XIN CHEN

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Research Interests

- **Computer Vision** Human Performance Capture Deep Learning
- **Computer Graphics** Image-based Modeling Neural Rendering

Education

Ph.D student, Computer Science GPA: 3.54/4.0 2018-Present
University of Chinese Academy of Sciences
Shanghai Institute of Microsystem and Information Technology

Master student, Computer Science - 2016-2018
ShanghaiTech University

B.Sc, Electronic Information Science GPA: 3.75/4.0 2016
Rank: 1/172 Qingdao University of Technology

Experience

Research Scientist Intern Tencent Youtu Lab Dec. 2020 to Mar. 2021
R&D Intern DGene Digital Technology Inc. Jul. 2018 to Dec. 2019
Summer Software Intern Raxtone Software Co.,Ltd. Jul. 2015 to Sep. 2015

Awards

Outstanding Student Leader of University of Chinese of Academy of Sciences. 2018
National Encouragement Scholarship. 2016
Provincial Government Scholarship. 2015
Second Prize in National Undergraduate Electronics Design Contest. 2015
Second Prize in China Mathematical Contest in Modeling. 2014
Third Prize in National Biomedical Electronics Innovation Contest. 2014
Province-level Merit Student. 2013

Publications

- TightCap: 3D Human Shape Capture with Clothing Tightness Field.
  Xin Chen, Anqi Pang, Peihao Wang, Wei Yang, Lan Xu, Jingyi Yu
  (**TOG 2021**) ACM Transactions on Graphics [WebPage|Paper]
- SportsCap: Monocular 3D Human Motion Capture and Fine-grained Understanding in Challenging Sports Videos.
  Xin Chen, Anqi Pang, Yuexin Ma, Lan Xu, Jingyi Yu
  (**IJCV 2021**) International Journal of Computer Vision [WebPage|Paper]
- ChallenCap: Monocular 3D Capture of Challenging Human Performances using Multi-Modal References.
  Yannao He, Anqi Pang, Xin Chen, Han Liang, Yuexin Ma, Lan Xu
  (**CVPR 2021 Oral**) IEEE Conference on Computer Vision and Pattern Recognition [WebPage|Paper]
- Few-shot Neural Human Performance Rendering from Sparse RGBD Videos.
  Anqi Pang*, **Xin Chen***, Haimin Luo, Minye Wu, Jingyi Yu, Lan Xu
  (**IJCAI 2021**) International Joint Conference on Artificial Intelligence [Paper]
- Neural Free-Viewpoint Performance Rendering under ComplexHuman-object Interactions.
  Guoxing Sun, **Xin Chen**, Yizhang Chen, Anqi Pang, Pei Lin, Lan Xu, Jingya Wang, Jingyi Yu
  (**ACMMM 2021**) ACM Multimedia [Paper]
- AutoSweep: Recovering 3D Editable Objects from a Single Photograph.
  Xin Chen, Yuwei Li, Xi Luo, Tianjia Shao, Jingyi Yu, Kun Zhou, Youyi Zheng
  (**TVCG 2018**) IEEE Transactions on Visualization and Computer Graphics [WebPage|Paper]

- Sparse Photometric 3D Face Reconstruction Guided by Morphable Models.
  Xuan Cao, Zhang Chen, Anpei Chen, Xin Chen, Shiying Li, Jingyi Yu
  (**CVPR 2018**) IEEE Conference on Computer Vision and Pattern Recognition
- Pose2Body: Pose-Guided Human Parts Segmentation.
  Xin Chen*, Zhong Li*, Wangyiteng Zhou,Yingliang Zhang, Jingyi Yu
  (**ICME 2019 Oral**) IEEE Conference on Multimedia and Expo
- Multiview Deformation for Dynamic Human Reconstruction.
  Xi Luo, Yuwei Li, Xin Chen, Jingyi Yu
  (Submit to **TOG 2020**) ACM Transactions on Graphics

Projects

- **Human Performance Capture with a Dome System** Feb. 2019 to Present
  Research Project. The major project for whole lab. Using more than 80 cameras to construct a dome system for multi-view stereo reconstruction. My work focuses on 3D human motion and shape capture. More relevant works are **HMR**, **Openpose**, and SMPL.
  Lead the reconstruction project, 1000 clips dataset. Aim to build a large number of dynamic 3D mesh sequences in dance, boxing, etc. As the first author, accepted to **IJCV 2021** (Top CV journals).
- **Human Body Shape Recover and 3D Cloth Segmentation** Dec. 2018 to Apr. 2019
  Research Project. A learning-based scheme for estimating clothing fitness and human shape on clothed 3D human scans based on **GAN**. Extend the **parametric human model** and **none-rigid deformation** for alignment.
  Propose a dataset of body shape and various clothing. This work can help human/clothing segmentation and virtual clothes fitting. As the first author, accepted to **TOG 2021** (Top CG journals).
- **Mobile Virtual Fitting** Jul. 2018 to Nov. 2018
  R&D Project. Work as an R&D intern at DGene lnc. and **won the Best Outstanding Intern Award in 2018** for leading this project. A single-view human body estimation and virtual fitting on **Android**. Based on the front-facing RGBD camera(ToF). Self-design Linear Blend Skinning(LBS) body model. Real-time clothing fitting.
- **Dynamic 3D Mesh Player** Feb. 2018 to Present
  Software Development. Stand-alone development work for free-view browsing on 4D scans. This software builds with **Unity3D** and **Meshlab**, containing features like 3D mesh rendering, free-angle viewpoint change, Poisson Surface Reconstruction, etc.. Still continuously update.
- **3D Objects Recover from a Single Photograph** Aug. 2017 to Aug. 2018
  Research Project. A fully automatic framework for extracting editable 3D objects from a single photograph. Combination with the learning-based instance semantic segmentation part and the graphics-based reconstruction part. **Unity** for visualization, MaskRCN for the network.
  Propose an instance segmentation dataset, including 11657 images with cubes and cylinders. As the first author, accepted by **TVCG 2018** (Top CG journals).
- **Gesture Interaction in Virtual Reality** Dec. 2016 to Jun. 2017
  R&D Project. A two-hand gesture controller for objects manipulation in VR. **Leap Motion**, **HTC Vive** for hardware support.

Technical Skills

Programming Languages	Python (Pytorch, Tensorflow, Mxnet)
	C#, C++ (OpenGL, OpenCV, Qt, Eigen, PCL, CUDA ...)
Softwares	Visual Studio, Pycharm, Jupyter Notebook, Android Studio
	Matlab, Unity3D, Blender
	Adobe Photoshop, Premiere
Others	Latex, Markdown
	Leap Motion, HTC Vive

References

Prof. Jingyi Yu	Supervisor, IEEE Fellow	ShanghaiTech University	yujingyi@@shanghaitech.edu.cn
Dr. Youyi Zheng	Former Supervisor	Zhejiang University	youyi.zheng@zju.edu.cn