Xiu Li

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RESEARCH INTEREST

My research interests lie broadly in computer vision, computer graphics and machine learning. I'm now focusing on 3D vision including motion capture, neural avatar and neural rendering. I also spare some time on low-level vision including deblur, super-resolution and compressive imaging. My research aims at faithfully capturing, manipulating and presenting our real world.

EDUCATION

Tsinghua University *June,2022*
Ph.D.
Department of Automation
Advisor: Qionghai Dai

Tsinghua University *June,2015*
B.Eng.
Department of Automation

EXPERIENCE

Tencent July. 2022 -
Researcher *Beijing, CN*

· Tencent XR Vision Labs

Bytedance Mar. 2022 - July. 2022
Researcher *Beijing, CN*

· Development of 3D human body reconstruction system on various platforms, including server-side, PC and mobile platform.
· Research on generative methods for 3D aware virtual try-on.

Microsoft Research Asia Mar. 2021 - Mar. 2022
Research Intern *Beijing, CN*

· Group: Media Computing
· Decompose neural radiance field representation to neural reflectance field and incident light field representation. Introducing tree structures for importance sampling and smooth/sparse prior enforcement for the ambiguity between shading and material. This compact representation also enables editing tasks including relighting and material editing.
· Invented a new mesh distance based scene representation, which unifies static/dynamic neural radiance field learning. This representation is particularly suitable for animatable neural avatar reconstruction from monocular videos.

Carnegie Mellon University Sep,2017 - Aug,2019
Visiting Scholar *Pittsburgh PA,USA*

· Mentor: Yaser Sheikh, Hongdong Li
· Convert Non-Rigid Structure from Motion(NRSfM) to rigidity clustering and rigid multi-view stereo problems, called Structure from Recurrent Motion(SFRM). This proposed SFRM enables human motion reconstruction from internet video collections;

· Improve TotalCapture system, fitting the whole Panoptic Studio dataset with full-body parametric representation;
· Extend Openpose from joints only to dense body vertices to solve joint rotation and shape ambiguity in 3D human mesh reconstruction;

PUBLICATIONS

Refereed

1. Gusi Te, **Xiu Li**, Xiao Li, Jinglu Wang, Yan Lu, Wei Hu 'Neural Capture of Animatable 3D Human from Monocular Video', in ECCV 2022.
2. **X. Li**, J. Suo, W. Zhang, X. Yuan, Q. Dai, 'Universal and Flexible Optical Aberration Correction using Deep-Prior Based Deconvolution', in ICCV 2021.
3. X. Zhang, L. An, T. Yu, **X. Li**, K. Li, Y. Liu, '4D Association Graph for Realtime Multi-person Motion Capture Using Multiple Video Cameras', in CVPR 2020.
4. **X. Li**, H. Li, H. Joo, Y. Liu, Y. Sheikh, 'Structure from Recurrent Motion: From Rigidity to Recurrency', in CVPR 2018.

Preprints

1. **Xiu Li**, Xiao Li, Qionghai Dai, Yan Lu, 'Estimating Neural Reflectance Field from Radiance Field using Tree Structures', under review.
2. **X. Li**, Y. Liu, H. Joo, Q. Dai, Y. Sheikh, 'Capture Dense: Full-body Markless Motion Capture with Full-body Parsing', Technical Report, arxiv:1812.01783.

(avaiable upon request)

SERVICES

- Reviewer for recent CVPR,ICCV,ECCV,AAAI,ICLR,NeurIPS.

SKILL

Programming Languages	C/C++,Python,Matlab,Javascript
Tools	OpenCV,OpenGL,Pytorch,CUDA

AWARDS AND RECOGNITIONS

- Special Ph.D. admission program for talents in research, Tsinghua University,2015.
- 1st Place and Mission finisher of 2013 International Aerial Robotics Competition, AUVSI,2013.