HSUAN-I HO

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⋄ Research interests: **Digital Humans**, **3D Generative Modeling**, **Diffusion Models**

EDUCATION

ETH Zurich   *05/2022 - Now*
PhD student in Computer Science, AIT Lab

· Thesis Advisor: Prof. Dr. Otmar Hilliges, Prof. Dr. Markus Gross
· Topics: Editable Virtual Humans, Controllable Generative Models, Diffusion Models
· Roles: Volumetric Data Capturing Manager, IT Coordinator, Researcher, Teaching Assistant

ETH Zurich   *09/2018 - 09/2021*
MSc in Computer Science

· Overall Grade Point Average: 5.67/6.00
· Master thesis: "**Motion Guided Human Video Synthesis**"
  Diploma thesis, Grade: 6.00/6.00

National Taiwan University (NTU)   *09/2012 - 06/2016*
BSc in Electrical Engineering

· Grade Point Average: 4.12/4.30, Ranking: 12/190 (6.3%)

PRACTICAL EXPERIENCE

Video AI Group, NAVER Corp., South Korea   *09/2019 - 12/2019*
Research Internship

· Developed a person re-identification model for human tracking, improving stability and accuracy for online service by 30%
· Collected a new benchmark dataset for evaluating human tracking on dance videos
· Applied for human re-identification patents and integrated the methods into online service

Vision and Learning Lab, National Taiwan University, Taiwan   *03/2017 - 07/2018*
Research Assistant

· Proposed a domain adaptation technique for the egocentric video summarization problem
· Published research results, attended conferences, and reviewed conference papers
· Served as a teaching assistant for deep learning and computer vision courses, supervised undergraduate students conducting semester projects

PUBLICATIONS

Hsuan-I Ho, Jie Song, Otmar Hilliges, "**SiTH: Single-view Textured Human Reconstruction with Image-conditioned Diffusion**", in Submission, 2024.

Hsuan-I Ho, Lixin Xue, Jie Song, Otmar Hilliges, "**Learning Locally Editable Virtual Human**", CVPR, 2023.

Hsuan-I Ho, Xu Chen, Jie Song, Otmar Hilliges, "**Render In-between: Motion Guided Video Synthesis for Action Interpolation**", BMVC, 2021.

Minho Shim, Hsuan-I Ho, Jinhyung Kim, Dongyoon Wee, "**READ: Reciprocal Attention Discriminator for Image-to-Video Re-Identification**", ECCV, 2020.

Hsuan-I Ho, Wei-Chen Chiu, Yu-Chiang Frank Wang, "**Summarizing First-Person Videos from Third Persons' Points of Views**", ECCV, 2018.

Po-Chen Wu, Hsuan-I Ho*, Yueh-Ying Lee*, Hung-Yu Tseng*, Ming-Hsuan Yang, and Shao-Yi Chien, "**A Benchmark Dataset for 6DoF Object Pose Tracking**", ISMAR, 2017.

SELECTED PROJECTS

**SiTH: Single-view Textured Human Reconstruction
with Image-Conditioned Diffusion** *2024*
[Project Page] [PDF]

· Proposed a novel pipeline for creating fully textured 3D humans from single images
· Uniquely integrated image-guided diffusion models into a data-driven 3D reconstruction workflow
· Collected a new benchmark for the single-view 3D human reconstruction problem

Learning Locally Editable Virtual Humans *2023*
[Code: custom-humans/editable-humans] [Project Page] [PDF]

· Developed a novel 3D codebook representation for learning locally editable human avatars
· Designed a pipeline of 3D avatar creation via fitting texture and geometry to 2D or 3D observations
· Recorded a new 3D human dataset with 600+ high-quality textured scans and SMPL-X registration

Render In-between: Motion Guided Video Synthesis for Action Interpolation *2021*
[Code: azuxmioy/Render-In-Between] [PDF]

· Designed a two-stage video synthesis pipeline for a human action-infilling application
· Implemented transformer architectures for human motion modeling
· Collected a new high FPS and high-resolution human action dataset for evaluation

Reciprocal Attention Discriminator for Image-to-Video person Re-ID *2020*
[Code: minostauros/READ] [PDF]

· Implemented an image-to-video person re-identification component in the human tracking system

TEACHING EXPERIENCE

Machine Perception, ETH Zurich *2023*
Teaching Assistant, Project Manager

· Designed a competition around sparse-view NeRF reconstruction and provided baseline models for a compulsory course attended by over 300 students.
· Created teaching materials, lecture notes, and exam exercises on the topic of generative modeling

Computer Science I (C++ Programming), ETH Zurich *2022, 2023*
Teaching Assistant

· Delivered lectures on C++ and graded students' programming exercises

Deep Learning for Computer Vision, NTU *2018*
Teaching Assistant

· Designed an exercise of action recognition for the elective course of more than 200 students
· Organized the lectures, and projects and created teaching materials for deep learning

TECHNICAL SKILLS

Programming	Python, C/C++, MATLAB
Scientific Libraries	PyTorch, TensorFlow, OpenCV, Pytroch 3D, Kaolin
Software & Tools	Linux OS, Git, LaTeX, HTML & CSS, Blender, Docker
Domain Knowledge	Parametric Body Models, Pose Estimation, 3D Representations, NeRF, GANs, Diffusion Models, Volumetric Capturing & Dataset Collection

HONORS

Appier Artificial Intelligence and Information Technology Research Scholarship	*2018*
1st Prize of MOST Generative Adversarial Networks Project Competition	*2017*
3rd Prize of 2016 Agrithon (Agricultural Hackathon) in Taiwan	*2016*