

# Jingdong Wang

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## Education

Ph.D, Computer Science 2004.09-2007.08  
The Hong Kong University of Science and Technology

M.Eng, Automation 2001.09-2004.07  
Tsinghua University  
Excellent master degree thesis award

B.Eng, Automation 1997.09-2001.07  
Tsinghua University  
Rank: 1/150

## Research Interests

### Computer vision and multimedia search

Deep learning and CNN architecture design, person re-identification, large scale indexing, large scale image search, salient object detection, human understanding, image segmentation, image recognition.

### Machine learning and pattern recognition

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

## Work Experience

Ph.D Supervisor 2017.09-present  
University of Science and Technology, China

Senior Researcher 2017.09-present  
Microsoft Research Asia

Lead Researcher 2013.09-2017.08  
Microsoft Research Asia

Researcher 2012.03-2013-08  
Microsoft Research Asia

Associate Researcher 2007.09-2012.02  
Microsoft Research Asia

Research and Teaching Assistants 2004.09-2007.08  
The Hong Kong University of Science and Technology  
Advisor: Long Quan

Research Intern 2005.07-2005.12

Microsoft Research Asia 2003.09-2004.05  
Mentor: Heung-Yeung Shum

Research Assistant 2001.09-2004.07  
Tsinghua University  
Advisor: Changshui Zhang

## Professional Activities

### Area chair/track chair/senior programme committee member

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

### Organizers

ICME 2019, workshop co-chair  
ACM ICMR 2014, special session co-chair

### Associate editors/editorial board members

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 co-chairs

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), CVPR (2009 - 2016, 2018), ICCV (2007/09/11/13/15), ECCV (2010/12/14), ACMMM (2009/12/13/14/17), NIPS (2014 - 2017) 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

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: 10000+, h-index: 45)

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 (8), IJCV (7), TOG (3), TIP (5), TMM (5), TOMM (2), TKDE (1)

- [1] Jingdong Wang and **Ting Zhang**. Composite quantization. *IEEE Trans. Pattern Anal. Mach. Intell.*, Accepted, 2018.
- [2] **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.
- [3] Jingdong Wang, **Ting Zhang**, **Jingquan Song**, Nicu Sebe, and Heng Tao Shen. A survey on learning to hash. *IEEE Trans. Pattern Anal. Mach. Intell.*, 40(4):769-790, 2018.
- [4] **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.
- [5] 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.
- [6] **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.
- [7] 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.

- [8] **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.
- [9] **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.
- [10] **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.
- [11] **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.
- [12] 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.
- [13] 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.
- [14] 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.
- [15] **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.
- [16] 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.
- [17] **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.
- [18] **Lingxi Xie**, Jingdong Wang, Bo Zhang, and Qi Tian. Fine-grained image search. *IEEE Trans. Multimedia*, 17(5):636-647, 2015.
- [19] Jingdong Wang, **Naiyan Wang**, **You Jia**, Jian Li, Gang Zeng, Hongbin Zha, and Xian-Sheng Hua. Ternary-projection trees for approximate nearest neighbor search. *IEEE Trans. Pattern Anal. Mach. Intell.*, 36(2):388-403, 2014.
- [20] 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.
- [21] Qinghua Huang, **Bisheng Chen**, Jingdong Wang, and Tao Mei. Personalized video recommendation through graph propagation. *TOMCCAP*, 10(4):32:1-32:17, 2014.
- [22] **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.
- [23] 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.
- [24] **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.

- [25] 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.
- [26] **Xinmei Tian**, Linjun Yang, Jingdong Wang, Xiuqing Wu, and Xian-Sheng Hua. Bayesian visual reranking. *IEEE Trans. Multimedia*, 13(4):639–652, 2011.
- [27] 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.
- [28] Tie Liu, Jingdong Wang, Jian Sun, Nanning Zheng, Xiaoou Tang, and Heung-Yeung Shum. Picture collage. *IEEE Trans. Multimedia*, 11(7):1225–1239, 2009.
- [29] 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.
- [30] Ping Tan, Gang Zeng, Jingdong Wang, Sing Bing Kang, and Long Quan. Image-based tree modeling. *ACM Trans. Graph.*, 26(3):87, 2007.
- [31] 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] Shengkang Yu, Xi Li, Xueyi Zhao, Zhongfei Mark Zhang, Fei Wu, Jingdong Wang, Yue Ting Zhuang, Xuelong Li. A bilinear ranking SVM for knowledge based relation prediction and classification. *IEEE Trans. Big Data*, Accepted, 2018.
- [2] Ruoyu Liu, Shikui Wei, Yao Zhao, Zhenfeng Zhu, and Jingdong Wang. Multi-View Cross-Media Hashing with Semantic Consistency. *IEEE MultiMedia*, Accepted, 2018.
- [3] **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.
- [4] **Lingxi Xie**, Jingdong Wang, Bo Zhang, and Qi Tian. Incorporating visual adjectives for image classification. *Neurocomputing*, 182:48–55, 2016.
- [5] **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.
- [6] 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.
- [7] **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.
- [8] 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.
- [9] 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.
- [10] **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.
- [11] 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.

- [12] **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.
- [13] 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.
- [14] 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.
- [15] Jingdong Wang and Xian-Sheng Hua. Interactive image search by color map. *ACM TIST*, 3(1):12:1–12:23, 2011.
- [16] **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.
- [17] Fei Wang, Jingdong Wang, Changshui Zhang, and James T. Kwok. Face recognition using spectral features. *Pattern Recognition*, 40(10):2786–2797, 2007.
- [18] 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 (23), ICCV (14), ECCV (5), ACMMM (13), ICML (3), SIGIR (3), KDD (1), IJCAI (3), AAAI (1)

- [1] 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*.
- [2] 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*.
- [3] **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*.
- [4] **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*.
- [5] **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*.
- [6] **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*.
- [7] 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*.
- [8] **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*.
- [9] **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.

- [10] **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.
- [11] **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.
- [12] **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.
- [13] **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.
- [14] 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.
- [15] **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.
- [16] **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.
- [17] **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.
- [18] **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.
- [19] **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.
- [20] 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.
- [21] **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.
- [22] **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.
- [23] 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.

- [24] **Dapeng Chen**, Zejian Yuan, Gang Hua, Nanning Zheng, and Jingdong Wang. Similarity learning on an explicit polynomial kernel feature map for person re-identification. In *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2015, Boston, MA, USA, June 7-12, 2015*, pages 1565–1573, 2015.
- [25] **Dingwen Zhang**, Junwei Han, Chao Li, and Jingdong Wang. Co-saliency detection via looking deep and wide. In *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2015, Boston, MA, USA, June 7-12, 2015*, pages 2994–3002, 2015.
- [26] **Ting Zhang**, Guo-Jun Qi, Jinhui Tang, and Jingdong Wang. Sparse composite quantization. In *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2015, Boston, MA, USA, June 7-12, 2015*, pages 4548–4556, 2015.
- [27] **Lingxi Xie**, Jingdong Wang, Weiyao Lin, Bo Zhang, and Qi Tian. RIDE: reversal invariant descriptor enhancement. In *2015 IEEE International Conference on Computer Vision, ICCV 2015, Santiago, Chile, December 7-13, 2015*, pages 100–108, 2015.
- [28] **Liang Zheng**, Liyue Shen, Lu Tian, Shengjin Wang, Jingdong Wang, and Qi Tian. Scalable person re-identification: A benchmark. In *2015 IEEE International Conference on Computer Vision, ICCV 2015, Santiago, Chile, December 7-13, 2015*, pages 1116–1124, 2015.
- [29] **Yang Shen**, Weiyao Lin, Junchi Yan, Mingliang Xu, Jianxin Wu, and Jingdong Wang. Person re-identification with correspondence structure learning. In *2015 IEEE International Conference on Computer Vision, ICCV 2015, Santiago, Chile, December 7-13, 2015*, pages 3200–3208, 2015.
- [30] **Botong Wu**, Qiang Yang, Wei-Shi Zheng, Yizhou Wang, and Jingdong Wang. Quantized correlation hashing for fast cross-modal search. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence, IJCAI 2015, Buenos Aires, Argentina, July 25-31, 2015*, pages 3946–3952, 2015.
- [31] **Xiangbo Shu**, Guo-Jun Qi, Jinhui Tang, and Jingdong Wang. Weakly-shared deep transfer networks for heterogeneous-domain knowledge propagation. In *Proceedings of the 23rd Annual ACM Conference on Multimedia Conference, MM '15, Brisbane, Australia, October 26 - 30, 2015*, pages 35–44, 2015.
- [32] **Lingxi Xie**, Jingdong Wang, Baining Guo, Bo Zhang, and Qi Tian. Orientational pyramid matching for recognizing indoor scenes. In *2014 IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2014, Columbus, OH, USA, June 23-28, 2014*, pages 3734–3741, 2014.
- [33] **Weiyue Wang**, Weiyao Lin, Yuanzhe Chen, Jianxin Wu, Jingdong Wang, and Bin Sheng. Finding coherent motions and semantic regions in crowd scenes: A diffusion and clustering approach. In *Computer Vision - ECCV 2014 - 13th European Conference, Zurich, Switzerland, September 6-12, 2014, Proceedings, Part I*, pages 756–771, 2014.
- [34] **Ting Zhang**, **Chao Du**, and Jingdong Wang. Composite quantization for approximate nearest neighbor search. In *Proceedings of the 31th International Conference on Machine Learning, ICML 2014, Beijing, China, 21-26 June 2014*, pages 838–846, 2014.
- [35] **Jianfeng Wang**, Heng Tao Shen, Shuicheng Yan, Nenghai Yu, Shipeng Li, and Jingdong Wang. Optimized distances for binary code ranking. In *Proceedings of the ACM International Conference on Multimedia, MM '14, Orlando, FL, USA, November 03 - 07, 2014*, pages 517–526, 2014.
- [36] **Huaizu Jiang**, Jingdong Wang, Zejian Yuan, Yang Wu, Nanning Zheng, and Shipeng Li. Salient object detection: A discriminative regional feature integration approach. In *2013 IEEE Conference on Computer Vision and Pattern Recognition, Portland, OR, USA, June 23-28, 2013*, pages 2083–2090, 2013.
- [37] **Peng Wang**, Jingdong Wang, Gang Zeng, Weiwei Xu, Hongbin Zha, and Shipeng Li. Supervised kernel descriptors for visual recognition. In *2013 IEEE Conference on Computer Vision and Pattern Recognition, Portland, OR, USA, June 23-28, 2013*, pages 2858–2865, 2013.



- [38] **Naiyan Wang**, Jingdong Wang, and Dit-Yan Yeung. Online robust non-negative dictionary learning for visual tracking. In *IEEE International Conference on Computer Vision, ICCV 2013, Sydney, Australia, December 1-8, 2013*, pages 657–664, 2013.
- [39] **Jing Wang**, Jingdong Wang, Gang Zeng, Rui Gan, Shipeng Li, and Baining Guo. Fast neighborhood graph search using cartesian concatenation. In *IEEE International Conference on Computer Vision, ICCV 2013, Sydney, Australia, December 1-8, 2013*, pages 2128–2135, 2013.
- [40] **Honghui Zhang**, Jingdong Wang, Ping Tan, Jinglu Wang, and Long Quan. Learning crfs for image parsing with adaptive subgradient descent. In *IEEE International Conference on Computer Vision, ICCV 2013, Sydney, Australia, December 1-8, 2013*, pages 3080–3087, 2013.
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## Tutorial and Seminars

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	2012/7/10
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	2014/4/22
Image searching by approximate K-NN graph	US patent	8705870	1	2014/4/22

## Product Transfer

Neighborhood graph search	Shipped to Bing index, 2017
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

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Beijing, July 21, 2018