Jiaya Jia

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Career Total

Citation	70,000+
h-index	100+
Publications	228 (200+ on CVPR, ICCV, TPAMI, SIGGRAPH, NeurIPS, ICML, ECCV, etc.)
Alumni	47 (27 PhD. 20 Masters)
Current (Co-)Supervision	20 PhD. and Master candidates
Premier Conference Chair	28 times (21 times Area Chairs in major conferences)

Appointments & Professional Qualification

Professor, The Chinese University of Hong Kong	August 2015 – present
Distinguished Scientist, Tencent	May 2017 – 2020
Executive Director, Tencent X-Lab	May 2017 – 2020
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
Fellow, IEEE	January 2018 – present

Education

- Hong Kong University of Science and Technology & Microsoft Research Asia   Hong Kong SAR
  Ph.D. in Computer Science   *2000 – 2004*
  - Advisor: Chi-Keung Tang and Harry Shum
  - 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; Deep Learning; Artificial Intelligence

- Image/video understanding

- Large multi-modality models

- 3D detection, segmentation and reconstruction
- Visual content generation

Recent Professional Activities

- Associate Editor-in-Chief, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2021-present
- Associate Editor, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2011-2020
- Editorial Board, International Journal of Computer Vision (IJCV)
- Advisory Board, Advances in Computer Vision and Pattern Recognition
- Area Chair, European Conference on Computer Vision (ECCV 2024)
- Area Chair, AAAI Conference on Artificial Intelligence (AAAI 2023)
- Area Chair, IEEE International Conference on Computer Vision (ICCV 2023)
- Area Chair, IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2022)
- Area Chair, AAAI Conference on Artificial Intelligence (AAAI 2021)
- Area Chair, IEEE International Conference on Computer Vision (ICCV 2021)
- Area Chair, IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2021)
- Area Chair, European Conference on Computer Vision (ECCV 2020)
- Area Chair, AAAI Conference on Artificial Intelligence (AAAI 2020)
- Area Chair, IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2020)
- Area Chair, IEEE International Conference on Computer Vision (ICCV 2019)
- Area Chair, IEEE Computer Vision and Pattern Recognition (CVPR 2019)
- Area Chair, European Conference on Computer Vision (ECCV 2018)
- 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, 2017
- 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

- Co-Investigator, 6G: Wireless Access and Connectivity for an Intelligent and Sustainable World, RGC Areas of Excellence Scheme 2022/23 (10th round), HK$ 87,304,000

- 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

- Test-of-Time Award, ACM SIGGRAPH Asia 2023, for "Image Smoothing via L0 Gradient Minimization"

- Best Paper Finalist, CVPR 2022, for "MAT: Mask-Aware Transformer for Large Hole Image Inpainting"

- 1st place in MEDIA AI Alibaba Challenge in Video Human Segmentation track 2020

- 1st place in Apollo 3D Object Detection Challenge 2019

- 1st place in Instance Segmentation Track in Scene Understanding Challenge for Autonomous Navigation in Unstructured Environments 2018

- 1st place in WAD Drivable Area Segmentation Challenge 2018

- 1st place in LSUN Semantic Segmentation Challenge 2017

- 1st place in COCO Instance Segmentation Challenge 2017 and 2nd place in COCO Detection Challenge 2017

- 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

- Mingkang Zhu, PhD Student (2023-), Hong Kong PhD Fellowship, 2023

- Shaoteng Liu, PhD Student (2021-), Hong Kong PhD Fellowship, 2021

- Xiaogang Xu, PhD Student (2018-2022), Hong Kong PhD Fellowship, 2018
- Lu Qi, PhD Student (2017-2021), Hong Kong PhD Fellowship, 2017
- Li Jiang, PhD Student (2017-2021), Hong Kong PhD Fellowship, 2017
- Yingcong Chen, PhD Student (2016-2020), Hong Kong PhD Fellowship, 2016
- Ruiyu Li, PhD Student (2014-2018), Hong Kong PhD Fellowship, 2014
- Xiaojuan Qi, PhD Student (2014-2018), 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

- 1.2K stars, GitHub, Reasoning Segmentation via Large Language Model (LISA)
- 2.2K stars, GitHub, LongLoRA and LongAlpaca for Long-context LLMs
- 1.3K stars, GitHub, Path Aggregation Network for Instance Segmentation (PANet)
- 600 stars, GitHub, PSPNet-based image cascade network (ICNet)
- 600 stars, GitHub, Fully Sparse VoxelNet for 3D Object Detection and Tracking (VoxelNeXt)
- 1.6K stars, GitHub, Pyramid Scene Parsing Network (PSPNet)
- Point-wise Spatial Attention Network for Scene Parsing (PSANet)
- Detail-revealing Deep Video Super-resolution (SPMC-VideoSR)
- 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+

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. ResLT: Residual Learning for Long-Tailed Recognition
   Jiequan Cui, Shu Liu, Zhuotao Tian, Zhisheng Zhong, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 3, 2023.

2. DSGN++: Exploiting Visual-Spatial Relation for Stereo-Based 3D Detectors
   Yilun Chen, Shijia Huang, Shu Liu, Bei Yu, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 4, 2023.

3. Fully Convolutional Networks for Panoptic Segmentation With Point-Based Supervision
   Yanwei Li, Hengshuang Zhao, Xiaojuan Qi, Yukang Chen, Lu Qi, Liwei Wang, Zeming Li, Jian
   Sun, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 4, 2023.

4. Open World Entity Segmentation
   Lu Qi, Jason Kuen, Yi Wang, Jiuxiang Gu, Hengshuang Zhao, Philip H. S. Torr, Zhe Lin, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 7, 2023.

5. What Makes for Good Tokenizers in Vision Transformer?
   Shengju Qian, Yi Zhu, Wenbo Li, Mu Li, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 11, 2023.

6. Scale-Aware Automatic Augmentations for Object Detection With Dynamic Training
   Yukang Chen, Peizhen Zhang, Tao Kong, Yanwei Li, Xiangyu Zhang, Lu Qi, Jian Sun, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 2, 2023.

7. Adaptive Perspective Distillation for Semantic Segmentation
   Zhuotao Tian, Pengguang Chen, Xin Lai, Li Jiang, Shu Liu, Hengshuang Zhao, Bei Yu,
   Ming-Chang Yang, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 45, No. 2, 2023.

8. PointINS: Point-based Instance Segmentation
   Lu Qi, Yi Wang, Yukang Chen, Yingcong Chen, Xiangyu Zhang, Jian Sun, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 44, No. 10, 2022.

9. Text-Guided Human Image Manipulation via Image-Text Shared Space
   Xiaogang Xu, Ying-Cong Chen, Xin Tao, Jiaya Jia
   IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 44, No. 10, 2022.

10. GeoNet++: Iterative Geometric Neural Network with Edge-Aware Refinement for Joint Depth and Surface Normal Estimation
    Xiaojuan Qi, Zhengzhe Liu, Renjie Liao, Philip HS Torr, Raquel Urtasun, Jiaya Jia
    IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 44, No. 2, 2022.

11. Prior Guided Feature Enrichment Network for Few-Shot Segmentation
    Zhuotao Tian, Hengshuang Zhao, Michelle Shu, Zhicheng Yang, Ruiyu Li, Jiaya Jia
    IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 44, No. 2, 2022.

12. Homomorphic Interpolation Network for Unpaired Image-to-image Translation
    Ying-Cong Chen, Jiaya Jia
    IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 44, No. 5, 2022.

13. Two-Class Weather Classification
    Cewu Lu, Di Lin, Jiaya Jia, Chi-Keung Tang
    IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 39, No. 12, 2017.

14. 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**), Vol. 39, No. 5, 2017.

15. 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.

16. 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.

17. 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. 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.

23. Image Stitching Using Structure Deformation
Jiaya Jia, Chi-Keung Tang
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 30, No. 4, 2008.

24. 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.

25. 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.

26. 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.

27. 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.

28. Conditional Temporal Variational AutoEncoder for Action Video Prediction
Xiaogang Xu, Yi Wang, Liwei Wang, Bei Yu, Jiaya Jia
International Journal of Computer Vision (**IJCV**), Vol. 131, No. 10, Pages 2699-2722, 2023.

29. Fast Abnormal Event Detection
Cewu Lu, Jianping Shi, Weiming Wang, Jiaya Jia
International Journal of Computer Vision (**IJCV**), Vol. 127, No. 8, Pages 993-1011, 2019.

30. Mutual-Structure for Joint Filtering
Xiaoyong Shen, Chao Zhou, Li Xu, Jiaya Jia
International Journal of Computer Vision (**IJCV**), Vol. 125, No. 1-3, Pages 19-33, 2017.

31. 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.

32. 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.

33. 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.

34. 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.

35. 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.

36. 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.

37. 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.
    Test-of-Time Paper Award in SIGGRAPH Asia 2023

38. 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).

39. 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.

40. 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.

41. 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.

42. 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.

43. 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.

44. RSCM: Region Selection and Concurrency Model for Multi-class Weather Recognition
    Di Lin, Cewu Lu, Jiaya Jia
    IEEE Transactions on Image Processing (**TIP**), Vol. 26, No. 9, 2017.

45. 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**), Vol. 25, No. 12, 2016.

46. 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.

47. Personal Object Discovery in First-person Videos
    Cewu Lu, Renjie Liao, Jiaya Jia
    IEEE Transactions on Image Processing (**TIP**), Vol. 24, No. 12, 2015.

48. Scale Adaptive Dictionary Learning
    Cewu Lu, Jianping Shi, Jiaya Jia
    IEEE Transactions on Image Processing (**TIP**), Vol. 23, No. 2, 2014.

49. A Unified Framework for Designing Textures using Energy Optimization
    Jianbing Shen, Hanqiu Sun, Jiaya Jia, Hanli Zhao, Xiaogang Jin, Shiaofen Fang
    Pattern Recognition, Vol. 43 , No. 2, 2010.

50. 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.

51. Improving Sub-pixel Correspondence through Upsampling
Li Xu, Jiaya Jia, Sing Bing Kang
Computer Vision and Image Understanding (**CVIU**), Vol. 116, No. 2, 2012.

52. 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.

53. 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.

54. 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.

55. 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. Ref-NPR: Reference-Based Non-Photorealistic Radiance Fields for Controllable Scene Stylization
Yuechen Zhang, Zexin He, Jinbo Xing, Xufeng Yao, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

2. Point2Pix: Photo-Realistic Point Cloud Rendering via Neural Radiance Fields
Tao Hu, Xiaogang Xu, Shu Liu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

3. Command-driven Articulated Object Understanding and Manipulation
Ruihang Chu, Zhengzhe Liu, Xiaoqing Ye, Xiao Tan, Xiaojuan Qi, Chi-Wing Fu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

4. Rethinking Out-of-distribution (OOD) Detection: Masked Image Modeling is All You Need
Jingyao Li, Pengguang Chen, Zexin He, Shaozuo Yu, Shu Liu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

5. LargeKernel3D: Scaling up Kernels in 3D Sparse CNNs
Yukang Chen, Jianhui Liu, Xiangyu Zhang, Xiaojuan Qi, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

6. Spherical Transformer for LiDAR-Based 3D Recognition
Xin Lai, Yukang Chen, Fanbin Lu, Jianhui Liu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

7. Understanding Imbalanced Semantic Segmentation Through Neural Collapse
Zhisheng Zhong, Jiequan Cui, Yibo Yang, Xiaoyang Wu, Xiaojuan Qi, Xiangyu Zhang, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

8. TriVol: Point Cloud Rendering via Triple Volumes
Tao Hu, Xiaogang Xu, Ruihang Chu, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

9. VoxelNeXt: Fully Sparse VoxelNet for 3D Object Detection and Tracking
   Yukang Chen, Jianhui Liu, Xiangyu Zhang, Xiaojuan Qi, Jiaya Jia
   IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

10. Hierarchical Dense Correlation Distillation for Few-Shot Segmentation
    Bohao Peng, Zhuotao Tian, Xiaoyang Wu, Chengyao Wang, Shu Liu, Jingyong Su, Jiaya Jia
    IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.

11. Real-World Image Variation by Aligning Diffusion Inversion Chain
    Yuechen ZHANG, Jinbo Xing, Eric Lo, Jiaya Jia
    Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2023.

12. DiffComplete: Diffusion-based Generative 3D Shape Completion
    Ruihang Chu, Enze Xie, Shentong Mo, Zhenguo Li, Matthias Nießner, Chi-Wing Fu, Jiaya Jia
    Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2023.

13. Removing Anomalies as Noises for Industrial Defect Localization
    Fanbin Lu, Xufeng Yao, Chi-Wing Fu, Jiaya Jia
    IEEE International Conference on Computer Vision (**ICCV**), 2023.

14. Mask-Attention-Free Transformer for 3D Instance Segmentation
    Xin Lai, Yuhui Yuan, Ruihang Chu, Yukang Chen, Han Hu, Jiaya Jia
    IEEE International Conference on Computer Vision (**ICCV**), 2023.

15. End-to-end 3D Tracking with Decoupled Queries
    Yanwei Li, Zhiding Yu, Jonah Philion, Anima Anandkumar, Sanja Fidler, Jiaya Jia, Jose Alvarez
    IEEE International Conference on Computer Vision (**ICCV**), 2023.

16. FocalFormer3D: Focusing on Hard Instance for 3D Object Detection
    Yilun Chen, Zhiding Yu, Yukang Chen, Shiyi Lan, Anima Anandkumar, Jiaya Jia, Jose Alvarez
    IEEE International Conference on Computer Vision (**ICCV**), 2023.

17. High Quality Entity Segmentation
    Lu Qi, Jason Kuen, Tiancheng Shen, Jiuxiang Gu, Weidong Guo, Jiaya Jia, Zhe Lin, Ming-Hsuan Yang
    IEEE International Conference on Computer Vision (**ICCV**), 2023.

18. Learning Context-Aware Classifier for Semantic Segmentation
    Zhuotao Tian, Jiequan Cui, Li Jiang, Xiaojuan Qi, Xin Lai, Yixin Chen, Shu Liu, Jiaya Jia
    AAAI, 2023.

19. Deep Parametric 3D Filters for Joint Video Denoising and Illumination Enhancement in Video Super Resolution
    Xiaogang Xu, Ruixing Wang, Chi-Wing Fu, Jiaya Jia
    AAAI, 2023.

20. Unifying Voxel-based Representation with Transformer for 3D Object Detection
    Yanwei Li, Yilun Chen, Xiaojuan Qi, Zeming Li, Jian Sun, Jiaya Jia
    Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2022.

21. TWIST: Two-Way Inter-label Self-Training for Semi-supervised 3D Instance Segmentation
    Ruihang Chu, Xiaoqing Ye, Zhengzhe Liu, Xiao Tan, Xiaojuan Qi, Chi-Wing Fu, Jiaya Jia
    IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.

22. Voxel Field Fusion for 3D Object Detection
Yanwei Li, Xiaojuan Qi, Yukang Chen, Liwei Wang, Zeming Li, Jian Sun, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.

23. High Quality Segmentation for Ultra High-resolution Images
Tiancheng Shen, Yuechen Zhang, Lu Qi, Jason Kuen, Xingyu Xie, Jianlong Wu, Zhe Lin, Jiaya Jia
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.

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Jiaya Jia, Tai-Pang Wu, Yu-Wing Tai, Chi-Keung Tang
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2004.

171. 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.

172. Image Registration with Global and Local Luminance Alignment
Jiaya Jia, Chi-Keung Tang
IEEE International Conference on Computer Vision (**ICCV**), 2003.

173. 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

- Shengju Qian   Ph.D. (2019-2023)
  Thesis: Generative Transformer for Image Modeling

- Zetong Yang   Ph.D. (2019-2023)
  Thesis: Deep Learning on 3D Object Detection

- Tao Hu   Ph.D. (2019-2023)
  Thesis: Efficient 3D Object and Scene Reconstruction via Neural Rendering

- Wenbo Li   Ph.D. (2019-2023)
  Thesis: Towards High-Quality Super-Resolution with Deep Learning

- Liying Lu   M.Phil. (2019-2023)
  Thesis: Spatial and Temporal Super-Resolution with Deep Learning

- Pengguang Chen   Ph.D. (2018-2022)
  Thesis: Improving Compact DNN Models in Computer Vision Tasks

- Xiaogang Xu   Ph.D. (2018-2022)
  Thesis: Generative Image to Image Translation with Deep Feature Alignment

- Jiequan Cui   Ph.D. (2018-2022)
  Thesis: Model Generalization under Various Types of Data

- Zhuotao Tian   Ph.D. (2018-2022)
  Thesis: Towards Data- and Model-efficient Semantic Segmentation

- Yilun Chen   Ph.D. (2018-2022)
  Thesis: Exploring Multi-Modal 3D Object Detection

- Yi Wang   Ph.D. (2017-2021)
  Thesis: Generative Image Inpainting with Deep Learning

- Huaijia LIN   Ph.D. (2017-2021)
  Thesis: Object-level Video Understanding with Propagation

- Lu QI   Ph.D. (2017-2021)
  Thesis: Instance-level Image Understanding with Deep Learning

- Li JIANG   Ph.D. (2017-2021)
  Thesis: Deep Learning on 3D Point Cloud Understanding

- Ruizheng WU   Ph.D. (2017-2021)
  Thesis: Geometry-Aware Image-to-Image Translation

- Ruixing Wang   Ph.D. (2016-2021)
  Thesis: Low-Light Image/Video Enhancement on Lightness, Color and Details

- Yingcong Chen   Ph.D. (2016-2020)
  Thesis: Generic Face Attribute Manipulation

- Hengshuang Zhao   Ph.D. (2015-2019)
  Thesis: Pixel Level Scene Understanding with Segmentation

- Hong Zhang   M.Phil. (2015-2018)
  Thesis: Human Pose Estimation using Contextual Information

- Hongyun Gao   M.Phil. (2015-2019)
  Thesis: Image Manipulation using Convolutional Neural Network

- Xiaojuan Qi   Ph.D. (2014-2018)
  Thesis: Pixel Level Image Understanding with Deep Learning

- Ruiyu Li   Ph.D. (2014-2018)
  Thesis: Learning Image-Text Representations for Referring Visual Recognition
- Chao Zhou   M.Phil. (2014-2018)
  Thesis: Unsupervised Learning of Stereo Matching
- Shu Liu   Ph.D. (2014-2018)
  Thesis: Object Modeling for Instance Segmentation
- Xin Tao   Ph.D. (2013-2018)
  Thesis: Effective Image Restoration by Revisiting Degradation Operators
- Xiaoyong Shen   Ph.D. (2013-2016)
  Thesis: Multi-Spectral Image Matching, Filtering and Restoration
- Renjie Liao   M.Phil. (2013-2015)
  Thesis: Metric and Deep Learning: Applications in Computer Vision
- Di Lin   Ph.D. (2012-2016)
  Thesis: Learning Image Representation for Classification and Segmentation
- Qi Zhang   M.Phil. (2012-2014)
  Thesis: New Weighted Median and Scale-Aware Filters
- Jianping Shi   Ph.D. (2011-2015)
  Thesis: Image Blur Detection, Estimation and Analysis
- 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
- 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
- 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
- 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
- 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

- Yanwei Li   Ph.D. (2020-present)
  Research topic: Segmentation
- Xin Lai   Ph.D. (2020-present)
  Research topic: Segmentation
- Tiancheng Shen   Ph.D. (2020-present)
  Research topic: Referring Segmentation
- Yukang Chen   Ph.D. (2020-present)
  Research topic: 3D Detection
- Yixin Chen   Ph.D. (2020-present)
  Research topic: Detection
- Ruihang Chu   Ph.D. (2020-present)
  Research topic: 3D Processing
- Fanbin Lu   Ph.D. (2021-present)
  Research topic: 3D Processing
- Zhisheng Zhong   Ph.D. (2021-present)
  Research topic: Deep Learning Optimization
- Shaoteng Liu   Ph.D. (2021-present)
  Research topic: Self-supervised Learning
- Yuechen Zhang   Ph.D. (2021-present)
  Research topic: Image Segmentation
- Bohao Peng   Ph.D. (2022-present)
  Research topic: Generation
- Jingyao Li   Ph.D. (2022-present)
  Research topic: Generation
- Zexin He   Ph.D. (2022-present)
  Research topic: Generation
- Chengyao Wang   Ph.D. (2022-present)
  Research topic: Generation
- Shaozuo Yu   Ph.D. (2022-present)
  Research topic: Generation
- Zhongshen Zeng   Ph.D. (2023-present)
  Research topic: LLM

- Sitong Wu   Ph.D. (2023-present)
  Research topic: LLM
- mingkang Zhu   Ph.D. (2023-present)
  Research topic: LLM
- Bin Xia   Ph.D. (2023-present)
  Research topic: LLM

Staff

- Shuqin Xie, Rearch Assistant (2018-2019)

- Xiaoyong Shen, Postdoc (2016)

- Li Xu, Postdoc (2010-2013)

- Tai-Pang Wu, Postdoc (2010)

- Wei Feng, Postdoc (2008)

Teaching

- 2022 - 2023 (Fall): ENGG5104 Image Processing and Computer Vision

- 2021 - 2022 (Fall): ENGG5104 Image Processing and Computer Vision

- 2020 - 2021 (Fall): ENGG5104 Image Processing and Computer Vision

- 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