Zhuoqian Yang

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EDUCATION

École Polytechnique Fédérale de Lausanne, EDIC   Lausanne, CH
- PhD Student, supervised by *Dr. Mathieu Salzmann*   Sep 2023

Carnegie Mellon University, Robotics Institute   Pittsburgh, PA, USA
- M.S. in Computer Vision, advisor: *Prof. Kris Kitani* | Cumulative GPA: 4.03/4.3   Aug 2019 – Dec 2020
- Courses: Computer Vision (A), Computer Graphics (A), Machine Learning (A+), Geometry-Based Computer Vision (A+), Computational Photography (A-), Learning-Based Computer Vision (A-), Math for Robotics (A)

Beihang University, School of Software Engineering   Beijing, CHN
- B.E. in Software Engineering | GPA: 88.1/100, Overall Ranking: 6/149   Sep 2015 – Jun 2019

PUBLICATIONS

Full list available at *https://scholar.google.com/citations?user=WTDthdcAAAAJ*.   * equal contribution

[1] **3DHumanGAN: Towards Photorealistic 3D-Aware Human Image Generation**,   ICCV 2023
Zhuoqian Yang, Shikai Li, Wayne Wu, Bo Dai,
Project Page: *https://3dhumangan.github.io/*

[2] **OrthoPlanes: A Novel Representation for Better 3D-Awareness of GANs**,   ICCV 2023
Honglin He*, Zhuoqian Yang*, Shikai Li, Bo Dai, Wayne Wu
Project Page: *https://orthoplanes.github.io/*

[3] **TransMoMo: Invariance-Driven Unsupervised Video Motion Retargeting**,   CVPR 2020
Zhuoqian Yang*, Wentao Zhu*, Wayne Wu*, Chen Qian, Qiang Zhou, Bolei Zhou, Chen Change Loy,
Project Page: *https://yzhq97.github.io/transmomo*

[4] **MEAD: A Large-Scale Audio-Visual Dataset for Emotional Talking Face Generation**,   ECCV 2020
Kaisiyuan Wang*, Qianyi Wu*, Linsen Song*, Zhuoqian Yang, Wayne Wu, Chen Qian, Ran He, Yu Qiao, Chen Change Loy,
Project Page: *https://wywu.github.io/projects/MEAD/MEAD.html*

[5] **Non-Rigid Image Registration with Dynamic Gaussian Component Density and Space Curvature Preservation**,   IEEE Transactions on Image Processing
Zhuoqian Yang, Yang Yang, Kun Yang, Ziquan Wei,
Paper: *https://ieeexplore.ieee.org/document/8579185*

RESEARCH EXPERIENCE

Shanghai AI Laboratory, Research Engineer   Shanghai
Topic: 3D-Aware Representation and Generation
Supervisor: *Dr. Bo Dai* and *Dr. Wayne Wu*   Mar 2021 - Jul 2023
- Proposed one of the first 3D-aware generative adversarial network 3DHumanGAN that synthesizes full-body human images; achieved pose-conditioned 3D-aware synthesis of full-body images with image quality comparable to that of 2D GANs.
- Proposed a novel hybrid implicit-explicit volumetirc representation Orthoplanes for neural rendering of 3D scenes; significantly improves quality and view-consistency of rendering on large view-angles.

Fujitsu Research of America, Research Intern   Pittsburgh, PA
Topic: Semantic Facial Image Manipulation using 2D/3D Modalities, *sponsored capstone project*
Supervisor: *Dr. Laszlo Jeni* and *Dr. Koichiro Niinuma*   May 2020 - Dec 2020
Presentation: *https://drive.google.com/file/d/1UbTcLudyGlr4OiP10rQ53OjattXGkA5B*

- Built a facial expression manipulation model to generate photorealistic images conditioned on FACS.

- Designed a two-stage pipeline: (i) manipulate image geometry using 3D information of the face, (ii) synthesize facial-expression-induced textures such as wrinkles.
- Achieved 19% improvement in FACS Expression Accuracy and 12% improvement in FID.

SenseTime, Research Intern   Beijing
Topic: Video Motion Transfer
Supervisor: *Dr. Wayne Wu*   May 2019 - Nov 2019

- Designed an autoencoder framework to learn latent representations of human motion from unpaired videos.
- Achieved unsupervised representation disentanglement by exploiting invariance properties of three orthogonal factors of variation including motion, structure, and view-angle.
- Achieved motion retargeting MSE 20% smaller than the supervised SOTA with our unsupervised method.

Intelligent Computing and Machine Learning Lab, Beihang University, Research Student   Beijing
Topic: Visual Quesion Answering
Supervisor: *Prof. Zengchang Qin*   Jul 2018 - Dec 2018

- Designed a graph neural network approach to enable agents to reason visual relationships on scene graphs.
- Introduced prior knowledge of visual relationships via contrastive-learned embeddings constrained by visual context and language priors.
- Improved performance in questions that require relational reasoning.

Engineering Research Center of GIS Technology, Yunnan Normal University, Research Student
Topic: Non-Rigid Image Registration,   Kunming
Supervisor: *Prof. Yang Yang*   Mar 2017 - Dec 2017

- Designed a dynamic Gaussian component density to progressively exploit available image information and provide sufficient reliable correspondences for image registration.
- Devised a VGG-pyramid-feature-based non-rigid image registration method;
- Devised a space curvature preservation to improve the plausibility of estimated transformation.
- Improved RMSE by 20% on remote sensing images with temporal appearance changes.

AWARDS	■ First Prize Scholarship for Academic Performance (Top 5%), Beihang University	Dec 2016
	■ Excellent Student, Beihang University	Dec 2016

ACADEMIC SERVICES

Reviewer: CVPR, ECCV, AAAI

Teaching Assistant, Beihang University
Course *Introduction to Software Engineering*   Mar 2018 – Jun 2018