Weikai Chen

Senior Research Scientist, Tencent US

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Positions

Tencent US, U.S.A
Senior Research Scientist — Sep. 2019 - Present

USC Institute for Creative Technologies, U.S.A
Research Associate, Vision and Graphics Lab — Jan. 2019 - Sep. 2019
Postdoctoral Researcher, Vision and Graphics Lab — Jun. 2017 - Jan. 2019

INRIA, France
Visiting Researcher, Alice Team — Jun. 2016 - Aug. 2016

Education

The University of Hong Kong, Hong Kong
- *Ph.D. in Computer Graphics*, advised by Prof. Wenping Wang, — Apr. 2013 - Apr. 2017

Tianjin University, Tianjin, China
- *Mphil. in Wireless Communication*, — Sep. 2010 - Feb. 2013
- *B.S. in Electronic Engineering*, — Sep. 2006 - Jul. 2010

Research Interests

Interplay among vision, graphics, and deep learning: 3D reasoning from RGB images, 3D reconstruction of general objects/body/face/hair, differentiable rendering, deep generative models.

Publications

[27] Mingyue Yang, Yuxin Wen, Weikai Chen, Yongwei Chen, Kui Jia, "Deep Optimized Priors for 3D Shape Modeling and Reconstruction", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2021.

[26] Haiwei Chen, Shichen Liu, Weikai Chen, Hao Li, "Equivariant Point Network for 3D Point Cloud Analysis", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2021.

[25] Yuda Qiu, Xiaojie Xu, Linteng Qiu, Yan Pan, Yushuang Wu, Weikai Chen, Xiaoguang Han, "3DCaricShop: A Dataset and A Baseline Method for Single-view 3D Caricature Face Reconstruction", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2021.

[24] Heming Zhu, Yu Cao, Hang Jin, *Weikai Chen*, Dong Du, Zhangye Wang, Shuguang Cui, Xiaoguang Han, "Deep Fashion3D: A Dataset and Benchmark for 3D Garment Reconstruction from Single Images", *European Conference on Computer Vision **(ECCV)***, 2020, **Oral Presentation**.

[23] Shichen Liu, Tianye Li, *Weikai Chen**, Hao Li, "A General Differentiable Mesh Renderer for Image-based 3D Reasoning", *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, 2020.

[22] Kyle Olszewski, Duygu Ceylan, Jun Xing, Jose I. Echevarria, Zhili Chen, *Weikai Chen*, Hao Li, "Intuitive, Interactive Beard and Hair Synthesis with Generative Models", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2020, **Oral Presentation**.

[21] Lihao Tian, Lin Lu, *Weikai Chen*, Yang Xia, Charlie C. L. Wang and Wenping Wang, "Organic Open-cell Porous Structure Modeling", *ACM Symposium on Computational Fabrication (**ACM SCF**)*, 2020.

[20] Shichen Liu, Shunsuke Saito, *Weikai Chen**, Hao Li, "Learning to Infer Implicit Surfaces without 3D Supervision", *Neural Information Processing Systems (**NeurIPS**)*, 2019.

[19] Shichen Liu, Tianye Li, *Weikai Chen*, Hao Li, "Soft Rasterizer: A Differentiable Renderer for Image-based 3D Reasoning", *International Conference on Computer Vision (**ICCV**)*, 2019, **Oral Presentation**. – **Accepted with 3 Strong Accepts**

[18] Yajie Zhao, Zeng Huang, Tianye Li, *Weikai Chen*, Chloe LeGendre, Xinglei Ren, Ari Shapiro, Hao Li, "Learning Perspective Undistortion of Portraits ", *International Conference on Computer Vision (**ICCV**)*, 2019, **Oral Presentation**.

[17] Junyi Pan, Xiaoguang Han, *Weikai Chen*, Jiapeng Tang, Kui Jia, "Deep Mesh Reconstruction from Single RGB Images via Topology Modification Networks", *International Conference on Computer Vision (**ICCV**)*, 2019.

[16] Jun Xing, Koki Nagano, *Weikai Chen*, Haotian Xu, Li-Yi Wei, Jingwan Lu, Byungmoon Kim, Yajie Zhao, Hao Li, "HairBrush for Immersive Data-Driven Hair Modeling", *ACM Symposium on User Interface Software and Technology (**UIST**)*, 2019.

[15] Ryota Natsume, Shunsuke Saito, Zeng Huang, *Weikai Chen*, Chongyang Ma, Hao Li, Shigeo Morishima, "SiCloPe: Silhouette-Based Clothed People", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2019, **Oral Presentation**. – **CVPR Best Paper Finalists**

[14] Yajie Zhao, Qingguo Xu, *Weikai Chen*, Jun Xing, Chao Du, Xinyu Huang, Ruigang Yang, "Mask-off: Synthesizing Face Images in the Presence of Head-mounted Displays", *IEEE Conference on Virtual Reality and 3D User Interfaces (**IEEE VR**)*, 2019.

[13] Zeng Huang, Tianye Li, *Weikai Chen*, Yajie Zhao, Jun Xing, Chloe LeGendre, Linjie Luo, Chongyang Ma and Hao Li, "Deep Volumetric Video From Very Sparse Multi-View Performance Capture", *European Conference on Computer Vision **(ECCV)***, 2018.

[12] Yi Zhou, Liwen Hu, Jun Xing, *Weikai Chen*, Han-Wei Kung, Xin Tong, and Hao Li, "HairNet: Single-View Hair Reconstruction using Convolutional Neural Networks", *European Conference on Computer Vision **(ECCV)***, 2018.

[11] Shugo Yamaguchi, Shunsuke Saito, Koki Nagano, Yajie Zhao, *Weikai Chen*, Shigeo Morishima and Hao Li, "High-Fidelity Facial Reflectance and Geometry Inference From an Unconstrained Image", *ACM Transactions on Graphics (Proceedings of **SIGGRAPH** 2018).*

[10] Loc Huynh, *Weikai Chen*, Shunsuke Saito, Jun Xing, Koki Nagano, Andrew Jones, Hao Li and Paul Debevec, "Mesoscopic Facial Geometry inference Using Deep Neural Networks", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2018, **Spotlight**.

[9] Yajie Zhao, *Weikai Chen*, Jun Xing, Xiaoming Li, Zach Bessinger, Fuchang Liu, Wangmeng Zuo and Ruigang Yang, "Identity Preserving Face Completion for Large Ocular Region Occlusion", *British Machine Vision Conference **(BMVC)***, 2018.

[8] *Weikai Chen*, Xiaoguang Han, Guanbin Li, Chao Chen, Jun Xing, Yajie Zhao and Hao Li, "Deep RBFNet: Point Cloud Feature Learning using Radial Basis Functions", *arXiv:1812.04302*, 2018.

[7] *Weikai Chen*, Yuexin Ma, Sylvain Lefebvre, Shiqing Xin, Jons Martnez and Wenping Wang, "Fabricable Tile Decors," *ACM Transactions on Graphics (Proceedings of **SIGGRAPH Asia**)*, 2017.

[6] Jonathan Palacios, Lawrence Roy, Prashant Kumar, Chen-Yuan Hsu, *Weikai Chen*, Chongyang Ma, Li-Yi Wei and Eugene Zhang, "Tensor Field Design in Volumes", *ACM Transactions on Graphics (Proceedings of **SIGGRAPH Asia**)*, 2017.

[5] *Weikai Chen*, Xiaolong Zhang, Shiqing Xin, Yang Xia, Sylvain Lefebvre and Wenping Wang, "Synthesis of Filigrees for Digital Fabrication", *ACM Transactions on Graphics (Proceedings of **SIGGRAPH**)*, 2016.

[4] Hui Zhang, *Weikai Chen*, Bin Wang, and Wenping Wang, "By Example Synthesis of Three-Dimensional Porous Materials", *Computer Aided Geometric Design **(GMP)***, 2017.

[3] Jonathan Palacios, Chongyang Ma, *Weikai Chen*, Li-Yi Wei, and Eugene Zhang, "Tensor Field Design in Volumes", *SIGGRAPH Asia Technical Briefs*, 2016.

[2] *Weikai Chen*, and Yunhui Chen, "Second-order Differential based Matching Pursuit Method for Compressive Sensing Signal Recovery", in *International Conference on Wireless Communications and Signal Processing **(WCSP)***, 2012.

[1] Kaihua Liu, *Weikai Chen** and Yongtao Ma, "A compressive sensing method for estimating doubly-selective sparse channels in OFDM system", *Journal of Tianjin University*, Dec. 2012.

* indicates corresponding author.

Professional Activities

Senior Program Committee:

- IJCAI 2021

Program Committee:

- AAAI 2020, 2021
- Computational Visual Media Conference (CVM) 2019, 2020
- IEEE Artificial Intelligence & Virtual Reality (AIVR) 2019, 2020
- Shape Modeling International (SMI) - Fabrication and Sculpting Event 2019
- Pacific Graphics 2018

Reviewer:

- Conference
  - ICML 2021
  - ICLR 2021
  - CVPR 2019, 2020, 2021
  - NeurIPS 2020, 2021
  - ECCV 2020
  - ICCV 2019, 2021
  - SIGGRAPH 2021
  - SIGGRAPH Asia 2017, 2019
  - WACV 2020
  - ACCV 2020
  - International Conference on 3D Vision (3DV) 2018
  - Pacific Graphics 2015, 2018
  - ACM Symposium on Virtual Reality Software and Technology 2018
  - International Conference on Machine Vision Applications (MVA) 2019
- Journal
  - IEEE Transactions on Visualization and Computer Graphics
  - NeuroComputing

- Computer Aided Geometric Design
- The Visual Computer Journal
- Graphical Models

Selected Awards

Best Open-source Dataset Award (Deep Fashion3D) - China Computer Fedaration	2020
ACCV Outstanding Reviewer,	2020
CVPR Best Paper Finalist,	2019
National Scholarship by Ministry of Education,	2012
First-Class Postgraduate Scholarship,	2010 - 2013
Huawei Scholarship,	2008

Skills

Programming: C/C++, Python, Matlab, Lua, Mel; OpenGL; Tensorflow, Pytorch, Caffe
Languages: Mandarin Chinese (native), English (professional), Cantonese (professional)