

Miao Wang

Assistant Professor

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EDUCATION

- **Tsinghua University** Beijing, China
Ph.D. in Computer Science and Technology, advisor: Prof. Shi-Min Hu Sept. 2011 – Jul. 2016
- **Xidian University** Xi'an, Shaanxi, China
Bachelor of Engineering in Computer Science and Technology (with honors) Sept. 2007 – Jul. 2011

WORK & RESEARCH EXPERIENCE

- **Beihang University** Beijing, China
Assistant Professor Dec. 2018 – now
- **Tsinghua University** Beijing, China
Postdoc Researcher Jul. 2016 – Oct. 2018
- **Cardiff University** Cardiff, UK
Visiting Student Aug. 2013 – Feb. 2014

RESEARCH INTERESTS

Virtual Reality, Mixed Reality, Computer Graphics, Visual Computing

PUBLICATIONS (*CORRESPONDING AUTHOR)

1. **Miao Wang**, Ziming Ye, Jinchuan Shi and Yong-Liang Yang. Scene-Context-Aware Indoor Object Selection and Movement in Virtual Reality. Proceedings of IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR 2021), to appear. **(CCF-A)**
2. Yi-Jun Li, De-Rong Jin, **Miao Wang***, Jun-Long Chen, Frank Steinicke, Shi-Min Hu and Qinpeng Zhao. Detection Thresholds with Joint Horizontal and Vertical Gains in Redirected Jumping. Proceedings of IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR 2021), to appear. **(CCF-A)**
3. Yi-Jun Li, **Miao Wang***, De-Rong Jin, Frank Steinicke, Shi-Min Hu and Qinpeng Zhao. Effects of Virtual Environments and Self-representations on Redirected Jumping. IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (IEEE VRW 2021), to appear.
4. Xin Wen, **Miao Wang***, Christian Richardt, Ze-Yin Chen and Shi-Min Hu. Photorealistic Audio-driven Video Portraits. IEEE Transactions on Visualization and Computer Graphics, 26 (12), 3457-3466, 2020. **(CCF-A)**
5. **Miao Wang**, Yi-Jun Li, Wen-Xuan Zhang, Christian Richardt and Shi-Min Hu. Transitioning360: Content-aware NFOV Virtual Camera Paths for 360 Video Playback. Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 241-250, 2020. **(CCF-B)**
6. Meng-Yao Cui, Shao-Ping Lu, **Miao Wang**, Yong-Liang Yang, Yu-Kun Lai and Paul L. Rosin. 3D Computational Modeling and Perceptual Analysis of Kinetic Depth Effects. Computational Visual Media, to appear.
7. **Miao Wang**, Xu-Quan Lyu, Yi-Jun Li and Fang-Lue Zhang. VR content creation and exploration with deep learning: A survey. Computational Visual Media 6, 328 (2020)
8. **Miao Wang**, Xiao-Nan Fang, Guo-Wei Yang, Ariel Shamir and Shi-Min Hu. Prominent Structures for Video Analysis and Editing. IEEE Transactions on Visualization and Computer Graphics, to appear. **(CCF-A)**
9. **Miao Wang**, Guo-Wei Yang, Shi-Min Hu, Shing-Tung Yau and Ariel Shamir. Computational Video Montage from Themed Text. ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 38 (6), Article No.177, 2019. **(CCF-A)**
10. Xiao-Nan Fang, **Miao Wang**, Ariel Shamir and Shi-Min Hu. Learning Explicit Smoothing Kernels for Joint Image Filtering. Computer Graphics Forum (Proc. Pacific Graphics), 38 (7), 181-190, 2019. **(CCF-B)**
11. **Miao Wang**, Xin Wen and Shi-Min Hu. Faithful Face Image Completion for HMD Occlusion Removal. IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct) 2019.

12. **Miao Wang**, Guo-Ye Yang, Ruilong Li, Runze Liang, Song-Hai Zhang, Peter M. Hall and Shi-Min Hu. Example-Guided Style-Consistent Image Synthesis from Semantic Labeling. IEEE CVPR 2019. (CCF-A)
13. Shu-Yang Zhang, Run-Ze Liang and **Miao Wang**. ShadowGAN: Shadow Synthesis for Virtual Objects with Adversarial Networks. Computational Visual Media, 5 (1), 105-115, 2019.
14. **Miao Wang**, Guo-Ye Yang, Jin-Kun Lin, Shao-Ping Lu, Ariel Shamir and Shi-Min Hu. Deep Online Video Stabilization With Multi-Grid Warping Transformation Learning. IEEE Transactions on Image Processing, 28 (5), 2283-2292, 2019. (CCF-A)
15. Sen-Zhe Xu, Jun Hu, **Miao Wang**, Tai-Jiang Mu and Shi-Min Hu. Deep Video Stabilization Using Adversarial Networks. Computer Graphics Forum, 37 (7), 267-276, 2018. (Pacific Graphics 2018) (CCF-B)
16. **Miao Wang**, Ariel Shamir, Guo-Ye Yang, Jin-Kun Lin, Guo-Wei Yang, Shao-Ping Lu and Shi-Min Hu. BiggerSelfie: Selfie Video Expansion with Hand-held Camera. IEEE Transactions on Image Processing, 27 (12), 5854-5865, 2018. (CCF-A)
17. Shao-Ping Lu, Jie You, Beerend Ceulemans, **Miao Wang** and Adrian Munteanu. Synthesis of Shaking Video using Motion Capture data and Dynamic 3D Scene Modeling. IEEE ICIP 2018. (CCF-C)
18. **Miao Wang**, Jun-Bang Liang, Song-Hai Zhang, Shao-Ping Lu, Ariel Shamir and Shi-Min Hu. Hyper-lapse Creation from Multiple Spatially-overlapping Videos. IEEE Transactions on Image Processing, 27 (4), 1735-1747, 2018. (CCF-A)
19. **Miao Wang**, Xi-Jin Zhang, Jun-Bang Liang, Song-Hai Zhang and Ralph R. Martin. Comfort-driven Disparity Adjustment for Stereoscopic Video. Computational Visual Media, 2 (1), 3-17, 2016.
20. Shao-Ping Lu, Sibio Feng, Beerend Ceulemans, **Miao Wang**, Rui Zhong and Adrian Munteanu. Multiview Conversion of 2D Cartoon Images. Communications in Information and Systems, 16 (4), 229-254, 2016.
21. **Miao Wang**, Yu-Kun Lai, Yuan Liang, Ralph R. Martin and Shi-Min Hu. BiggerPicture: Data-Driven Image Extrapolation Using Graph Matching. ACM Transactions on Graphics, 33 (6), Article No. 173, 2014. (SIGGRAPH Asia 2014) (CCF-A)
22. Shi-Min Hu, Fang-Lue Zhang, **Miao Wang**, Ralph R. Martin and Jue Wang. PatchNet: A Patch-based Image Representation for Interactive Library-driven Image Editing. ACM Transactions on Graphics, 32 (6), Article No. 196, 2013. (SIGGRAPH Asia 2013) (CCF-A)
23. Fang-Lue Zhang, **Miao Wang** and Shi-Min Hu. Aesthetic Image Enhancement by Dependence-Aware Object Re-Composition. IEEE Transactions on Multimedia, 15 (7), 1480-1490, 2013. (CCF-B)
24. **Miao Wang**, Fang-Lue Zhang and Shi-Min Hu. Data-driven Image Analysis and Editing: A Survey. Journal of Computer-Aided Design & Computer Graphics, 27 (11), 2015-2024, 2015. (In Chinese)

TEACHING EXPERIENCE

- **Fundamental of Computer Graphics** Tsinghua University, Beijing
Teaching Assistant *Spring 2013*
 - Assisted lecturer preparing courseware, organizing seminar and making the paper.

ACADEMIC SERVICES

- **Advisory Board:** Beijing Organizing Committee for the 2022 Olympics Winter Games, Jun.–Sept. 2018
- **Conference Committee:**
 - ISMAR 2019, Oct., Beijing, China
- **Program Committee:**
 - IEEE VR 2021 - Conference Papers
 - Pacific Graphics 2020
 - ISMAR 2020
 - ChinaGraph 2020
 - Computational Visual Media 2020
 - Workshop on Vision meets Graphics, Nov. 2017, Wuhan, China
- **Reviewer:**
 - **Conference:** SIGGRAPH 2017, 2018; SIGGRAPH Asia 2018, 2019; Pacific Graphics 2016, 2018; ICIG 2017; CVM 2013-2019
 - **Transactions:** ACM TOG, IEEE TVCG, CVMJ, CGF, TVC, JCST, etc.

INVITED TALKS

- **Virtual Content Creation and Exploration in Virtual Reality.** ICT, CAS, Dec. 2020
- **Data-driven Image and Video Synthesis.** ICT, CAS, Sept. 2019
- **Video Alignment Using Prominent Structures.** The 3rd Tsinghua-Cardiff workshop on Visual Computing, Sept. 2018
- **Hyper-lapse Creation from Multiple Spatially-overlapping Videos.** Top Paper Section, International Conference on Virtual Reality and Visualization, Oct. 2017
- **Multiple-source Hand-held Video Editing.** The 2nd Tsinghua-Cardiff workshop on Visual Computing, Sept. 2017
- **Data-driven Image Extrapolation.** Microsoft Research Asia PhD Forum, Sept. 2014
- **PatchNet: A Patch-based Image Representation for Interactive Library-driven Image Editing.** Visual Computing Group, Cardiff University, Nov. 2013

SELECTED AWARDS

- **National Science and Technology Progress Award: Large-Scale Street-View System with Location-Based Service** (2nd Prize, 9th Achiever), 2018.

GRANTS

- **Young Elite Scientist Sponsorship Program by the China Association for Science and Technology.** PI, 2019-2021.
- **Youth Program, National Natural Science Foundation of China.** Data-driven Interactive Image-to-Image Translation, PI, 2020-2022.
- **China Postdoctoral Science Foundation.** Tempo-spatial coherence analysis for camera path partition and editing, PI, 2016-2018.
- **International (regional) joint research program, National Natural Science Foundation of China.** Data-driven processing of visual media, Main Participant, 2016-2018.

ISSUED PATENTS

- **PatchNet Model and Construction Method Thereof.** Shi-Min Hu, Fang-Lue Zhang and Miao Wang, US9836880B2, 2017.
- **Aesthetic Image Enhancement by Dependence-Aware Object Re-Composition.** Shi-Min Hu, Fang-Lue Zhang and Miao Wang, CN201210455248.8, 2013.
- **Saliency-aware Video Object Cutout Based-on Super-pixel Segmentation.** Shi-Min Hu, Miao Wang, Tao Chen, Kun Xu and Jun-Jun Xiong, CN20110458008.9, 2011.