

# Jingdong Wang

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## Education

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| Ph.D, Computer Science<br>The Hong Kong University of Science and Technology | 2004.09 - 2007.08 |
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| M.Eng, Automation<br>Tsinghua University<br>Excellent master degree thesis award | 2001.09 - 2004.07 |
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| B.Eng, Automation<br>Tsinghua University<br>Rank: 1/150 | 1997.09 - 2001.07 |
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## Research Interests

### Computer vision and multimedia search

Neural architecture design, human pose estimation, semantic segmentation, object detection, image classification, large scale indexing, large scale image search, salient object detection.

### Machine learning and pattern recognition

Large scale machine learning, graph-based learning, probabilistic graphical modeling, kernel methods, spectral clustering.

## Work Experience

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| Senior Principal Research Manager (formerly Principal Research Manager)<br>Microsoft Research Asia | 2019.09 - present |
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| Ph.D Supervisor<br>University of Science and Technology, China | 2017.09 - present |
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| Principal Researcher (formerly Senior Researcher)<br>Microsoft Research Asia | 2017.09 - 2019.08 |
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| Principal Researcher (formerly Lead Researcher)<br>Microsoft Research Asia | 2015.09 - 2017.08 |
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| Senior Researcher (formerly Lead Researcher)<br>Microsoft Research Asia | 2013.09 - 2015.08 |
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| Senior Researcher (formerly Researcher)<br>Microsoft Research Asia | 2012.03 - 2013.08 |
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| Researcher (formerly Associate Researcher)<br>Microsoft Research Asia | 2007.09 - 2012.02 |
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| Research and Teaching Assistants<br>The Hong Kong University of Science and Technology<br>Advisor: Long Quan | 2004.09 - 2007.08                      |
| Research Intern<br>Microsoft Research Asia<br>Mentor: Heung-Yeung Shum                                       | 2005.07 - 2005.12<br>2003.09 - 2004.05 |
| Research Assistant<br>Tsinghua University<br>Advisor: Changshui Zhang  | 2001.09 - 2004.07                      |

## Professional Activities

### Area/track chair

*CVPR 2020, IJCAI 2020, ICCV 2019, IJCAI 2019, ACMMM 2018, ICCV 2017, CVPR 2017, ECCV 2016, ACMMM 2015, ICPR 2018, ICIP 2017, ICME 2015, ICME 2012*

### Senior programme committee member

*AAAI 2019, IJCAI 2018, AAAI 2018*

### Conference organizers

*ICME 2019, workshop co-chair*

*ACM ICMR 2014, special session co-chair*

### Associate editors/editorial board members

*IEEE Transactions on Pattern Analysis and Machine Intelligence (Sept., 2018 - )*

*IEEE Transactions on Circuits and Systems for Video Technology (Jan., 2018 - )*

*IEEE Transactions on Multimedia (May, 2016 - )*

*Neurocomputing (April, 2015 - May, 2017)*

*Multimedia Tools and Applications (October, 2011 - )*

### Workshop organizers

*The 2nd workshop and challenge on Target Re-Identification and Multi-Target Multi-Camera Tracking (CVPR 2019)*

*The 2nd International Workshop on Deep Learning for Pattern Recognition (DLPR2018), (ICPR 2018)*

*The 1st workshop on Target Re-Identification and Multi-Target Multi-Camera Tracking (CVPR 2017)*

*The 1st International Workshop on Deep Learning for Pattern Recognition (DLPR2016), (ICPR 2016)*

*Big Media Data: Understanding, Search, and Mining (ICDM 2015)*

*Advances in LargeScale Multimedia Data Collection, Mining and Retrieval (ICME 2012)*

### Special issue guest editor

*Fine-grained image categorization (IEEE Trans. Pattern Anal. Mach. Intell., ongoing)*

*Intelligent urban computing with big data (Machine Vision and Applications, 2017)*

*Big Media Data: Understanding, Search, and Mining (IEEE Transactions on Big Data, 2016)*

*Ad Hoc Web Multimedia Analysis with Limited Supervision (Multimedia Tools and Applications, 2015)*

### Programme committee members or conference reviewers

*ICML (2018), ICLR (2018 - 2019), CVPR (2009 - 2016, 2018), ICCV (2007/09/11/13/15), ECCV (2010/12/14), ACMMM (2009/12/13/14/17), NIPS (2014 - 2018) SIGIR (2011/13), SIGGRAPH Asia (2010), SIGKDD (2010), SIGCHI (2010), IJCAI (2011/13), ICMR (2011/12), ICME (2009/10/11), CIVR (2010), IJCNN (2007/09), ACCV (2007), ICPR (2006)*

### Journal reviewers

*TPAMI, IJCV, JMLR, TIP, TKDE, TCSVT, TMM, PR, TOIS, TOSN, TOMM, TIST, CVIU, MVA, IVC*

## Honors and Awards

|   |   |             |
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| ACM Distinguished Member                  |   | 2018        |
| COCO keypoints detection challenge        | Second place (ECCV 2018)                            | 2018        |
| IAPR Fellow                               |   | 2018        |
| Best paper runner up                      | Workshop on Big Data Analytics for Social Computing | 2018        |
| Best paper award finalist                 | ACMMM   | 2015        |
| Outstanding reviewer                      | CVPR  | 2014        |
| Gold star                                 | Microsoft   | 2009        |
| Graduate Fellowship                       | HKUST   | 2004 - 2007 |
| Excellent Master Degree Thesis Award      | Tsinghua University                                 | 2004        |
| Excellent Master Scholarship              | Tsinghua University                                 | 2003        |
| Title of Graduate with Honors (top 5%)    | Tsinghua University                                 | 2001        |
| Rockwell Scholarship                      | Tsinghua University                                 | 2000        |
| Friend-Eastern Communications Scholarship | Tsinghua University                                 | 1999        |
| Outstanding Student Scholarship           | Tsinghua University                                 | 1998        |

## **Publications** (Google Scholar citations: 13500+, h-index: 50+)

Google Scholar citations to my articles (PDF Document Clickable Link):

<https://scholar.google.com/citations?user=z5SPCmgAAAAJ&hl=en>

The interns and supervisees are in bold.

### Book

- [1] Jingdong Wang. Graph Based Image Segmentation: A Modern Approach. *ISBN-10: 3639110749, ISBN-13: 978-3639110746*. VDM Verlag Dr. Muller Aktiengesellschaft & Co. KG. 2008.

### Book chapters

- [1] Jingdong Wang, **Jing Wang**, Gang Zeng, Rui Gan, Shipeng Li, and Baining Guo. Fast Neighborhood Graph Search using Cartesian Concatenation. *Multimedia Data Mining and Analytics: Disruptive Innovation*. Edited by Aaron K. Baughman, Jiang Gao, Jia-Yu Pan, and Valery Petrushin, 397-417, Springer, 2015.
- [2] Jingdong Wang, **Jing Wang**, Qifa Ke, Gang Zeng, and Shipeng Li. Fast Approximate K-Means via Cluster Closures. *Multimedia Data Mining and Analytics: Disruptive Innovation*. Edited by Aaron K. Baughman, Jiang Gao, Jia-Yu Pan, and Valery Petrushin, 373-395, Springer, 2015.
- [3] Jingdong Wang, **Yinghai Zhao**, and Xian-Sheng Hua. Image Search by Color Map. *Internet Multimedia Search and Mining*. Edited by Xian-Sheng Hua, Marcel Worring, and Tat-Seng Chua. Bentham Science Publishers, 2010.

### Technical reports

- [1] **Liming Zhao**, Jingdong Wang, Xi Li, Zhuowen Tu, and Wenjun Zeng. On the connection of deep fusion to ensembling. *CoRR*, abs/1611.07718, 2016.
- [2] Jingdong Wang, **Zhen Wei**, **Ting Zhang**, and Wenjun Zeng. Deeply-fused nets. *CoRR*, abs/1605.07716, 2016.

Top referred journals: TPAMI (9), IJCV (7), TOG (3), TIP (6), TMM (6), TOMM (2), TKDE (1)

- [1] **Zilong Huang**, Chunyu Wang, Xinggang Wang, Wenyu Liu, and Jingdong Wang. Semantic Image Segmentation by Scale-Adaptive Networks. *IEEE Trans. Image Processing.*, Accepted, 2019.
- [2] **Peng Tang**, Chunyu Wang, Xinggang Wang, Wenyu Liu, and Jingdong Wang. Object Detection in Videos by High Quality Object Linking. *IEEE Trans. Pattern Anal. Mach. Intell.*, Accepted, 2019.

- [3] **Song Bai**, Zhichao Zhou, Jingdong Wang, Xiang Bai, Longin Jan Latecki and Qi Tian. Automatic Ensemble Diffusion for 3D Shape and Image Retrieval. *IEEE Trans. Image Processing*, 28(1):88-101, 2019.
- [4] Jingdong Wang and **Ting Zhang**. Composite quantization. *IEEE Trans. Pattern Anal. Mach. Intell.*, Accepted, 2018.
- [5] **Hong Liu**, Rongrong Ji, Jingdong Wang, and Chunhua Shen. Ordinal constraint binary coding for approximate nearest neighbor search. *IEEE Trans. Pattern Anal. Mach. Intell.*, Accepted, 2018.
- [6] Jingdong Wang, **Ting Zhang**, **Jingkuan Song**, Nicu Sebe, and Heng Tao Shen. A survey on learning to hash. *IEEE Trans. Pattern Anal. Mach. Intell.*, 40(4):769-790, 2018.
- [7] **Na Qi**, Yunhui Shi, Xiaoyan Sun, Jingdong Wang, Baocai Yin, and Junbin Gao. Multi-Dimensional Sparse Models. *IEEE Trans. Pattern Anal. Mach. Intell.*, 40(1):163-178, 2018.
- [8] **Qiurui Wang**, Chun Yuan, Jingdong Wang and Wenjun Zeng. Learning Attentional Recurrent Neural Network for Visual Tracking. *IEEE Trans. Multimedia*, 2018.
- [9] Weiyao Lin, Yang Shen, Junchi Yan, Mingliang Xu, Jianxin Wu, Jingdong Wang, and Ke Lu. Learning Correspondence Structures for Person Re-identification. *IEEE Trans. Image Processing*, 26(5):2438-2453, 2017.
- [10] **Dapeng Chen**, Zejian Yuan, Jingdong Wang, Gang Hua, and Nanning Zheng. Exemplar-Guided Similarity Learning on Polynomial Feature Map for Person Re-Identification. *International Journal of Computer Vision*, 123(3):392-414, 2017.
- [11] Jingdong Wang, **Huaizu Jiang**, Zejian Yuan, Ming-Ming Cheng, Xiaowei Hu, and Nanning Zheng. Salient Object Detection: A Discriminative Regional Feature Integration Approach. *International Journal of Computer Vision*, 123(2):251-268, 2017.
- [12] **Lingxi Xie**, Jingdong Wang, Weiyao Lin, Bo Zhang, and Qi Tian. Towards Reversal-Invariant Image Representation. *International Journal of Computer Vision*, 123(2):226-250, 2017.
- [13] **Dapeng Chen**, Zejian Yuan, Gang Hua, Jingdong Wang, and Nanning Zheng. Multi-timescale collaborative tracking. *IEEE Trans. Pattern Anal. Mach. Intell.*, 39(1):141-155, 2017.
- [14] **Liang Zheng**, Shengjin Wang, Jingdong Wang, and Qi Tian. Accurate image search with multi-scale contextual evidences. *International Journal of Computer Vision*, 120(1):1-13, 2016.
- [15] **Dingwen Zhang**, Junwei Han, Chao Li, Jingdong Wang, and Xuelong Li. Detection of co-salient objects by looking deep and wide. *International Journal of Computer Vision*, 120(2):215-232, 2016.
- [16] Xi Li, Xueyi Zhao, Zhongfei Zhang, Fei Wu, Yueting Zhuang, Jingdong Wang, and Xuelong Li. Joint multilabel classification with community-aware label graph learning. *IEEE Trans. Image Processing*, 25(1):484-493, 2016.
- [17] Weiyao Lin, **Yang Mi**, Weiyue Wang, Jianxin Wu, Jingdong Wang, and Tao Mei. A diffusion and clustering-based approach for finding coherent motions and understanding crowd scenes. *IEEE Trans. Image Processing*, 25(4):1674-1687, 2016.
- [18] Xi Li, Liming Zhao, Lina Wei, Ming-Hsuan Yang, Fei Wu, Yueting Zhuang, Haibin Ling, and Jingdong Wang. Deepsaliency: Multi-task deep neural network model for salient object detection. *IEEE Trans. Image Processing*, 25(8):3919-3930, 2016.
- [19] **Jingkuan Song**, Heng Tao Shen, Jianfeng Wang, Zi Huang, Nicu Sebe, and Jingdong Wang. A distance-computation-free search scheme for binary code databases. *IEEE Trans. Multimedia*, 18(3):484-495, 2016.

- [20] Jinhui Tang, **Xiangbo Shu**, Zechao Li, Guo-Jun Qi, and Jingdong Wang. Generalized deep transfer networks for knowledge propagation in heterogeneous domains. *TOMCCAP*, 12(4s):68:1–68:22, 2016.
- [21] **Jianfeng Wang**, Jingdong Wang, Jingkuan Song, Xin-Shun Xu, Heng Tao Shen, and Shipeng Li. Optimized cartesian k-means. *IEEE Trans. Knowl. Data Eng.*, 27(1):180–192, 2015.
- [22] **Lingxi Xie**, Jingdong Wang, Bo Zhang, and Qi Tian. Fine-grained image search. *IEEE Trans. Multimedia*, 17(5):636–647, 2015.
- [23] Jingdong Wang, **Naiyan Wang**, **You Jia**, Jian Li, Gang Zeng, Hongbin Zha, and Xian-Sheng Hua. Trinary-projection trees for approximate nearest neighbor search. *IEEE Trans. Pattern Anal. Mach. Intell.*, 36(2):388–403, 2014.
- [24] Jingdong Wang, **Huaizu Jiang**, **Yangqing Jia**, Xian-Sheng Hua, Changshui Zhang, and Long Quan. Regularized tree partitioning and its application to unsupervised image segmentation. *IEEE Trans. Image Processing*, 23(4):1909–1922, 2014.
- [25] Qinghua Huang, **Bisheng Chen**, Jingdong Wang, and Tao Mei. Personalized video recommendation through graph propagation. *TOMCCAP*, 10(4):32:1–32:17, 2014.
- [26] **Peng Wang**, Gang Zeng, Rui Gan, Jingdong Wang, and Hongbin Zha. Structure-sensitive superpixels via geodesic distance. *International Journal of Computer Vision*, 103(1):1–21, 2013.
- [27] Houqiang Li, **Yang Wang**, Tao Mei, Jingdong Wang, and Shipeng Li. Interactive multimodal visual search on mobile device. *IEEE Trans. Multimedia*, 15(3):594–607, 2013.
- [28] **Tianjia Shao**, Weiwei Xu, Kun Zhou, Jingdong Wang, Dongping Li, and Baining Guo. An interactive approach to semantic modeling of indoor scenes with an RGBD camera. *ACM Trans. Graph.*, 31(6):136:1–136:11, 2012.
- [29] Tie Liu, Zejian Yuan, Jian Sun, Jingdong Wang, Nanning Zheng, Xiaoou Tang, and Heung-Yeung Shum. Learning to detect a salient object. *IEEE Trans. Pattern Anal. Mach. Intell.*, 33(2):353–367, 2011.
- [30] **Xinmei Tian**, Linjun Yang, Jingdong Wang, Xiuqing Wu, and Xian-Sheng Hua. Bayesian visual reranking. *IEEE Trans. Multimedia*, 13(4):639–652, 2011.
- [31] Jingdong Wang, Fei Wang, Changshui Zhang, Helen C. Shen, and Long Quan. Linear neighborhood propagation and its applications. *IEEE Trans. Pattern Anal. Mach. Intell.*, 31(9):1600–1615, 2009.
- [32] Tie Liu, Jingdong Wang, Jian Sun, Nanning Zheng, Xiaoou Tang, and Heung-Yeung Shum. Picture collage. *IEEE Trans. Multimedia*, 11(7):1225–1239, 2009.
- [33] Long Quan, Jingdong Wang, Ping Tan, and Lu Yuan. Image-based modeling by joint segmentation. *International Journal of Computer Vision*, 75(1):135–150, 2007.
- [34] Ping Tan, Gang Zeng, Jingdong Wang, Sing Bing Kang, and Long Quan. Image-based tree modeling. *ACM Trans. Graph.*, 26(3):87, 2007.
- [35] Long Quan, Ping Tan, Gang Zeng, Lu Yuan, Jingdong Wang, and Sing Bing Kang. Image-based plant modeling. *ACM Trans. Graph.*, 25(3):599–604, 2006.

#### Referred journals

- [1] **Guotian Xie**, Kuiyuan Yang, Ting Zhang, Jingdong Wang, and Jianhuang Lai. Balanced Decoupled Spatial Convolution for CNNs. *IEEE Trans. Neural Netw. Learning Syst.*, Accepted, 2019.
- [2] Shengkang Yu, Xi Li, Xueyi Zhao, Zhongfei Mark Zhang, Fei Wu, Jingdong Wang, Yue Ting Zhuang, and Xuelong Li. A bilinear ranking SVM for knowledge based relation prediction and classification. *IEEE Trans. Big Data*, Accepted, 2018.

- [3] Ruoyu Liu, Shikui Wei, Yao Zhao, Zhenfeng Zhu, and Jingdong Wang. Multi-View Cross-Media Hashing with Semantic Consistency. *IEEE MultiMedia*, Accepted, 2018.
- [4] **Baoguang Shi**, Xiang Bai, Wenyu Liu, and Jingdong Wang. Face Alignment with Deep Regression. *IEEE Trans. Neural Netw. Learning Syst.*, 29(1):183-194, 2018.
- [5] **Lingxi Xie**, Jingdong Wang, Bo Zhang, and Qi Tian. Incorporating visual adjectives for image classification. *Neurocomputing*, 182:48–55, 2016.
- [6] **Min Tan**, Baoyuan Wang, Zhaohui Wu, Jingdong Wang, and Gang Pan. Weakly supervised metric learning for traffic sign recognition in a lidar-equipped vehicle. *IEEE Trans. Intelligent Transportation Systems*, 17(5):1415–1427, 2016.
- [7] Congyan Lang, Jiashi Feng, Songhe Feng, Jingdong Wang, and Shuicheng Yan. Dual low-rank pursuit: Learning salient features for saliency detection. *IEEE Trans. Neural Netw. Learning Syst.*, 27(6):1190–1200, 2016.
- [8] **Shiyang Lu**, Tao Mei, Jingdong Wang, Jian Zhang, Zhiyong Wang, and Shipeng Li. Exploratory product image search with circle-to-search interaction. *IEEE Trans. Circuits Syst. Video Techn.*, 25(7):1190–1202, 2015.
- [9] Weiwei Xu, Zhouxu Shi, Mingliang Xu, Kun Zhou, Jingdong Wang, Bin Zhou, Jinrong Wang, and Zhenming Yuan. Transductive 3d shape segmentation using sparse reconstruction. *Comput. Graph. Forum*, 33(5):107–115, 2014.
- [10] Jingdong Wang, **Jiazhen Zhou**, **Hao Xu**, Tao Mei, Xian-Sheng Hua, and Shipeng Li. Image tag refinement by regularized latent dirichlet allocation. *Computer Vision and Image Understanding*, 124:61–70, 2014.
- [11] **Shiyang Lu**, Tao Mei, Jingdong Wang, Jian Zhang, Zhiyong Wang, and Shipeng Li. Browse-to-search: Interactive exploratory search with visual entities. *ACM Trans. Inf. Syst.*, 32(4):18:1–18:27, 2014.
- [12] Jingdong Wang, **Zhe Zhao**, **Jiazhen Zhou**, Hao Wang, Bin Cui, and Guojun Qi. Recommending flickr groups with social topic model. *Inf. Retr.*, 15(3-4):278–295, 2012.
- [13] **Tianjia Shao**, Weiwei Xu, KangKang Yin, Jingdong Wang, Kun Zhou, and Baining Guo. Discriminative sketch-based 3d model retrieval via robust shape matching. *Comput. Graph. Forum*, 30(7):2011–2020, 2011.
- [14] Jingdong Wang, **Liyan Jia**, and Xian-Sheng Hua. Interactive browsing via diversified visual summarization for image search results. *Multimedia Syst.*, 17(5):379–391, 2011.
- [15] Jingdong Wang, **Yinghai Zhao**, Xiuqing Wu, and Xian-Sheng Hua. A transductive multi-label learning approach for video concept detection. *Pattern Recognition*, 44(10-11):2274–2286, 2011.
- [16] Jingdong Wang and Xian-Sheng Hua. Interactive image search by color map. *ACM TIST*, 3(1):12:1–12:23, 2011.
- [17] **Zheng-Jun Zha**, Tao Mei, Jingdong Wang, Zengfu Wang, and Xian-Sheng Hua. Graph-based semi-supervised learning with multiple labels. *J. Visual Communication and Image Representation*, 20(2):97–103, 2009.
- [18] Fei Wang, Jingdong Wang, Changshui Zhang, and James T. Kwok. Face recognition using spectral features. *Pattern Recognition*, 40(10):2786–2797, 2007.
- [19] Jianguo Lee, Jingdong Wang, Changshui Zhang, and Zhaoqi Bian. Visual object recognition using probabilistic kernel subspace similarity. *Pattern Recognition*, 38(7):997–1008, 2005.

Top refereed conferences: CVPR (26), ICCV (16), ECCV (5), ACMMM (13), ICML (3), SIGIR (3), KDD (1), IJCAI (3), AAAI (1), NIPS (1)

- [1] **Jianing Li**, Jingdong Wang, Qi Tian, Wen Gao, and Shiliang Zhang. Global-Local Temporal Representations For Video Person Re-Identification. In *IEEE International Conference on Computer Vision, ICCV 2019, Seoul, Korea, October 27- November 2, 2019*, pages XXXX-XXXX, 2019.
- [2] **Haibo Qiu**, Chunyu Wang, Jingdong Wang, Naiyan Wang, and Wenjun Zeng. Cross View Fusion for 3D Human Pose Estimation. In *IEEE International Conference on Computer Vision, ICCV 2019, Seoul, Korea, October 27- November 2, 2019*, pages XXXX-XXXX, 2019.
- [3] **Ke Sun**, Bin Xiao, Dong Liu, and Jingdong Wang. Deep High-Resolution Representation Learning for Human Pose Estimation. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2019*.
- [4] **Yifan Liu**, Ke Chen, Chris Liu, Zengchang Qin, Zhenbo Luo, Jingdong Wang. Structured Knowledge Distillation for Semantic Segmentation. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2019*.
- [5] Ruochen Fan, Ming-Ming Cheng, Qibin Hou, Tai-Jiang Mu, Jingdong Wang, Shi-Min Hu. S4Net: Single Stage Salient-Instance Segmentation. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2019*.
- [6] **Xuguang Duan**, Wenbing Huang, Chuang Gan, Jingdong Wang, Wenwu Zhu, and Junzhou Huang. Weakly Supervised Dense Event Captioning in Videos. In *Proceedings of Advances in Neural Information Processing Systems, NIPS 2018*.
- [7] Bin Liu, Yue Cao, Mingsheng Long, Jianmin Wang, and Jingdong Wang. Deep Triplet Quantization. In *Proceedings of the 2018 ACM Conference on Multimedia Conference, MM 2018*.
- [8] Hao Xiao, Weiyao Lin, Bin Sheng, Ke Lu, Junchi Yan, Jingdong Wang, Errui Ding, Yihao Zhang, Hongkai Xiong. Group Re-Identification: Leveraging and Integrating Multi-Grain Information. In *Proceedings of the 2018 ACM Conference on Multimedia Conference, MM 2018*.
- [9] **Yumin Suh**, Jingdong Wang, Siyu Tang, Tao Mei, and Kyoung Mu Lee. Part-Aligned Bilinear Representations for Person Re-identification. In *Computer Vision - ECCV 2018 - 15th European Conference*.
- [10] **Liming Zhao**, **Mingjie Li**, **Depu Meng**, Xi Li, Zhuowen Tu, Zhaoxiang Zhang, Yueting Zhuang, and Jingdong Wang. Deep Convolutional Neural Networks with Merge-and-Run Mappings. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence, IJCAI 2018*.
- [11] **Guotian Xie**, Jingdong Wang, Ting Zhang, Jianhuang Lai, Richang Hong, and Guo-Jun Qi. IGCv2: Interleaved Structured Sparse Convolutional Neural Networks. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2018*.
- [12] **Zilong Huang**, Xinggang Wang, Jiasi Wang, Wenyu Liu, and Jingdong Wang. Weakly-Supervised Semantic Segmentation Network with Deep Seeded Region Growing. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2018*.
- [13] Guo-Jun Qi, Liheng Zhang, Hao Hu, Marzieh Edraki, Jingdong Wang, and Xian-Sheng Hua. Global versus Localized Generative Adversarial Nets. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2018*.
- [14] **Guotian Xie**, Ting Zhang, Kuiyuan Yang, Jianhuang Lai, and Jingdong Wang. Coupled Convolutions for CNNs. In *Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence, New Orleans, Louisiana, USA, February 2-7, 2018*, 2018.
- [15] **Ting Zhang**, Guo-Jun Qi, Bin Xiao, and Jingdong Wang. Interleaved Group Convolutions. In *IEEE International Conference on Computer Vision, ICCV 2017, Venice, Italy, October 22-29, 2017*, pages 4383-4392, 2017.

- [16] **Liming Zhao**, Xi Li, Yueting Zhuang, and Jingdong Wang. Deeply-Learned Part-Aligned Representations for Person Re-Identification. In *IEEE International Conference on Computer Vision, ICCV 2017, Venice, Italy, October 22-29, 2017*, pages 3239-3248, 2017.
- [17] **Ke Sun**, Cuiling Lan, Junliang Xing, Jingdong Wang, Wenjun Zeng, Dong Liu. Human Pose Estimation using Global and Local Normalization. In *IEEE International Conference on Computer Vision, ICCV 2017, Venice, Italy, October 22-29, 2017*, pages 5600-5608, 2017.
- [18] **Song Bai**, Zhichao Zhou, Jingdong Wang, Xiang Bai, Longin Jan Latecki, Qi Tian. Ensemble Diffusion for Retrieval. In *IEEE International Conference on Computer Vision, ICCV 2017, Venice, Italy, October 22-29, 2017*, pages 774-783, 2017.
- [19] **Lixin Liao**, Yao Zhao, Shikui Wei, and Jingdong Wang. Finding the Secret of CNN Parameter Layout under Strict Size Constraint. In *Proceedings of the 2017 ACM on Multimedia Conference, MM 2017, Mountain View, CA, USA, October 23-27, 2017*, pages 997-1005, 2017.
- [20] Guo-Jun Qi, Jiliang Tang, Jingdong Wang, and Jiebo Luo. Mixture Factorized Ornstein-Uhlenbeck Processes for Time-Series Forecasting. In *Proceedings of the 23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Halifax, NS, Canada, August 13 - 17, 2017*, pages 987-995, 2017.
- [21] **Gangming Zhao**, Jingdong Wang, and Zhaoxiang Zhang. Random Shifting for CNN: a Solution to Reduce Information Loss in Down-Sampling Layers. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence, IJCAI 2017, Melbourne, Australia, August 19-25, 2017*, pages 3476-3482, 2017.
- [22] **Lingxi Xie, Liang Zheng**, Jingdong Wang, Alan L. Yuille, and Qi Tian. Interactive: Inter-layer activeness propagation. In *2016 IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2016, Las Vegas, NV, USA, June 27-30, 2016*, pages 270-279, 2016.
- [23] **Xiaojuan Wang, Ting Zhang**, Guo-Jun Qi, Jinhui Tang, and Jingdong Wang. Supervised quantization for similarity search. In *2016 IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2016, Las Vegas, NV, USA, June 27-30, 2016*, pages 2018-2026, 2016.
- [24] **Ting Zhang** and Jingdong Wang. Collaborative quantization for cross-modal similarity search. In *2016 IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2016, Las Vegas, NV, USA, June 27-30, 2016*, pages 2036-2045, 2016.
- [25] **Lingxi Xie**, Jingdong Wang, **Zhen Wei**, Meng Wang, and Qi Tian. Disturblabel: Regularizing CNN on the loss layer. In *2016 IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2016, Las Vegas, NV, USA, June 27-30, 2016*, pages 4753-4762, 2016.
- [26] Lingxi Xie, Qi Tian, John Flynn, Jingdong Wang, and Alan L. Yuille. Geometric neural phrase pooling: Modeling the spatial co-occurrence of neurons. In *Computer Vision - ECCV 2016 - 14th European Conference, Amsterdam, The Netherlands, October 11-14, 2016, Proceedings, Part I*, pages 645-661, 2016.
- [27] **Liang Zheng**, Zhi Bie, Yifan Sun, Jingdong Wang, Chi Su, Shengjin Wang, and Qi Tian. MARS: A video benchmark for large-scale person re-identification. In *Computer Vision - ECCV 2016 - 14th European Conference, Amsterdam, The Netherlands, October 11-14, 2016, Proceedings, Part VI*, pages 868-884, 2016.
- [28] **Qi Dai**, Jianguo Li, Jingdong Wang, and Yu-Gang Jiang. Binary optimized hashing. In *Proceedings of the 2016 ACM Conference on Multimedia Conference, MM 2016, Amsterdam, The Netherlands, October 15-19, 2016*, pages 1247-1256, 2016.
- [29] Jian Liang, Zhihang Li, Dong Cao, Ran He, and Jingdong Wang. Self-paced cross-modal subspace matching. In *Proceedings of the 39th International ACM SIGIR conference on Research and Development in Information Retrieval, SIGIR 2016, Pisa, Italy, July 17-21, 2016*, pages 569-578, 2016.



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- [2] **Liang Zheng**, Yali Zhao, Shengjin Wang, Jingdong Wang, and Qi Tian. On the Large-Scale Transferability of the Convolutional Neural Network. In Workshop on Big Data Analytics for Social Computing (BDASC18), Melbourne, Australia, June 3-6, 2018.
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## Tutorial and Seminars

|   |          |                    |
|---|----------|--------------------|
| Quantization for approximate nearest neighbor search              | Keynote  | CEFRL at CVPR 2019 |
| Interleaved group convolutions for efficient deep neural networks | Keynote  | ACM ICIMCS 2018    |
| Person re-identification: datasets and representations            | Keynote  | PCM 2018           |
| Person re-identification: recent advances and challenges          | Tutorial | FG 2018            |
| CNN architecture design: from deeper to wider                     | Keynote  | ACM ICIMCS 2017    |

## Patents

|   |           |         |   |            |
|---|-----------|---------|---|------------|
| Computing visual and textual summaries for tagged image collections | US patent | 9092673 | 1 | 2015/7/28  |
| Intelligent image search results summarization and browsing         | US patent | 8774526 | 1 | 2014/7/8   |
| Bayesian video search reranking                                     | US patent | 8180766 | 2 | 2012/5/15  |
| Approximate K-means via cluster closures                            | US patent | 9710493 | 1 | 2017/7/18  |
| Transductive multi-label learning for video concept detection       | US patent | 8218859 | 1 | 2012/7/10  |
| Contextual dominant color name extraction                           | US patent | 8873845 | 1 | 2014/10/24 |
| Interactive multi-modal image search                                | US patent | 9411830 | 2 | 2016/8/9   |

|   |           |         |   |           |
|---|-----------|---------|---|-----------|
| Optimized KD-tree for scalable search                                   | US patent | 8645380 | 1 | 2014/2/4  |
| Hybrid neighborhood graph search for scalable visual indexing           | US patent | 8370363 | 1 | 2013/2/5  |
| Reranking using confident image samples                                 | US patent | 9384241 | 1 | 2016/7/5  |
| Salient object segmentation   | US patent | 9042648 | 1 | 2015/5/26 |
| Document-related representative information                             | US patent | 8712991 | 1 | 2014/4/29 |
| Interactively ranking image search results using color layout relevance | US patent | 8369656 | 1 | 2013/2/5  |
| Concept-structured image search   | US patent | 8706740 | 2 | 2013/3/5  |
| Image searching by approximate K-NN graph                               | US patent | 8705870 | 1 | 2014/4/22 |

## Product Transfer

|  |   |
|--|---|
| SPTAG (spatial partition tree and graph, improved NGS) | Shipped to Bing platform, 2018                  |
| Fast human detection                                   | Shipped to XiaoIce, 2017                        |
| How-Old Fashion  | Shipped to XiaoIce, 2016                        |
| How-Old 2.0  | Shipped to XiaoIce, 2015                        |
| Celebrity for chat                                     | Shipped to XiaoIce, 2015, 2017                  |
| Similar image search for image chat                    | Shipped to XiaoIce, 2015                        |
| Similar video search for video chat                    | Shipped to XiaoIce, 2015                        |
| Similarity search                                      | Shipped to Ads Selection, 2015                  |
| XiaoIce book recognition                               | Shipped to Weibo in XiaoIce, 2014               |
| Nearest neighbor search                                | Shipped to Microsoft Bing image search in 2014. |
| Image match  | Shipped to Microsoft Bing image search in 2014. |
| Visual attribute enhanced image relevance ranker       | Shipped to Microsoft Bing image search in 2012. |
|  | Cognitive service. 2015                         |
| Dominant color filter                                  | Shipped to Microsoft Bing image search, 2012    |
| Image search by color map                              | Shipped to Microsoft Bing image search, 2010    |

## Interns and students ever working with me

|                |   |
|----------------|---|
| Chaoqun Wang   | USTC (19)   |
| Hung-Jen Chen  | National Chiao Tung University (19)                   |
| Jingyi Xie     | USTC (19)   |
| Zigang Geng    | USTC (19)   |
| Boqi Chen      | Boston University (19)                                |
| Tianheng Cheng | Huazhong University of Science & Technology (18)      |
| Chaorui Deng   | South China University of Technology                  |
| Manli Shu      | USTC (18)   |
| Borui Jiang    | Peking University (18)                                |
| Jingchun Cheng | Tsinghua University (18)                              |
| Weijian Xu     | UCSD (18)   |
| Yifan Liu      | Beihang University (18)                               |
| Yao Qin        | UCSD (18)   |
| Ke Sun         | USTC (17 - 18)  |
| Shichen Liu    | Tsinghua University (17 - 18)                         |
| Depu Meng      | USTC (17 - 18)  |
| Mingji Li      | USTC (17 - 18)  |
| Junran Peng    | IA, CAS (17)  |
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| Guotian Xie    | Sun Yat-Sen University (17)                           |
| Peng Tang      | Huazhong University of Science & Technology (16 - 17) |

|                  |   |                     |
|------------------|---|---------------------|
| Song Bai         | Huazhong University of Science & Technology (16 - 17) |                     |
| Gangming Zhao    | IA, CAS (17)  |                     |
| Kexin Zhang      | Peking University (17)                                |                     |
| Yumin Suh        | Seoul National University, Korea (16 - 17)            |                     |
| Yajie Xing       | Peking University (16 - 17)                           |                     |
| Shuang Li        | Tsinghua University (16)                              |                     |
| Ryosuke Furuta   | The University of Tokyo, Japan (16)                   |                     |
| Yanzhao Wu       | USTC (16)   |                     |
| Jun He           | HeFei University of Technology (16)                   |                     |
| Liheng Zhang     | University of Central Florida (16)                    |                     |
| Liming Zhao      | Zhejiang University (16)                              |                     |
| Zilong Huang     | Huazhong University of Science & Technology (16)      |                     |
| Xun Huang        | Beihang University (16)                               |                     |
| Xiaojuan Wang    | Sun Yat-Sen University (15)                           |                     |
| Zhen Wei         | Shanghai Jiao Tong University (15)                    |                     |
| Wei Tang         | IA, CAS (15)  |                     |
| Qiqi hou         | Xi'an Jiaotong University (15)                        |                     |
| Ning Xu          | UIUC (15)   |                     |
| Liang Zheng      | Tsinghua University (14 - 15)                         |                     |
| Jiaming Song     | Tsinghua University (14)                              |                     |
| Tianxiao Shen    | Tsinghua University (14)                              |                     |
| Jianqiu Ji       | Tsinghua University (14)                              |                     |
| Fan Liu          | Nanjing University of Science & Technology (14)       |                     |
| Baoguang Shi     | Huazhong University of Science & Technology (14)      |                     |
| Dapeng Chen      | Xi'an Jiaotong University (14)                        |                     |
| Falong Shen      | Peking University (13 - 14)                           |                     |
| Lingxi Xie       | Tsinghua University (13)                              |                     |
| Ting Zhang       | USTC (13)   |                     |
| Xianjie Chen     | University of California, Los Angeles (13)            |                     |
| Chongxuan Li     | Tsinghua University (13)                              |                     |
| Chao Du          | Tsinghua University (13 - 14)                         |                     |
| Jingkuan Song    | The University of Queensland, Australia (12 - 13)     |                     |
| Chuang Gan       | Beihang University (12 - 13)                          |                     |
| Zhansheng Jiang  | Shanghai Jiao Tong University (12 - 13)               |                     |
| Yupeng Gu        | USTC (12 - 13)  |                     |
| Shiyu Chang      | UIUC (12)   |                     |
| Jianfeng Wang    | USTC (12 - 13)  |                     |
| Weiwen Tu        | Sun Yat-Sen University (11)                           |                     |
| Tiansheng Yao    | Zhejiang University (11)                              |                     |
| Dongqing Zhang   | Shanghai Jiao Tong University (11)                    |                     |
| Peng Wang        | Peking University (11 - 13)                           |                     |
| Xianghang Liu    | University of New South Wales, Australia (11)         |                     |
| Jiazhen Zhou     | Peking University (11)                                | Columbia University |
| Junyang Lu       | Peking University (11)                                | Columbia University |
| Xiang Ren        | Zhejiang University (11)                              | UIUC                |
| Nobuyuki Morioka | University of New South Wales, Australia (11)         | Google              |
| Naiyan Wang      | Zhejiang University (10 - 11)                         | HKUST               |



|                |  |                                    |
|----------------|--|------------------------------------|
| Huaizu Jiang   | Xi'an Jiaotong University (10 - 11)          |                                    |
| Shijie Xu      | Beihang University (10)                      |                                    |
| Jing Wang      | Peking University (10 - 13)                  |                                    |
| Bin Cheng      | National University of Singapore (10)        |                                    |
| Biao Wang      | Tsinghua University (10)                     |                                    |
| Wenhao Lu      | Tsinghua University (10)                     |                                    |
| Zhe Zhao       | Peking University (09 - 10)                  | University of Michigan             |
| Xiangang Chen  | Nanyang Technological University (09)        |                                    |
| Jue Xie        | Monash University, Melbourne, Australia (09) |                                    |
| Hao Xu         | USTC (08 - 09)                               |                                    |
| You Jia        | Peking University (09)                       | CMU, Facebook                      |
| Liyang Jia     | Tsinghua University (09)                     | Cornell University                 |
| Heng Zhang     | Peking University (08 - 09)                  |                                    |
| Yang Hu        | USTC (08)                                    |                                    |
| Darui Li       | USTC (08)                                    |                                    |
| Yinghai Zhao   | USTC (08)                                    |                                    |
| Xuan Huang     | USTC (07 - 08)                               |                                    |
|                |  |                                    |
| Jianxiong Xiao | HKUST  |                                    |
| Fei Wang       | Tsinghua University (05 - 06)                | IBM T. J. Watson Research Lab      |
| Yangqing Jia   | Tsinghua University (07)                     | University of California, Berkeley |
| Dan Zhang      | Tsinghua University (07, 10)                 | Purdue University                  |
| Mingjie Qian   | Tsinghua University (09)                     | UIUC                               |

Beijing, September 12, 2019