO]

[3] **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]

[4] 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]

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

[6] **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]

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

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

[9] JoonKyu Park, Yeonguk Oh, Gyeongsik Moon, **Hongsuk Choi**, Kyoung Mu Lee, "HandOccNet: Occlusion-Robust 3D Hand Mesh Estimation Network", **CVPR 2022**, [ARXIV][CODE]

[10] **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]

[11] **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]

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)

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

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

SOMETHING DIFFERENT

During my stay in Bristol, UK, I went by Benjamin in an local elementary school. My music taste traverses the globe from American pop to lively J-pop tunes. In college, I embraced my inner rockstar, shredding up the stage with my band as the electric guitar player. Looking to expand my musical repertoire, I picked up the bass guitar this year.