Zhuoqian Yang

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EDUCATION

Carnegie Mellon University, Robotics Institute — Pittsburgh, PA
- M.S. in Computer Vision | Cumulative GPA: 4.04/4.3 — Aug 2019 – Dec 2020
- Courses: Machine Learning (A+), Computer Vision (A), Computer Graphics (A), Math for Robotics (A), Visual Learning & Recognition (A-), Computational Photography (Ongoing), Geometry for Vision (Ongoing)

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

SELECTED PUBLICATIONS

[1] Zhuoqian Yang*, Wentao Zhu*, Wayne Wu*, Chen Qian, Qiang Zhou, Bolei Zhou, Chen Change Loy, "TransMoMo: Invariance-Driven Unsupervised Video Motion Retargeting," CVPR 2020. * equal contribution.

[2] Zhuoqian Yang, Yang Yang, Kun Yang, Ziquan Wei, "Non-rigid image registration with dynamic Gaussian component density and space curvature preservation," IEEE Transactions on Image Processing, 28(5), 2584-2598.

[3] Zhuoqian Yang, Zengchang Qin, Jing Yu, Yue Hu, "Scene Graph Reasoning with Prior Visual Relationship for Visual Question Answering," ICIP 2020.

EXPERIENCE

Fujitsu Laboratories America, Research Intern — Remote, US

Semantic Facial Image Manipulation using 2D/3D Modalities, *sponsored MSCV capstone project*

Supervisor: *Dr. Laszlo Jeni*, *Koichiro Niinuma* — Ongoing since Feb 2020
- Building a facial expression manipulation model to generate photorealistic images based on FACS.
- Designed a two-stage pipeline to disentangle the expression manipulation process: (i) manipulate image geometry using 3D information of the face, (ii) inpaint textures of facial expression such as wrinkles.
- Working towards a top conference publication.

SenseTime, Research Intern — Beijing

TransMoMo: Invariance-Driven Unsupervised Video Motion Retargeting, *CVPR 2020*

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.

RESEARCH

Scene Graph Reasoning with Prior Visual Relationship for Visual Question Answering, *ICIP 2020*

Supervisor: *Assoc. Prof. Zengchang Qin* — Jul 2018 - Dec 2018

Intelligent Computing and Machine Learning Lab, Beihang University — Beijing
- Designed a graph neural network approach to enable agents to reason visual relationships on scene graphs.
- Introduced prior knowledge of visual relationships via visual relationship metric learning. A deep semantic space constrained by visual context and language priors is learned for visual relationships.

Non-rigid Image Registration with Dynamic Gaussian Component Density, *IEEE TIP*

Supervisor: *Assoc. Prof. Yang Yang* — Mar 2017 - Dec 2017

Engineering Research Center of GIS Technology in Western China, Yunnan Normal University — Kunming
- Designed a dynamic Gaussian component density to progressively exploit available image information and provide sufficient credible correspondences for image registration.
- Devised a space curvature preservation to improve the plausibility of estimated transformation.

PROJECTS

CNN Image Registration, 200+ stars on Github — Mar 2018
- Devised a VGG-pyramid feature based multi-temporal remote sensing image registration method.
- Improved RMSE by 20% on remote sensing images with temporal appearance changes.

SKILLS

Programming Language: Python, C/C++, MATLAB, Bash, Java, Javascript, SQL

Tools: Pytorch, TensorFlow, LaTeX, Linux, Vue.js, MySQL