

Jiaya Jia

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December 2016

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Appointments & Professional Qualification

Professor, The Chinese University of Hong Kong August 2015 – present
 Associate Professor, The Chinese University of Hong Kong September 2010 – July 2015
 Assistant Professor, The Chinese University of Hong Kong September 2004 – September 2010
 Visiting scholar at Adobe Systems, Inc. August 2007 – September 2007
 Adjunct Researcher at Microsoft Research Asia March 2004 – August 2005
 Senior Member, IEEE 2009 – present

Education

- Hong Kong University of Science and Technology Hong Kong SAR
 Ph.D. in Computer Science 2000 – 2004
 - Advisor: Chi-Keung Tang
 - Thesis: Image and Video Correction by ND Tensor Voting with Intensity and Structure Consideration
- Fudan University Shanghai, China
 B.S. in Computer Science 1996 – 2000
 - Graduation with first-class honors; GPA percentile rank 97.2%; top-grade scholarship in all years

Research Interests

Computer Vision; Machine Learning; Computational Imaging

- Image segmentation and saliency
- Image recognition and classification
- Filtering, deblurring, and super-resolution
- Motion estimation, depth estimation, and general image matching

Recent Professional Activities

- Associate Editor, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- Advisory Board, Advances in Computer Vision and Pattern Recognition
- Area Chair, IEEE International Conference on Computer Vision (ICCV 2017)

- 10K Best Paper Award Committee member, IEEE ICME
- Area Chair, IEEE Computer Vision and Pattern Recognition (CVPR 2017)
- Technical Paper Program Committee member, SIGGRAPH 2016
- Area Chair, IEEE Computer Vision and Pattern Recognition (CVPR 2016)
- Technical Paper Program Committee member, SIGGRAPH Asia 2015
- Technical Paper Program Committee member, SIGGRAPH Asia 2014
- Paper Committee member, IEEE International Conference on Computational Photography (ICCP) 2013, 2014, 2015, 2016
- Area Chair, IEEE International Conference on Computer Vision (ICCV 2013)
- Poster-Demo Chair, IEEE International Conference on Computational Photography (ICCP 2013)
- Course Co-Chair, SIGGRAPH Asia 2012
- Area Chair, International Conference on Pattern Recognition (ICPR 2012)
- Area Chair, Asian Conference on Computer Vision (ACCV 2012)
- Program Committee member, IEEE International Conference on Image Processing (ICIP 2012)
- Area Chair, 13th IEEE International Conference on Computer Vision (ICCV 2011)
- Program Committee member, 3DV 2010, 2011, 2012, 2013, 2014, 2015, 2016
- Co-chair, Workshop on Interactive Computer Vision, in conjunction with ICCV 2007
- Publication Chair, ACM International Conference on Virtual Reality Continuum and Its Applications (VRCIA) 2006
- Publication Chair, ACM-HK Executive Committee 2008 – 2009
- Program Committee member, Pacific Graphics 2010, 2011, 2012, 2013, 2014, 2015, 2016
- Program Committee member, IEEE International Conference on Computer Vision 2005 – 2009
- Program Committee member, IEEE Computer Vision and Pattern Recognition 2007 – 2010
- Program Committee member, European Conference on Computer Vision 2006 – 2010

Funded Projects

- Principal Investigator, Large Scale Semantic Image Segmentation and Classification Platform, Innovation and Technology Fund, 2017-2018, HK\$ 3,785,800
- Principal Investigator, Urban-Scale Structure-from-Motion with Feature Similarity Discovery, RGC General Research Fund, 2013-2016, HK\$ 500,000
- Co-Investigator, Personal Identification using Contactless Live 3D Finger Scans, RGC General Research Fund, 2013-2016, HK\$ 500,000
- Principal Investigator, Optical Flow for Natural Video Editing Interface, Microsoft Research Asia Grant, 2012-2014, HK\$120,000
- Principal Investigator, Robust Dense Motion Estimation for Natural Image Sequences in Computer Vision, RGC General Research Fund, 2011-2014, HK\$ 968,300

- Principal Investigator, Intelligent Video Revampment and Upsampling, Innovation and Technology Fund, 2010-2012, HK\$ 1,029,964
- Principal Investigator, High-quality Bilayer Segmentation with Motion/Depth Estimation, RGC General Research Fund, 2010-2013, HK\$ 1,036,929
- Principal Investigator, GPU based Video Editing with Depth Inference, RGC Direct Grant, 2009-2011, HK\$ 62,000
- Principal Investigator, Single Image Motion Deblurring in a Local-Structure-Oriented Framework, RGC Earmarked Grant, 2008-2010, HK\$ 310,677
- Principal Investigator, Optimizing General Image Stitching, RGC Earmarked Grant, 2007-2009, HK\$ 418,000
- Co-Investigator, Image/Video based Soft Fabric Redressing on Objects/Environment for Interactive E-Commerce Applications, RGC Earmarked Grant, 2007-2009, HK\$ 648,000
- Principal Investigator, High Dynamic Range Image and Video Rendering, Compression, and Display, SHIAE Research Grant, 2007-2009, HK\$ 620,000
- Co-Investigator, Strategic Research Area in Computer Assisted Medicine, Focused Investments Scheme C, 2006 - 2008, HK\$ 1,000,000
- Principal Investigator, Soft Color Segmentation Using Alternative Optimization, RGC Earmarked Grant, 2006-2008, HK\$ 356,000
- Principal Investigator, Texture Synthesis and Image Completion on Programmable Graphics Hardware (GPU), Microsoft Research Grant, 2006-2008, HK\$ 120,000
- Principal Investigator, Enhanced image and video completion, RGC Direct Grant, 2004-2006, HK\$ 150,000

Awards

- 1st place in ImageNet Scene Parsing Challenge 2016
- Best Paper Award, NPAR 2012, for “Combining Sketch and Tone for Pencil Drawing Production”
- Research Excellence Award 2009, CUHK
- Young Researcher Award 2008, CUHK

Student Awards

- Yingcong Chen, PhD Student (2016-), Hong Kong PhD Fellowship, 2016
- Ruiyu Li, PhD Student (2014-), Hong Kong PhD Fellowship, 2014
- Xiaojuan Qi, PhD Student (2014-), Hong Kong PhD Fellowship, 2014
- Jianping Shi, PhD Student (2011-2015), Google Hong Kong Anita Borg Scholarship, 2013, 2014
- Jianping Shi, PhD Student (2011-2015), Microsoft Research Asia Fellowship, 2013
- Jianping Shi, PhD Student (2011-2015), Hong Kong PhD Fellowship, 2011

- Li Xu, Ph.D (2007-2010), Microsoft Fellowship Award 2008/2009
- Qi Shan, M.Phil (2006-2008), Outstanding Thesis Award 2008, CUHK

Functions Included in OpenCV Library

- Very fast Weighted Median Filter (WMF) (to be incorporated into OpenCV)
- Scale-aware Rolling Guidance Filter (RGF) (included in OpenCV since version 3.1.0)
- L_0 gradient image smoothing (included in OpenCV since version 3.1.0)
- Decolorization (included in OpenCV since version 3.0)

Other Codes, Programs, and Executables

- HDR image tone mapping code
- ACTS: Automatic Camera Tracking System
- Image upsampling executable (GPU enabled); download: 350+
- Image non-blind deconvolution executable; downloads: 400+
- Image deblurring executable; downloads: 10,000+
- Video upsampling executable; downloads: 300+

Patents

- Luminance Correction, U.S. Patent 7317843. Jian Sun, Jiaya Jia, Heung-Yeung Shum. Issue date: Jan. 8, 2008
- Digital Cameras with Luminance Correction, U.S. Patent 7463296. Jian Sun, Jiaya Jia, Heung-Yeung Shum. Issue date: Dec. 9, 2008
- Poisson Matting for Images, U.S. Patent 7636128. Jian Sun, Jiaya Jia, Heung-Yeung Shum. Issue date: Dec. 22, 2009

Publications

Book Chapters

1. Chapter 1, “Mathematical models and practical solvers for uniform motion deblurring”
Book: Motion Deblurring: Algorithms and Systems, Cambridge University Press, ISBN 9781139950466
Editors: A. N. Rajagopalan and Rama Chellappa
2. “Matte Extraction”
Book: Computer Vision - A Reference Guide, Springer, ISBN 9780387307718
Editor-in-chief: Ikeuchi, Katsushi

Refereed Papers in Journals

1. L0 Regularized Stationary Time Estimation for Crowd Analysis
Shuai Yi, Xiaogang Wang, Cewu Lu, Jiaya Jia, Hongsheng Li
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), accepted.
2. Two-Class Weather Classification
Cewu Lu, Di Lin, Jiaya Jia, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), accepted.
3. Hierarchical Image Saliency Detection on Extended CSSD
Jianping Shi, Qiong Yan, Li Xu, Jiaya Jia
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 38, No. 4, 2016.
4. Multispectral Joint Image Restoration via Optimizing a Scale Map
Xiaoyong Shen, Qiong Yan, Li Xu, Lizhuang Ma, Jiaya Jia
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 37, No. 12, 2015.
5. Motion Detail Preserving Optical Flow Estimation
Li Xu, Jiaya Jia, Yasuyuki Matsushita
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 34, No. 9, 2012.
6. A Closed-Form Solution to Tensor Voting: Theory and Applications
Tai-Pang Wu, Sai-Kit Yeung, Jiaya Jia, Chi-Keung Tang, Gerard Medioni
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 34, No. 8, 2012.
7. Robust Bilayer Segmentation and Motion/Depth Estimation with a Handheld Camera
Guofeng Zhang, Jiaya Jia, Wei Hua, Hujun Bao
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 33, No. 3, 2011.
8. Self-Validated Labeling of Markov Random Fields for Image Segmentation
Wei Feng, Jiaya Jia, Zhi-Qiang Liu
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 32, No. 10, 2010.
9. Consistent Depth Maps Recovery from a Video Sequence
Guofeng Zhang, Jiaya Jia, Tien-Tsin Wong, Hujun Bao
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 31, No. 6, 2009.
10. Fractional Stereo Matching Using Expectation-Maximization
Wei Xiong, Hin Shun Chung, Jiaya Jia
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 31, No. 3, 2009.
11. Image Stitching Using Structure Deformation
Jiaya Jia, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 30, No. 4, 2008.
12. Soft Color Segmentation and its Applications
Yu-Wing Tai, Jiaya Jia, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 29, No. 9, 2007.
13. Video Repairing Under Variable Illumination Using Cyclic Motions
Jiaya Jia, Yu-Wing Tai, Tai-Pang Wu, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 28, No. 5, 2006.

14. Tensor Voting for Image Correction by Global and Local Intensity Alignment
Jiaya Jia, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 27, No. 1, 2005.
15. Inference of Segmented Color and Texture Information by Tensor Voting
Jiaya Jia, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 26, No. 6, 2004.
16. Contrast Preserving Decolorization with Perceptual-Based Quality Metrics
Cewu Lu, Li Xu, Jiaya Jia
International Journal of Computer Vision (**IJCV**), Vol. 110, No. 2, Pages 222-239, 2014.
17. Consistent Binocular Depth and Scene Flow with Chained Temporal Profiles
Chun Ho Hung, Li Xu, Jiaya Jia
International Journal of Computer Vision (**IJCV**), Vol. 102, No. 1-3, Pages 271-292, 2013.
18. Regional Foremost Matching for Internet Scene Images
Xiaoyong Shen, Xin Tao, Chao Zhou, Hongyun Gao, Jiaya Jia
ACM Transactions on Graphics (also in **SIGGRAPH Asia** 2016), Vol. 35, No. 6, 2016.
19. Break Ames Room Illusion: Depth from General Single Images
Jianping Shi, Xin Tao, Li Xu, Jiaya Jia
ACM Transactions on Graphics (also in **SIGGRAPH Asia** 2015), Vol. 34, No. 6, 2015.
20. A Sparse Control Model for Image and Video Editing
Li Xu, Qiong Yan, Jiaya Jia
ACM Transactions on Graphics (also in **SIGGRAPH Asia** 2013), Vol. 32, No. 6, 2013.
21. Structure Extraction from Texture via Relative Total Variation
Li Xu, Qiong Yan, Yang Xia, Jiaya Jia
ACM Transactions on Graphics (also in **SIGGRAPH Asia** 2012), Vol. 31, No. 6, 2012.
22. Image Smoothing via L0 Gradient Minimization
Li Xu, Cewu Lu, Yi Xu, Jiaya Jia
ACM Transactions on Graphics (also in **SIGGRAPH Asia** 2011), Vol. 30, No. 6, 2011.
23. Modeling and Rendering of Impossible Figures
Tai-Pang Wu, Chi-Wing Fu, Sai Kit Yeung, Jiaya Jia, Chi-Keung Tang
ACM Transactions on Graphics, Vol. 29, No. 2, 2010 (presentation in **SIGGRAPH** 2010).
24. Fast Image/Video Upsampling
Qi Shan, Zhaorong Li, Jiaya Jia, Chi-Keung Tang
ACM Transactions on Graphics (also in **SIGGRAPH Asia** 2008), Vol. 27, No. 4, 2008.
25. High-Quality Motion Deblurring From a Single Image
Qi Shan, Jiaya Jia, Aseem Agarwala
ACM Transactions on Graphics (also in **SIGGRAPH** 2008), Vol. 2, No. 3, 2008.
26. Drag-and-Drop Pasting
Jiaya Jia, Jian Sun, Chi-Keung Tang, Heung-Yeung Shum
ACM Transactions on Graphics (also in **SIGGRAPH** 2006), Vol. 25, No. 3, 2006.
27. Image Completion with Structure Propagation
Jian Sun, Lu Yuan, Jiaya Jia, Heung-Yeung Shum
ACM Transactions on Graphics (also in **SIGGRAPH** 2005), Vol. 24, No. 3, 2005.

28. Poisson Matting
Jian Sun, Jiaya Jia, Chi-Keung Tang, Heung-Yeung Shum
ACM Transactions on Graphics (also in **SIGGRAPH** 2004), Vol. 23, No. 3, 2004.
29. Efficient Non-Consecutive Feature Tracking for Robust Structure-From-Motion
Guofeng Zhang, Haomin Liu, Zilong Dong, Jiaya Jia, Tien-Tsin Wong, Hujun Bao
IEEE Transactions on Image Processing (**TIP**), accepted.
30. Multi-Viewpoint Panorama Construction With Wide-Baseline Images
Guofeng Zhang, Yi He, Weifeng Chen, Jiaya Jia, Hujun Bao
IEEE Transactions on Image Processing (**TIP**), Vol. 25, No. 7, 2016.
31. Personal Object Discovery in First-person Videos
Cewu Lu, Renjie Liao, Jiaya Jia
IEEE Transactions on Image Processing (**TIP**), Vol. 24, No. 12, 2015.
32. Scale Adaptive Dictionary Learning
Cewu Lu, Jianping Shi, Jiaya Jia
IEEE Transactions on Image Processing (**TIP**), Vol. 23, No. 2, 2014.
33. A Unified Framework for Designing Textures using Energy Optimization
Jianbing Shen, Hanqiu Sun, Jiaya Jia, Hanli Zhao, Xiaogang Jin, Shiao-fen Fang
Pattern Recognition, Vol. 43, No. 2, 2010.
34. Efficient Keyframe-based Real-time Camera Tracking
Zilong Dong, Guofeng Zhang, Jiaya Jia, Hujun Bao
Computer Vision and Image Understanding (**CVIU**), Vol. 118, Pages 97-110, 2014.
35. Improving Sub-pixel Correspondence through Upsampling
Li Xu, Jiaya Jia, Sing Bing Kang
Computer Vision and Image Understanding (**CVIU**), Vol. 116, No. 2, 2012.
36. ImageAdmixture: Putting Together Dissimilar Objects from Groups
Fang-Lue Zhang, Ming-Ming Cheng, Jiaya Jia, Shi-Min Hu
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), Vol. 18, No. 11, Pages 1849-1857, 2012.
37. Motion Imitation with a Handheld Camera
Guofeng Zhang, Hanqing Jiang, Jin Huang, Jiaya Jia, Tien-Tsin Wong, Kun Zhou, Hujun Bao
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), Vol. 17, No. 10, 2011.
38. Globally Optimized Linear Windowed Tone-Mapping
Qi Shan, Jiaya Jia, Michael S. Brown
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), Vol. 16, No. 4, 2010.
39. Re-filming with Depth-inferred Videos
Guofeng Zhang, Zilong Dong, Jiaya Jia, Liang Wan, Tien-Tsin Wong, Hujun Bao
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), Vol. 15, No. 5, 2009.

Refereed Papers in Major Conferences

1. Visual Question Answering with Question Representation Update
Ruiyu Li, Jiaya Jia
Annual Conference on Neural Information Processing Systems (**NIPS**), 2016.

2. Deep Automatic Portrait Matting
Xiaoyong Shen, Xin Tao, Hongyun Gao, Chao Zhou, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2016.
3. Augmented Feedback in Semantic Segmentation under Image Level Supervision
Xiaojuan Qi, Zhengzhe Liu, Jianping Shi, Hengshuang Zhao, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2016.
4. Multi-scale Patch Aggregation (MPA) for Simultaneous Detection and Segmentation
Shu Liu, Xiaojuan Qi, Jianping Shi, Hong Zhang, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2016.
5. ScribbleSup: Scribble-Supervised Convolutional Networks for Semantic Segmentation
Di Lin, Jifeng Dai, Jiaya Jia, Kaiming He, Jian Sun
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2016.
6. Automatic Portrait Segmentation for Image Stylization
Xiaoyong Shen, Aaron Hertzmann, Jiaya Jia, Sylvain Paris, Brian Price, Eli Shechtman, Ian Sachs
Eurographics, 2016.
7. Video Super-Resolution via Deep Draft-Ensemble Learning
Renjie Liao, Xin Tao, Ruiyu Li, Ziyang Ma, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2015.
8. Contour Box: Rejecting Object Proposals Without Explicit Closed Contours
Cewu Lu, Shu Liu, Jiaya Jia, Chi-Keung Tang
IEEE International Conference on Computer Vision (**ICCV**), 2015.
9. Semantic Segmentation With Object Clique Potentials
Xiaojuan Qi, Jianping Shi, Shu Liu, Renjie Liao, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2015.
10. Box Aggregation for Proposal Decimation: Last Mile of Object Detection
Shu Liu, Cewu Lu, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2015.
11. Understanding and Diagnosing Visual Tracking Systems
Naiyan Wang, Jianping Shi, Dit-Yan Yeung, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2015.
12. Mutual-Structure for Joint Filtering
Xiaoyong Shen, Chao Zhou, Li Xu, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2015.
13. Deep Edge-Aware Filters
Li Xu, Jimmy Ren, Qiong Yan, Renjie Liao, Jiaya Jia
International Conference on Machine Learning (**ICML**), 2015.
14. Just Noticeable Defocus Blur Detection and Estimation
Jianping Shi, Li Xu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
15. Handling Motion Blur in Multi-Frame Super-Resolution
Ziyang Ma, Renjie Liao, Xin Tao, Li Xu, Jiaya Jia, Enhua Wu
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.

16. Deep LAC: Deep Localization, Alignment and Classification for Fine-grained Recognition
Di Lin, Xiaoyong Shen, Cewu Lu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
17. Photometric Stereo in the Wild
Chun Ho Hung, Tai-Pang Wu, Yasuyuki Matsushita, Li Xu, Jiaya Jia, Chi-Keung Tang
IEEE Winter Conference on Applications of Computer Vision (**WACV**), 2015.
18. Deep Convolutional Neural Network for Image Deconvolution
Li Xu, Jimmy SJ. Ren, Ce Liu, Jiaya Jia
Annual Conference on Neural Information Processing Systems (**NIPS**), 2014.
19. Discriminative Blur Detection Features
Jianping Shi, Li Xu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
20. 100+ Times Faster Weighted Median Filter (WMF)
Qi Zhang, Li Xu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
21. L0 Regularized Stationary Time Estimation for Crowd Group Analysis
Shuai Yi, Xiaogang Wang, Cewu Lu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
22. Two-Class Weather Classification
Cewu Lu, Di Lin, Jiaya Jia, Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
23. Range-Sample Depth Feature for Action Recognition
Cewu Lu, Jiaya Jia, Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
24. Learning Important Spatial Pooling Regions for Scene Classification
Di Lin, Cewu Lu, Renjie Liao, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
25. Rolling Guidance Filter
Qi Zhang, Xiaoyong Shen, Li Xu, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2014.
26. Multi-Modal and Multi-Spectral Registration for Natural Images
Xiaoyong Shen, Li Xu, Qi Zhang, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2014.
27. Inverse Kernels for Fast Spatial Deconvolution
Li Xu, Xin Tao, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2014.
28. High-Quality Depth Recovery via Interactive Multi-View Stereo
Weifeng Chen, Guofeng Zhang, Xiaojun Xiang, Jiaya Jia, Hujun Bao
3DV, 2014.
29. Abnormal Event Detection at 150 FPS in MATLAB
Cewu Lu, Jianping Shi, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2013.

30. CoDeL: A Human Co-detection and Labeling Framework
Qiong Yan, Xiaoyong Shen, Li Xu, Shaojie Zhuo, Xiaopeng Zhang, Liang Shen, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2013.
31. Cross-Field Joint Image Restoration via Scale Map
Jianping Shi, Renjie Liao, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2013.
32. Forward Motion Deblurring
Shicheng Zheng, Li Xu, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2013.
33. Dense Scattering Layer Removal
Qiong Yan, Li Xu, Jiaya Jia
ACM **SIGGRAPH Asia** Technical Briefs, 2013.
34. SCMF: Sparse Covariance Matrix Factorization for Collaborative Filtering
Jianping Shi, Naiyan Wang, Yang Xia, Dit-Yan Yeung, Irwin King, Jiaya Jia
International Conference on Artificial Intelligence (**IJCAI**), 2013.
35. Unnatural L0 Sparse Representation for Natural Image Deblurring
Li Xu, Shicheng Zheng, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2013.
36. Hierarchical Saliency Detection
Qiong Yan, Li Xu, Jianping Shi, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2013.
37. Online Robust Dictionary Learning
Cewu Lu, Jianping Shi, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2013.
38. Combining Sketch and Tone for Pencil Drawing Production
Cewu Lu, Li Xu, Jiaya Jia
International Symposium on Non-Photorealistic Animation and Rendering (**NPAR**), 2012.
Best Paper Award
39. Scale-Invariant Optical Flow
Li Xu, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2012.
40. Depth-Aware Motion Deblurring
Li Xu, Jiaya Jia
IEEE International Conference on Computational Photography (**ICCP**), 2012.
41. Contrast Preserving Decolorization
Cewu Lu, Li Xu, Jiaya Jia
IEEE International Conference on Computational Photography (**ICCP**), 2012.
42. Learning Sparse Covariance Patterns for Natural Scenes
Liwei Wang, Yin Li, Jiaya Jia, Jian Sun, David Wipf, James M. Rehg
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2012.
43. Discriminative Clustering via Generative Feature Mapping
Liwei Wang, Xiong Li, Zhuowen Tu, Jiaya Jia
Association for the Advancement of Artificial Intelligence (**AAAI**), 2012.

44. Simultaneous Multi-Body Stereo and Segmentation
Guofeng Zhang, Jiaya Jia, Hujun Bao
IEEE International Conference on Computer Vision (**ICCV**), 2011.
45. Two-Phase Kernel Estimation for Robust Motion Deblurring
Li Xu, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2010.
46. Efficient Non-consecutive Feature Tracking for Structure-from-Motion
Guofeng Zhang, Zilong Dong, Jiaya Jia, Tien-Tsin Wong, Hujun Bao
European Conference on Computer Vision (**ECCV**), 2010.
47. Motion Detail Preserving Optical Flow Estimation
Li Xu, Jiaya Jia, Yasuyuki Matsushita
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2010.
48. Using Optical Defocus to Denoise
Qi Shan, Jiaya Jia, Sing Bing Kang, Zenglu Qin
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2010.
49. Quasi-Dense 3D Reconstruction using Tensor-based Multiview Stereo
Tai-Pang Wu, Sai-Kit Yeung, Jiaya Jia, Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2010.
50. Keyframe-Based Real-Time Camera Tracking
Zilong Dong, Guofeng Zhang, Jiaya Jia, Hujun Bao
IEEE International Conference on Computer Vision (**ICCV**), 2009.
51. Minimizing Sparse Higher Order Energy Functions of Discrete Variables
Carsten Rother, Pushmeet Kohli, Wei Feng, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2009.
52. Recovering Consistent Video Depth Maps via Bundle Optimization
Guofeng Zhang, Jiaya Jia, Tien-Tsin Wong, Hujun Bao
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2008.
53. Image Partial Blur Detection and Classification
Renting Liu, Zhaorong Li, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2008.
54. Efficient Photometric Stereo on Glossy Surfaces with Wide Specular Lobes
Hin Shun Chung, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2008.
55. Segmentation Based Variational Model for Accurate Optical Flow Estimation
Li Xu, Jianing Chen, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2008.
56. Stereo Matching: An Outlier Confidence Approach
Li Xu, Jiaya Jia
European Conference on Computer Vision (**ECCV**), 2008.
57. Rotational Motion Deblurring of a Rigid Object from a Single Image
Qi Shan, Wei Xiong, Jiaya Jia
IEEE International Conference on Computer Vision (**ICCV**), 2007.

58. Moving Object Extraction with a Hand-held Camera
Guofeng Zhang, Jiaya Jia, Wei Xiong, Tien-Tsin Wong, Pheng-Ann Heng, Hujun Bao
IEEE International Conference on Computer Vision (**ICCV**), 2007.
59. Single Image Motion Deblurring Using Transparency
Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2007.
60. Stereo Matching on Objects with Fractional Boundary
Wei Xiong Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2007.
61. Eliminating Structure and Intensity Misalignment in Image Stitching
Jiaya Jia and Chi-Keung Tang
IEEE International Conference on Computer Vision (**ICCV**), 2005.
62. Local Color Transfer via Probabilistic Segmentation by Expectation-Maximization
Yu-Wing Tai, Jiaya Jia, and Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2005.
63. Video Repairing: Inference of Foreground and Background Under Severe Occlusion
Jiaya Jia, Tai-Pang Wu, Yu-Wing Tai, Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2004.
64. Bayesian Correction of Image Luminance with Spatial Consideration
Jiaya Jia, Jian Sun, Chi-Keung Tang, Heung-Yeung Shum
European Conference on Computer Vision (**ECCV**), 2004.
65. Image Registration with Global and Local Luminance Alignment
Jiaya Jia, Chi-Keung Tang
IEEE International Conference on Computer Vision (**ICCV**), 2003.
66. Image Repairing: Robust Image Synthesis by Adaptive ND Tensor Voting
Jiaya Jia, Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2003.

Graduated Students

- Xiaoyong Shen Ph.D. (2013 - 2016)
Thesis: Multi-Spectral Image Matching, Filtering and Restoration
- Di Lin Ph.D. (2012 - 2016)
Thesis: Learning Image Representation for Classification and Segmentation
- Jianping Shi Ph.D. (2011 - 2015)
Thesis: Image Blur Detection, Estimation and Analysis
- Renjie Liao M.Phil. (2013 - 2015)
Thesis: Metric and Deep Learning: Applications in Computer Vision
- Cewu Lu Ph.D. (2008 - 2013)
Thesis: High Sparsity Representation and Applications
- Qiong Yan Ph.D. (2008 - 2013)
Thesis: Image Structure Manipulation and Its Applications

- Qi Zhang M.Phil. (2012-2014)
Thesis: New Weighted Median and Scale-Aware Filters
- Yang Xia M.Sc. (2011-2013)
- Liwei Wang M.Phil. (2011-2013)
Thesis: Learning Mid-level Representations for Scene Understanding
- Shicheng Zheng M.Phil. (2011-2013)
Thesis: Generalized Image Deblurring
- Zenglu Qin M.Phil. (2008-2012)
Thesis: Image Cosegmentation and Denoise
- Li Xu Ph.D. (2007 - 2010)
Thesis: Topics in Motion Estimation and Motion Deblurring
- Zhenlong Dai M.Phil. (2009 - 2012)
Thesis: A Link-based Video Denoising Method
- Chun Ho Hung M.Phil. (2009 - 2011)
Thesis: Depth Estimation in Photometric Stereo and Stereo Matching
- Yi Xu M.Phil. (2009 - 2011)
Thesis: Edge-Enhancing Image Smoothing
- Jianing Chen M.Phil. (2007 - 2009)
Thesis: Motion Field Transfer
- Qi Shan M.Phil. (2006 - 2008)
Thesis: Image Deblurring Methods
- Renting Liu M.Phil. (2006 - 2008)
Thesis: Blur Detection and It Applications
- Hin Shun Chung M.Phil. (2006 - 2008)
Thesis: A New Photometric Stereo Method
- Chenjun Tao M. Phil. (2005 - 2008)
Thesis: Producing Non-photorealistic Rendering
- Wei Xiong M. Phil. (2005 - 2007)
Thesis: Stereo Matching for Fractional Objects
- Leilei Xu M. Phil. (2005 - 2007)
Thesis: Dynamic Texture Synthesis in Image and Video Processing

Current Postgraduate Advisees

- Xin Tao Ph.D. (2013-present)
Research topic: Low-level Vision
- Chao Zhou Ph.D. (2014-present)
Research topic: Deblur
- Shu Liu Ph.D. (2014-present)
Research topic: Image Recognition
- Xiaojuan Qi Ph.D. (2014-present)
Research topic: Image Recognition

- Ruiyu Li Ph.D. (2014-present)
Research topic: Image Recognition
- Hongyun Gao M.Phil. (2015-present)
Research topic: Image Processing
- Hong Zhang Ph.D. (2015-present)
Research topic: Image Understanding
- Hengshuang Zhao Ph.D. (2015-present)
Research topic: Scene Recognition
- Yingcong Chen Ph.D. (2016-present)
Research topic: Image Operations
- Ruixing Wang Ph.D. (2016-present)
Research topic: Image Matting

Staff

- Xiaoyong Shen, Postdoc (2016)
- Li Xu, Postdoc (2010-2013)
- Tai-Pang Wu, Postdoc (2010)
- Wei Feng, Postdoc (2008)

Teaching

- 2016 - 2017 (Spring): CSCI3290 Introduction to Computational Photography
- 2015 - 2016 (Fall): ENGG5104 Image Processing and Computer Vision
- 2015 - 2016 (Spring): CSCI3290 Introduction to Computational Photography
- 2014 - 2015 (Fall): ENGG5104 Image Processing and Computer Vision
- 2014 - 2015 (Spring): CSCI3290 Introduction to Computational Photography
- 2013 - 2014 (Fall): ENGG5104 Image Processing and Computer Vision
- 2013 - 2014 (Spring): CSCI3290 Introduction to Computational Photography
- 2012 - 2013 (Fall): CSCI5280 Image Processing and Computer Vision
- 2011 - 2012 (Fall): CSC5280 Image Processing and Computer Vision
- 2011 - 2012 (Spring): CSC3260B Principles of Computer Graphics
- 2010 - 2011 (Fall): CSC3260B Principles of Computer Graphics
- 2009 - 2010 (Fall): CSC3260B Principles of Computer Graphics
- 2009 - 2010 (Spring): CSC5280 Image Processing and Computer Vision
- 2008 - 2009 (Fall): CSC3260B Principles of Computer Graphics
- 2008 - 2009 (Spring): CSC5280 Image Processing and Computer Vision

- 2007 - 2008 (Fall): CSC3260B Principles of Computer Graphics
- 2007 - 2008 (Spring): CSC5280 Image Processing and Computer Vision
- 2006 - 2007 (Fall): CSC5280 Image Processing and Computer Vision
- 2006 - 2007 (Spring): CSC2110 Discrete Mathematics
- 2005 - 2006 (Spring): CSC3150 Introduction to Operating Systems
- 2004 - 2005 (Fall): CSC3150 Introduction to Operating Systems
- 2004 - 2005 (Spring): CSC3190 Introduction to Discrete Mathematics and Algorithms

Undergraduate Advisees

- CHAN Kar Ho and NGAN Man Wa 2010-2011
Project: reading unknown characters from Phone Camera Pictures
- LAU Friedrich Yinglin and LAM Man Man 2010-2011
Project: design phone game engine
- TONG Kwok Kit and TSO Chiu 2010-2011
Project: game design
- Yu Shuang 2009-2010
Project: AAM face tracking
- LI Wai Wa and TSO Xin 2009-2010
Project: face tracking game
- WONG Ka Wing and LEE Lai Wa 2008-2009
Project: inferring 3D shapes from 2D curves
- CHAN Yip and CHOI Siu Ping 2008-2009
Project: VideoTrace: rapid interactive scene modeling from video
- NG Ka Chun and Chung Shing Yi 2008-2009
Project: mesh simplification
- Yau Ka Fai 2007-2008
Project: 3D shape construction from 2D curves
- Lau Chit and Chan Hoi Tung 2006-2007
Project: high dynamic range image compression
- Chan Pan Ivan and Lai Kin Fung Ian 2006-2007
Project: fragment-based image completion
- PANG Kwong Fai and ZHANG Liming 2005-2006
Project: image alignment
- NGAI Hoi and LAM Tsz Fai 2005-2006
Project: tour into the picture
- Ho Kin Hang and YUNG Yiu Fung 2005-2006
Project: impressionist rendering on images and videos