

Weikai Chen

POSTDOCTORAL RESEARCHER, USC ICT

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POSITIONS	USC Institute for Creative Technologies, U.S.A <i>Postdoctoral Researcher, Vision and Graphics Lab</i>	Jun. 2017 - Present
	INRIA, France <i>Visiting Researcher, Alice Team</i>	Jun. 2016 - Aug. 2016

EDUCATION	The University of Hong Kong, Hong Kong - <i>Ph.D. in Computer Graphics</i> , advised by Prof. Wenping Wang,	Apr. 2013 - Apr. 2017
	Tianjin University, Tianjin, China - <i>Mphil. in Wireless Communication</i> ,	Sep. 2010 - Feb. 2013
	- <i>B.S. in Electrical Engineering</i> ,	Sep. 2006 - Jul. 2010

RESEARCH INTERESTS	Computer graphics and computer vision: face/hair/body modeling and reconstruction, facial texture inference, performance capture, AR/VR content creation, deep generative models, differentiable rendering, 3D deep learning, pattern/texture synthesis, digital geometry processing, digital fabrication	
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PUBLICATIONS	[14] 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," <i>ECCV 2018</i> .	
	[13] 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," <i>ECCV 2018</i> .	
	[12] Yajie Zhao, Weikai Chen, Jun Xing, Xiaoming Li, Zach Bessinger, Fuchang Liu, Wang-meng Zuo and Ruigang Yang, "Identity Preserving Face Completion for Large Ocular Region Occlusion," <i>BMVC 2018</i> .	
	[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," <i>ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018)</i> .	
	[10] 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," <i>Technical Report, 2018</i> .	
	[9] 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," <i>CVPR 2018 (Spotlight Presentation)</i> .	
	[8] Weikai Chen, Yuexin Ma, Sylvain Lefebvre, Shiqing Xin, Jons Martnez and Wenping Wang, "Fabricable Tile Decors," <i>ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2017)</i> , vol. 36, no. 6, Nov. 2017.	
	[7] 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)*, vol. 35, no. 4, pp. 98–110, Jun. 2016.

[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)*, vol. 36, no. 6, Nov. 2017.

[5] Hui Zhang, Weikai Chen, Bin Wang, and Wenping Wang, “By Example Synthesis of Three-Dimensional Porous Materials,” *Computer Aided Geometric Design (GMP 2017)*, vol. 52, pp. 286–296, Apr. 2017.

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

[3] 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)*, Huangshan, China, Oct. 2012.

[2] Kaihua Liu, Weikai Chen (corresponding author) and Yongtao Ma, “A compressive sensing method for estimating doubly-selective sparse channels in OFDM system,” in *Journal of Tianjin University*, Dec. 2012.

[1] Hao Zhang, Wei Pang, Weikai Chen and Chong Zhou, “Design of unbalanced and balanced radio frequency bulk acoustic wave filter for TD SCDMA,” in *International Conference on Microwave and Millimeter Wave Technology (ICMMT 2010)*, Chengdu, China, May 2010.

RECENT RESEARCH PROJECTS

Interactive Facial Hair Editing and Synthesis, Jun. 2017 - Present

- Users can design facial hairs of different shapes/lengths/densities via simple sketching, while keeping the style of a target facial hair defined by an exemplar image. The framework is powered by Generative Adversarial Network (GAN).

Point Cloud Feature Learning using Radial Basis Functions, Mar. 18 - Present

- Present a simple yet effective framework for point set feature learning by leveraging a nonlinear action layer based on Radial Basis Function (RBF) kernels. The proposed approach can explicitly model the spatial distribution of point cloud which leads to a superior performance compared with PointNet++.

Autocomplete Hair Modeling in VR, Jun 17 - Present

- Develop a 3D VR authoring system for immersive interaction with the hair models. Our system combines the flexibility of manual authoring, the convenience of data-driven automation and the power of machine learning for high quality hair modeling.

Perspective Undistortion of Unconstrained Portrait Photos, Mar. 18 - Present

- A deep learning based approach to rectify the facial distortion in an unconstrained portrait image shot in a near range. The technique would improve the robustness and accuracy of 3D face reconstruction from a single unconstrained portrait photo.

AWARDS

HKU Postgraduate Scholarship,	2013 - 2017
National Scholarship by Ministry of Education,	2012
Champion of Presentation in Joint-Hall Academic Symposium,	2015
Champion of Presentation in 4th Morrison Hall Academic Symposium,	2014
First-Class Postgraduate Scholarship,	2010 - 2013
Huawei Scholarship,	2008
Outstanding Student of Tianjin University,	2006 - 2010

TEACHING	Teaching Assistant, The University of Hong Kong - COMP7507: Visualization and Visual Analytics	2014 - 2016
	Teaching Assistant, The University of Hong Kong - CS1117A: Computer Programming	2013 - 2014
PROFESSIONAL ACTIVITIES	Program Committee: <ul style="list-style-type: none"> • Computational Visual Media Conference (CVM) 2019 • Pacific Graphics 2018 Reviewer: <ul style="list-style-type: none"> • CVPR 2019 • ACM SIGGRAPH Asia 2017 • Pacific Graphics 2015, 2018 • ACM Symposium on Virtual Reality Software and Technology 2018 • IEEE Transactions on Visualization and Computer Graphics • International Conference on 3D Vision 2018 • MVA 2019 (International Conference on Machine Vision Applications) • 3D Reconstruction in the Wild 2018 (ECCV 2018 Workshop) • Computer Aided Geometric Design • The Visual Computer Journal • Graphical Models • IEEE Signal Processing Letters 	
COMPUTER SKILLS	Programming: C/C++, Matlab, Python, Lua, Mel; OpenGL/CV, Tensorflow, Pytorch, Caffe Languages: Mandarin Chinese (native), English (professional), Cantonese (professional)	