Qingan Yan

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Research Interests

My interests primarily focus on the field of computer vision and graphics. In particular, I tackle the challenges in *structure from motion, multi-view stereo, RGB-D fusion, depth estimation, texture synthesis and visual correspondence.* I am also interested in data-driven 3D object analysis, such as *geometric scene perception, template-based shape recovery and unstructured data representation.*

Work Experience

- **JD.com American**, Silicon Valley Research Center, California, USA   Nov 2017 – current

  Position: ***Research Scientist***
  Duty: *Take research and algorithm design on virtual try-on and 3D reconstruction related VR/AR applications.*

- **Wuhan University**, Wuhan, China   Jul 2015 – Jul 2017

  Position: ***Research Assistant***
  Duty: *Conducted research on image-based modeling and image-based rendering problems and developed effective algorithms for SLAM and texture synthesis.*

- **Wuhan EONES technology Co.,Ltd**, Wuhan, China   Jul 2008 – Apr 2009

  Position: ***Software Engineer***
  Duty: *Develop logistics management systems and software.*

Education

- Ph.D. in Computer Science, **Wuhan University**   Sep 2012 – Jun 2017

  Advisor: Prof. *Chunxia Xiao*
  Areas of Focus: *Computer Vision, Computer Graphics*

- M.S. in Computer Science, **Southwest University of Science and Technology**   Sep 2009 – Jun 2012

  Advisor: Prof. *Yadong Wu*
  Areas of Focus: *Computer Vision, Image Processing, Human-Computer Interaction*

- B.E. in Computer Science, **Hubei Minzu University**   Sep 2004 – Jun 2008

  Advisor of Thesis: Prof. *Kunwu Xie*

Selected Publications

- Jie Liao, Yanping Fu, **Qingan Yan**, Chunxia Xiao. *Pyramid Multi-View Stereo with Local Consistency.* **Computer Graphics Forum (CGF)**, 2019, 38(7): 335-346. (**Proceedings of Pacific Graphics 2019**)

- Hong Ding, **Qingan Yan**, Gang Fu, Chunxia Xiao. *Wavelet Flow: Optical Flow Guided Wavelet Facial Image Fusion.* **Computer Graphics Forum (CGF)**, 2019, 38(7): 663-674. (**Proceedings of Pacific Graphics 2019**)

- Mengqiang Wei, **Qingan Yan**, Fei Luo, Chengfang Song, Chunxia Xiao. *Joint Bilateral Propagation Upsampling for Unstructured Multi-view Stereo.* **The Visual Computer (TVC)**, 2019, 35(6-8): 797-809. (**Proceedings of Computer Graphics International 2019**)

- Ling Zhang, **Qingan Yan**, Yao Zhu, Xiaolong Zhang, Chunxia Xiao. *Effective Shadow Removal via Multi-scale Image Decomposition.* **The Visual Computer (TVC)**, 2019, 35(6-8): 1091-1104. **(Proceedings of Computer Graphics International 2019)**

- Yanping Fu, **Qingan Yan**, Long Yang, Jie Liao, Chunxia Xiao. *Texture Mapping for 3D Reconstruction with RGB-D Sensor.* **IEEE Conference on Computer Vision and Pattern Recognition (CVPR)**, Salt Lake City, USA, 2018: 4645-4653.

- Long Yang, **Qingan Yan**, Yanping Fu, Chunxia Xiao. *Surface Reconstruction via Fusing Sparse-Sequence of Depth Images.* **IEEE Transactions on Visualization and Computer Graphics (TVCG)**, 2018, 24(2): 1190-1203.

- **Qingan Yan**, Long Yang, Ling Zhang, Chunxia Xiao. *Distinguishing the Indistinguishable: Exploring Structural Ambiguities via Geodesic Context.* **IEEE Conference on Computer Vision and Pattern Recognition (CVPR)**, Honolulu, USA, 2017: 3836-3844. **(Spotlight Oral)**

- Ling Zhang, **Qingan Yan**, Zheng Liu, Hua Zou, Chunxia Xiao. *Illumination Decomposition for Photograph with Multiple Light Sources.* **IEEE Transactions on Image Processing (TIP)**, 2017, 26(9): 4114-4127.

- Long Yang, **Qingan Yan**, Chunxia Xiao. *Shape-Controllable Geometry Completion for Point Cloud Models.* **The Visual Computer (TVC)**, 2017, 33(3): 385-398.

- **Qingan Yan**, Long Yang, Chao Liang, Huajun Liu, Ruimin Hu, Chunxia Xiao. *Geometrically Based Linear Iterative Clustering for Quantitative Feature Correspondence.* **Computer Graphics Forum (CGF)**, 2016, 35(7): 1-10. **(Proceedings of Pacific Graphics 2016)**

- **Qingan Yan**, Zhan Xu, Chunxia Xiao. *Fast Feature-Oriented Visual Connection for Large Image Collections.* **Computer Graphics Forum (CGF)**, 2014, 33(7): 339-348. **(Proceedings of Pacific Graphics 2014)**

Patents

- Bin Liu, Chi Zhang, Kaitao Zhang, Shu Zhang, Ping Liu, **Qingan Yan**, Jing Cui, Weidong Zhang. *Smart Camera.* **CN108668061A, pending, October 2018**.

- Jing Cui, Kaitao Zhang, Chi Zhang, Bin Liu, **Qingan Yan**, Wanyan Zheng, Fuliang Zhang, Weidong Zhang. *Smart Camera.* **CN108632513A, pending, October 2018**.

- Chunxia Xiao, **Qingan Yan**. *Pixel-level Point Cloud Densification Method for Geometric Clue Perception in Three-dimensional Scene Reconstruction.* **CN107610219A, pending, January 2018**.

- Yadong Wu, **Qingan Yan**, Zhiqin Liu. *Optical Multi-touch Contact Detection Based on Visual Attention Model.* **CN102855025B, granted, June 2015**.

Selected Projects (during graduate)

- **Multi-modal Sensing Based Outdoor Structures Reconstruction and Editing**   Jan 2016 – Jul 2017

  Description: *Designed innovative approaches for modeling outdoor architectural structures combining multi-modal sensor data, such as Internet imagery, aerial photography and depth cameras. We also explore geometric deep learning methods to recover and understand the style of different architectures.*

- **Crowdsourced 3D Streetscape Reconstruction and Augmentation**   Sep 2012 – Dec 2016

  Description: *Developed an unstructured imagery reconstruction framework that addresses several relevant and challenging problems existing in recent structure from motion modeling techniques, such as the matching of image collections, desification of feature correspondences and disambiguation of duplicate scenes.*

- **Vision Based Finger-touch Interaction**   Sep 2010 – Jun 2012

  Description: *Developed a vision based multi-touch system which requires lasers to be the light source and utilizes a camera to detect bright touching points. We also designed a remote finger-control system that combines Kinect and low-level vision technologies.*

- **Digital Image Super-resolution**　　　　　　　　　　　　　　　　Sep 2009 – Sep 2010

  <u>Description:</u> *Drawing upon redundant examples within one given image pyramid, we conducted a data-driven method to up-sample this image and optimize its efficiency for television chip usage.*

Honors and Awards

- The Second Class Graduate Academic Innovation Award of Wuhan University, 2017.
- Travel Grant Award from CVPR Doctoral Consortium, 2017.
- Excellent Graduate Award of Southwest University of Science and Technology, 2012.
- The First Class Scholarship of Jiangsu Yangshan, 2011.
- Outstanding Student Award of Southwest University of Science and Technology, 2010-2011.
- The Second Class Outstanding Undergraduate Thesis Award of Hubei Province, 2008.
- Excellent Graduate Award of Hubei University for Nationalities, 2008.

Invited/Contributed Talks

- *"Distinguishing the Indistinguishable: Exploring Structural Ambiguities via Geodesic Context"*
  July 2017, CVPR spotlight presentation, Honolulu, United States.

- *"Geometrically Based Linear Iterative Clustering for Quantitative Feature Correspondence"*
  October 2016, Pacific Graphics oral presentation, Okinawa, Japan.

- *"Fast Feature-Oriented Visual Connection for Large Image Collections"*
  October 2014, Pacific Graphics oral presentation, Seoul, South Korea.

Professional Activities

Journal Reviewer:	IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
	IEEE Transactions on Image Processing (TIP)
	IEEE Transactions on Multimedia (TMM)
	IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
	IEEE Transactions on Cybernetics (TCYB)
	Neurocomputing (NEUCOM)
	Journal of Applied Remote Sensing (JARS)
	Journal of Electronic Imaging (JEI)
	Concurrency and Computation: Practice and Experience (CPE)
Conference Reviewer:	CVPR 2019 & 2020, ICCV 2019, ECCV 2020, AAAI 2020, EG 2020, CRV 2020
Conference Volunteer:	Chinagraph 2014, CAD/CG 2014

Technical Skills

Programming Languages:	C/C++, Python, Matlab
Development Libraries:	OpenCV, libigl, PCL, OpenGL, QT, D3.js
Other Tools:	LaTeX, Ubuntu, Git, Kinect, Orbbec, Structure Sensor