

## Jingdong Wang

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### Education

Ph.D, Computer Science 2004.09-2007.08  
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

### Research Interests

#### Computer vision and multimedia search

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

#### Machine learning and pattern recognition

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

### Work Experience

Lead Researcher 2013.09-present  
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  
Hong Kong University of Science and Technology

Research Intern 2005.07-2005.12  
2003.09-2004.05  
Microsoft Research Asia

Research Assistant 2001.09-2004.07  
Tsinghua University

### Publication

Book

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

Book chapters

- [132] **Fast Neighborhood Graph Search using Cartesian Concatenation.** Jingdong Wang, Jing Wang, Gang Zeng, Rui Gan, Shipeng Li, and Baining Guo. *Multimedia Data Mining and Analytics: Disruptive Innovation*. Edited by Aaron K. Baughman, Jiang Gao, Jia-Yu Pan, and Valery Petrushin. Springer, 2014.
- [131] **Fast Approximate K-Means via Cluster Closures.** Jingdong Wang, Jing Wang, Qifa Ke, Gang Zeng, and Shipeng Li. *Multimedia Data Mining and Analytics: Disruptive Innovation*. Edited by Aaron K. Baughman, Jiang Gao, Jia-Yu Pan, and Valery Petrushin. Springer, 2014.
- [130] **Image Search by Color Map.** Jingdong Wang, Yinghai Zhao, and Xian-Sheng Hua. *Internet Multimedia Search and Mining*. Edited by Xian-Sheng Hua, Marcel Worring, and Tat-Seng Chua. Bentham Science Publishers, 2010.

Journal papers

- [129] **Salient Object Detection: A Discriminative Regional Feature Integration Approach.** Jingdong Wang, Huaizu Jiang, Zejian Yuan, Ming-Ming Cheng, Xiaowei Hu, and Nanning Zheng. *International Journal of Computer Vision (IJCV)* 2016.
- [128] **Towards Reversal-Invariant Image Representation.** Lingxi Xie, Jingdong Wang, Weiyao Lin, Bo Zhang, and Qi Tian. *International Journal of Computer Vision (IJCV)* 2016.
- [127] **DeepSaliency: Multi-Task Deep Neural Network Model for Salient Object Detection.** Xi Li, Liming Zhao, Lina Wei, Ming-Hsuan Yang, Fei Wu, Yueting Zhuang, Haibin Ling, and Jingdong Wang. *IEEE Transactions on Image Processing (TIP)* 2016.
- [126] **Generalized Deep Transfer Networks for Knowledge Propagation in Heterogeneous Domains.** Jinhui Tang, Xiangbo Shu, Zechao Li, Guo-Jun QI, and Jingdong Wang. *ACM Transactions on Multimedia Computing Communications and Applications (TOMM)* 2016.
- [125] **Face Alignment with Deep Regression.** Baoguang Shi, Xiang Bai, Wenyu Liu, and Jingdong Wang. *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)* 2016.
- [124] **Detection of Co-salient Objects by Looking Deep and Wide.** Dingwen Zhang, Junwei Han, Chao Li, Jingdong Wang, and Xuelong Li. *International Journal of Computer Vision (IJCV)* 2016.
- [123] **Accurate Image Search with Multi-Scale Contextual Evidencese.** Liang Zheng, Shengjin Wang, Jingdong Wang, and Qi Tian. *International Journal of Computer Vision (IJCV)* 2016.
- [122] **Multi-timescale Collaborative Tracking.** Dapeng Chen, Zejian Yuan, Gang Hua, Jingdong Wang, and Nanning Zheng. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* 2016.
- [121] **Dual Low-Rank Pursuit: Learning Salient Features for Saliency Detection .** Congyan Lang, Jiashi Feng, Songhe Feng, Jingdong Wang, and Shuicheng Yan. *IEEE IEEE Transactions on Neural Networks and Learning Systems (TNNLS)* (2016).
- [120] **A Distance-Computation-Free Search Scheme for Binary Code Databases.** Jingkuan Song, Heng Tao Shen, Jianfeng Wang, Zi Huang, Nicu Sebe, and Jingdong Wang. *IEEE IEEE Transactions on Multimedia (TMM)* (2016).
- [119] **A diffusion and clustering-based approach for finding coherent motions and understanding crowd scenes.** Weiyao Lin, Yang Mi, Weiyue Wang, Jianxin Wu, Jingdong

- Wang, and Tao Mei. *IEEE Transactions on Image Processing (TIP) 2016*.
- [118] **Joint Multilabel Classification With Community-Aware Label Graph Learning.** Xi Li, Xueyi Zhao, Zhongfei Zhang, Fei Wu, Yueting Zhuang, Jingdong Wang, and Xuelong Li. *IEEE Transactions on Image Processing (TIP) 2016*.
  - [117] **Incorporating visual adjectives for image classification.** Lingxi Xie, Jingdong Wang, Bo Zhang, and Qi Tian. *Neurocomputing (2016)*.
  - [116] **Weakly Supervised Metric Learning for Traffic Sign Recognition in a LIDAR Equipped Vehicle.** Min Tan, Baoyuan Wang, Zhaohui Wu, Jingdong Wang, and Gang Pan. *IEEE Transaction on Intelligent Transportation Sys (TITS) 2015*.
  - [115] **Fine-Grained Image Search.** Lingxi Xie, Jingdong Wang, Bo Zhang, and Qi Tian. *IEEE Transactions on Multimedia (TMM) (2015)*.
  - [114] **Exploratory Product Image Search with Circle-to-Search Interaction.** Shiyang Lu, Tao Mei, Jingdong Wang, Jian Zhang, Zhiyong Wang, and Shipeng Li. *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) (2014)*.
  - [113] **Transductive 3D Shape Segmentation using Sparse Reconstruction.** Weiwei Xu, Zhouxu Shi, Mingliang Xu, Kun Zhou, Jingdong Wang, Bin Zhou, Jinrong Wang, and Zhengming Yuan. *Comput. Graph. Forum. (Symposium on Geometry Processing (SGP14))*.
  - [112] **Optimized Cartesian K-Means.** Jianfeng Wang, Jingdong Wang, Jingkuan Song, Xin-Shun Xu, Heng Tao Shen, and Shipeng Li. *IEEE Transactions on Knowledge and Data Engineering (2014)*.
  - [111] **Browse-to-Search: Interactive Exploratory Search with Visual Entities.** Shiyang Lu, Tao Mei, Jingdong Wang, Jian Zhang, Zhiyong Wang, and Shipeng Li. *ACM Transactions on Information System (2014)*.
  - [110] **Personalized Video Recommendation through Graph Propagation.** Qinghua Huang, Bisheng Chen, Jingdong Wang, and Tao Mei. *ACM Transactions on Multimedia Computing, Communications and Applications (2014)*.
  - [109] **Image Tag Refinement by Regularized Latent Dirichlet Allocation.** Jingdong Wang, Jiazhen Zhou, Hao Xu, Tao Mei, Xian-Sheng Hua, and Shipeng Li. *Computer Vision and Image Understanding (2014)*.
  - [108] **Regularized Tree Partitioning and Its Application to Unsupervised Image Segmentation.** Jingdong Wang, Huaizu Jiang, Yangqing Jia, Xian-Sheng Hua, Changshui Zhang and Long Quan. *IEEE Transactions on Image Processing (TIP) 2014*.
  - [107] **Trinary-Projection Trees for Approximate Nearest Neighbor Search.** Jingdong Wang, Naiyan Wang, You Jia, Jian Li, Gang Zeng, Hongbin Zha and Xian-Sheng Hua. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2013*.
  - [106] **Structure-sensitive Superpixels via Geodesic Distance.** PengWang, Gang Zeng, Rui Gan, JingdongWang, and Hongbin Zha. *International Journal of Computer Vision (IJCV) 2013*.
  - [105] **An Interactive Approach to Semantic Modeling of Indoor Scenes with an RGBD Camera.** Tianjia Shao, Weiwei Xu, Kun Zhou, Jingdong Wang, Dongping Li, and Baining Guo. *ACM Transactions on Graphics (TOG), Siggraph Asia 2012*.
  - [104] **Interactive Multimodal Visual Search on Mobile Device.** Houqiang Li, Yang Wang, Tao Mei, Jingdong Wang, and Shipeng Li. *IEEE Transactions on Multimedia. (2012)*.
  - [103] **Recommending Flickr groups with social topic model.** Jingdong Wang, Zhe Zhao, Jiazhen Zhou, HaoWang, Bin Cui, and Guojun Qi. *The Journal of Information Retrieval, 2012*.

- [102] **Bayesian Visual Reranking.** Xinmei Tian, Linjun Yang, Jingdong Wang, Xiuqing Wu, and Xian-Sheng Hua. *IEEE Transactions on Multimedia*. 13(4): 639-652 (2011).
- [101] **Interactive Image Search by Color Map** Jingdong Wang and Xian-Sheng Hua. *Accepted by ACM Transactions on Intelligent Systems and Technology (TIST)*. 3(1): 12 (2011).
- [100] **Interactive Browsing via Diversified Visual Summarization for Image Search Results.** Jingdong Wang, Liyan Jia, and Xian-Sheng Hua. *Multimedia Systems Journal (MMSJ)*. 17(5): 379-391 (2011).
- [99] **Discriminative Sketch-based 3D Model Retrieval via Robust Shape Matching.** Tianjia Shao, Weiwei Xu, KangKang Yin, Jingdong Wang, Kun Zhou, and Baining Guo. *Comput. Graph. Forum* 30(7): 2011-2020 (2011). *The 19th Pacific Conference on Computer Graphics and Applications (PG11)*.
- [98] **A Transductive Multi-Label Learning Approach for Video Concept Detection.** Jingdong Wang, Yinghai Zhao, Xiuqing Wu, and Xian-Sheng Hua. *Pattern Recognition* 44(10-11): 2274-2286 (2011).
- [97] **Learning to Detect A Salient Object.** Tie Liu, Zejian Yuan, Jian Sun, Jingdong Wang, Nan-Ning Zheng, Xiaoou Tang, and Heung-Yeung Shum. *IEEE Trans. Pattern Anal. Mach. Intell.* 33(2): 353-367 (2011).
- [96] **Picture Collage.** Tie Liu, Jingdong Wang, Jian Sun, Nan-Ning Zheng, Xiaoou Tang, and Heung-Yeung Shum. *IEEE Transactions on Multimedia*, 11(7): 1225 - 1239 (2009).
- [95] **Linear Neighborhood Propagation and Its Application.** Jingdong Wang, Fei Wang, Changshui Zhang, Helen C. Shen, and Long Quan. *IEEE Trans. Pattern Anal. Mach. Intell.* 31(9): 1600-1615 (2009).
- [94] **Graph-based Semi-Supervised Learning with Multiple Labels.** Zheng-Jun Zha, Tao Mei, Jingdong Wang, Zengfu Wang, and Xian-Sheng Hua. *Journal of Visual Communication and Image Representation*. Volume 20, Issue 2, February 2009, Pages 97-103.
- [93] **Image-based Modeling by Joint Segmentation.** Long Quan, Jingdong Wang, Ping Tan, and Lu Yuan. *International Journal of Computer Vision (IJCV)*. 75(1):135-150, October 2007.
- [92] **Image-based Tree Modeling.** Ping Tan, Gang Zeng, Jingdong Wang, Sing Bing Kang, and Long Quan. *ACM Transactions on Graphics (TOG), Siggraph07*. 26(3):87, 2007.
- [91] **Face Recognition Using Spectral Features.** Fei Wang, Jingdong Wang, Changshui Zhang, and James Kwok. *Pattern Recognition (PR)*. 40(10):2786-2797, 2007.
- [90] **Image-based Plant Modeling.** Long Quan, Ping Tan, Gang Zeng, Lu Yuan, Jingdong Wang, and Sing Bing Kang. *ACM Transactions on Graphics (TOG), Siggraph06*. 25(3):599-604, 2006.
- [89] **Visual Object Recognition Using Probabilistic Kernel Subspace Similarity.** Jianguo Lee, Jingdong Wang, Changshui Zhang, and Zhaoqi Bian. *Pattern Recognition (PR)*. 38(7):997-1008, 2005.

Conference papers

- [88] **Geometric Neural Phrase Pooling: Modeling the Spatial Co-occurrence of Neurons.** Lingxi Xie, Qi Tian, John Flynn, Jingdong Wang, and Alan Yuille. *European Conference on Computer Vision (ECCV16)*.
- [87] **MARS: A Video Benchmark for Large-Scale Person Re-identification.** Liang Zheng, Zhi Bie, Yifan Sun, Jingdong Wang, Chi Su, Shengjin Wang, and Qi Tian. *European Conference on Computer Vision (ECCV16)*.
- [86] **Binary Optimized Hashing.** Qi Dai, Jianguo Li, Jingdong Wang, and Yu-Gang Jiang. *ACM International Conference on Multimedia (ACMMM16)*.

- [85] **Self-Paced Cross-Modal Subspace Matching.** Jian Liang, Zhihang Li, Dong Cao, Ran He, and Jingdong Wang. *The 39th Annual ACM SIGIR Conference (SIGIR16)*.
- [84] **InterActive: Inter-Layer Activeness Propagation.** Lingxi Xie, Liang Zheng, Jingdong Wang, Alan Yuille, and Qi Tian. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR16)*.
- [83] **DisturbLabel: Regularizing CNN on the Loss Layer.** Lingxi Xie, Jingdong Wang, Zhen Wei, Meng Wang, and Qi Tian. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR16)*.
- [82] **Collaborative Quantization for Cross-Modal Similarity Search.** Ting Zhang, and Jingdong Wang. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR16)*.
- [81] **Supervised Quantization for Similarity Search.** Xiaojuan Wang, Ting Zhang, Guo-Jun Qi, Jinhui Tang, and Jingdong Wang. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR16)*.
- [80] **Fast Nearest Neighbor Search in the Hamming Space.** Zhansheng Jiang, Lingxi Xie, Xiaotie Deng, Weiwei Xu, and Jingdong Wang. *MultiMedia Modeling (MMM16)*.
- [79] **RIDE: Reversal Invariant Descriptor Enhancement.** Lingxi Xie, Jingdong Wang, Weiyao Lin, Bo Zhang, and Qi Tian. *The Fourteenth IEEE International Conference on Computer Vision (ICCV15)*.
- [78] **Scalable Person Re-identification: A Benchmark.** Liang Zheng, Liyue Sheng, Lu Tian, Shengjin Wang, Jingdong Wang, and Qi Tian. *The Fourteenth IEEE International Conference on Computer Vision (ICCV15)*.
- [77] **Person Re-identification with Correspondence Structure Learning.** Yang Shen, Weiyao Lin, Junchi Yan, Mingliang Xu, Jianxin Wu, and Jingdong Wang. *The Fourteenth IEEE International Conference on Computer Vision (ICCV15)*.
- [76] **Weekly-Shared Deep Transfer Networks for Heterogeneous-Domain Knowledge Propagation.** Xiangbo Shu, Guo-Jun Qi, Jinhui Tang, and Jingdong Wang. *ACM International Conference on Multimedia (ACMMM15)*.
- [75] **Quantized Correlation Hashing for Fast Cross-Modal Search.** Botong Wu, Qiang Yang, Wei-Shi Zheng, Yizhou Wang, and Jingdong Wang. *International Joint Conference on Artificial Intelligence (IJCAI15)*.
- [74] **Similarity Learning on an Explicit Polynomial Kernel Feature Map for Person Re-Identification.** Dapeng Chen, Zejian Yuan, Gang Hua, Nanning Zheng, and Jingdong Wang. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR15)*.
- [73] **Sparse Composite Quantization.** Ting Zhang, Guo-Jun Qi, Jinhui Tang, and Jingdong Wang. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR15)*.
- [72] **Co-saliency Detection via Looking Deep and Wide.** Dingwen Zhang, Junwei Han, Chao Li, and Jingdong Wang. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR15)*.
- [71] **Optimized Distances for Binary Code Ranking.** Jianfeng Wang, Heng Tao Shen, Shuichen Yan, Nenghai Yu, Shipeng Li, and Jingdong Wang. *ACM International Conference on Multimedia (ACMMM14) (Long)*.
- [70] **Finding Coherent Motions and Semantic Regions in Crowd Scenes: ADiffusion and Clustering Approach.** Weiyue Wang, Weiyao Lin, Yuanze Chen, Jianxin Wu, Jingdong Wang, and Bin Sheng. *European Conference on Computer Vision (ECCV14)*.

- [69] **Low-rank SIFT: An Affine Invariant Feature For Place Recognition.** Harry Yang, Shengnan Cai, Jingdong Wang, and Long Quan. *International Conference of Image Processing (ICIP14)*.
- [68] **Composite Quantization for Approximate Nearest Neighbor Search.** Ting Zhang, Chao Du and Jingdong Wang. *International Conference of Machine Learning (ICML14)*.
- [67] **Oriental Pyramid Matching for Recognizing Indoor Scenes.** Lingxi Xie, Jingdong Wang, Baining Guo, Bo Zhang and Qi Tian. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR14)*.
- [66] **Fast Neighborhood Graph Search Using Cartesian Concatenation.** Jing Wang, Jingdong Wang, Gang Zeng, Rui Gan, Shipeng Li and Baining Guo. *The Fourteenth IEEE International Conference on Computer Vision (ICCV13)*.
- [65] **Learning CRFs for Image Parsing with Adaptive Subgradient Descent.** Honghui Zhang, Jingdong Wang, Ping Tan, Jinglu Wang and Long Quan. *The Fourteenth IEEE International Conference on Computer Vision (ICCV13)*.
- [64] **Online Robust Non-negative Dictionary Learning for Visual Tracking.** Naiyan Wang, Jingdong Wang and Dit-Yan Yeung. *The Fourteenth IEEE International Conference on Computer Vision (ICCV13)*.
- [63] **Order Preserving Hashing for Approximate Nearest Neighbor Search.** Jianfeng Wang, Jingdong Wang, Nenghai Yu and Shipeng Li. *ACM International Conference on Multimedia (ACMMM13) (Long)*.
- [62] **Clickage: Towards Bridging Semantic and Intent Gaps via Mining Click Logs of Search Engines.** Xian-Sheng Hua, Linjun Yang, Jingdong Wang, Jing Wang, Ming Ye, Kuansan Wang, Yong Rui, and Jin Li. *ACM International Conference on Multimedia (ACMMM13) (BNI)*.
- [61] **Salient Object Detection: A Discriminative Regional Feature Integration Approach.** Huaizu Jiang, Jingdong Wang, Zejian Yuan, Yang Wu, Nanning Zheng and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR13)*.
- [60] **Supervised Kernel Descriptors for Visual Recognition.** Peng Wang, Jingdong Wang, Gang Zeng, Weiwei Xu, Hongbin Zha, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR13)*.
- [59] **Two Dimensional Analysis Sparse Model.** Na Qi, Yunhui Shi, Xiaoyan Sun, Jingdong Wang, and Wenpeng Ding. *IEEE International Conference on Image Processing (ICIP13)*.
- [58] **Two Dimensional Synthesis Sparse Model.** Na Qi, Yunhui Shi, Xiaoyan Sun, Jingdong Wang, and Baocai Yin. *IEEE International Conference on Multimedia & Expo (ICME13)*.
- [57] **Fixed-Point Model For Structured Labeling.** Quannan Li, Jingdong Wang, David Wipf, and Zhuowen Tu. *The Conference of Machine Learning (ICML13)*.
- [56] **A Probabilistic Approach to Robust Matrix Factorization.** Naiyang Wang, Tiansheng Yao, Jingdong Wang, and Dit-Yan Yeung. *The 12th European Conference on Computer Vision (ECCV12)*.
- [55] **Query-driven iterated neighborhood graph search for large scale indexing.** Jingdong Wang, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM12) (Long)*.
- [54] **Personalized Video Recommendation Through Tripartite Graph Propagation.** *ACM International Conference on Multimedia (ACMMM12) (Short)*.
- [53] **Similar image search with a tiny bag-of-delegates representation.** Weiwen Tu, Rong Pan, and Jingdong Wang. *ACM International Conference on Multimedia (ACMMM12) (Short)*.

- [52] **Scalable  $k$ -NN graph construction for visual descriptors.** Jing Wang, Jingdong Wang, Gang Zeng, Zhuowen Tu, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [51] **Fast approximate  $k$ -means via cluster closures.** Jing Wang, Jingdong Wang, Qifa Ke, Gang Zeng, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [50] **Image search results refinement via outlier detection using deep contexts.** Junyang Lu, Jiazhen Zhou, Jingdong Wang, Tao Mei, Xian-Sheng Hua, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [49] **Salient Object Detection for Searched Web Images via Global Saliency.** Peng Wang, Jingdong Wang, Gang Zeng, Jie Feng, Hongbin Zha, and Shipeng Li. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR12)*.
- [48] **Complementary Hashing for Approximate Nearest Neighbor Search.** Hao Xu, Jingdong Wang, Zhu Li, Gang Zeng, Shipeng Li, and Nenghai Yu. *The Thirteenth IEEE International Conference on Computer Vision (ICCV11)*.
- [47] **Multi-task Low-Rank Affinities Pursuit for Image Segmentation.** Bin Cheng, Guangcan Liu, Jingdong Wang, Zhongyang Huang, and Shuicheng Yan. *The Thirteenth IEEE International Conference on Computer Vision (ICCV11)*.
- [46] **Structure-sensitive Superpixels via Geodesic Distance.** Gang Zeng, Peng Wang, Jingdong Wang, Rui Gan, and Hongbin Zha. *The Thirteenth IEEE International Conference on Computer Vision (ICCV11)*.
- [45] **Robust Visual Reranking via Sparsity and Ranking Constraints.** Nobuyuki Morioka and Jingdong Wang. *ACM International Conference on Multimedia (ACMMM11) (Long)*.
- [44] **Contextual Image Search.** Wenhao Lu, Jingdong Wang, Xian-Sheng Hua, Shengjin Wang, and Shipeng Li. *International Conference on Multimedia (ACMMM11) (Long)*.
- [43] **JIGSAW: Interactive Mobile Visual Search with Multimodal Query.** Yang Wang, Tao Mei, Jingdong Wang, Houqiang Li, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM11) (Long)*.
- [42] **Hybrid Image Summarization.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM11) (Short)*.
- [41] **Automatic Salient Object Segmentation Based on Context and Shape Prior.** Huaizu Jiang, Jingdong Wang, Tie Liu, Zejian Yuan, and Shipeng Li. *The 22nd British Machine Vision Conference (BMVC11)*.
- [40] **Document Clustering with Universum.** Dan Zhang, Jingdong Wang, and Luo Si. *The 34th Annual ACM SIGIR Conference (SIGIR11) (Full)*.
- [39] **A Non-convex Relaxation Approach to Sparse Dictionary Learning.** Jianping Shi, Xiang Ren, Guang Dai, Jingdong Wang and Zhihua Zhang. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR11) (Oral)*.
- [38] **Image Search by Concept Map.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *Annual ACM SIGIR Conference (SIGIR10) (Full)*.
- [37] **Optimizing Kd-trees for Scalable Visual Descriptor Indexing.** You Jia, Jingdong Wang, Gang Zeng, Hongbin Zha, and Xian-Sheng Hua. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR10)*.
- [36] **Learning to combine multi-resolution spatially-weighted co-occurrence matrices for image representation.** Xiangang Cheng, Jingdong Wang, Liang-Tien Chia, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME10)*.

- [35] **Tag Refinement by Regularized LDA.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *ACM International Conference on Multimedia (ACMMM09)*.
- [34] **Summarizing Tagged Image Collections by Cross-Media Representativeness Voting.** Hao Xu, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *IEEE International Conference on Multimedia & Expo (ICME09)*.
- [33] **Maximum Margin Clustering with Pairwise Constraints.** Yang Hu, Jingdong Wang, Nenghai Yu, and Xian-Sheng Hua. *IEEE International Conference on Data Mining (ICDM08)*.
- [32] **Transductive Multi-Label Learning for Video Concept Detection.** Jingdong Wang, Yinghai Zhao, Xiuqing Wu, and Xian-Sheng Hua. *ACM International Conference on Multimedia Information Retrieval (MIR08)*. October 30-31, 2008, Vancouver, Canada.
- [31] **Finding Image Exemplars Using Fast Sparse Affinity Propagation.** Yangqing Jia, Jingdong Wang, Changshui Zhang and Xian-Sheng Hua. *ACM International Conference on Multimedia (ACMMM08) (Short)*. October 27-31, 2008, Vancouver, Canada.
- [30] **Bayesian Video Search Reranking.** Xinmei Tian, Linjun Yang, Jingdong Wang, Yichen Yang, Xiuqing Wu, and Xian-Sheng Hua. *ACM International Conference on Multimedia (ACMMM08)*. October 27-31, 2008, Vancouver, Canada.
- [29] **Augmented Tree Partitioning for Interactive Image Segmentation.** Yangqing Jia, Jingdong Wang, Changshui Zhang, and Xian-Sheng Hua. *IEEE International Conference on Image Processing (ICIP08)*. October 12-15, 2008, San Diego, California, USA.
- [28] **Normalized Tree Partitioning for Image Segmentation.** Jingdong Wang, Yangqing Jia, Xian-Sheng Hua, Changshui Zhang, and Long Quan. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR08)*. June 23-28, Anchorage, Alaska, USA.
- [27] **Joint Multi-Label Multi-Instance Learning for Image Classification.** Zhengjun Zha, Xian-Sheng Hua, Tao Mei, Jingdong Wang, Guo-Jun Qi, and Zengfu Wang. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR08)*. June 23-28, Anchorage, Alaska, USA.
- [26] **Optimized Video Scene Segmentation.** Jingdong Wang, Xinmei Tian, Linjun Yang, Zhengjun Zha, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME08)*. June 23-26, 2008, Hannover, Germany.
- [25] **Transductive Video Annotation via Local Learnable Kernel Classifier.** Xinmei Tian, Linjun Yang, Jingdong Wang, Xiuqing Wu, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME08)*. June 23-26, 2008, Hannover, Germany.
- [24] **Graph-Based Semi-Supervised Learning with Multi-Label.** Zhengjun Zha, Tao Mei, Jingdong Wang, Zengfu Wang, and Xian-Sheng Hua. *IEEE International Conference on Multimedia & Expo (ICME08)*. June 23-26, 2008, Hannover, Germany.
- [23] **Semi-Supervised Classification with Universum.** Dan Zhang, Jingdong Wang, Fei Wang, and Changshui Zhang. *SIAM International Conference on Data Mining (SDM08)*. April 24-26, 2008, Atlanta, Georgia.
- [22] **Joint Affinity Propagation for Multiple View Segmentation.** Jianxiong Xiao, Jingdong Wang, Ping Tan, and Long Quan. *The Eleventh IEEE International Conference on Computer Vision (ICCV07)*. October 14-20, 2007, Rio de Janeiro, Brazil.
- [21] **Picture Collage.** Jingdong Wang, Jian Sun, Long Quan, Xiaoou Tang, and Heung-Yeung Shum. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR06)*. June 17-22, 2006, New York, USA.
- [20] **Semi-Supervised Classification Using Linear Neighborhood Propagation.** Fei Wang, Jingdong Wang, Changshui Zhang, and Helen C. Shen. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR06)*. June 17-22, 2006, New York, USA.



- [19] **Data-dependent Kernels for Small-scale, High-dimensional Data Classification.** Jingdong Wang, James Kwok, Helen C. Shen, and Long Quan. *IEEE International Joint Conference on Neural Networks (IJCNN05)*. July 31 - August 4, 2005, Montreal, QC, Canada.
- [18] **Spectral Feature Analysis.** Fei Wang, Jingdong Wang, and Changshui Zhang. *IEEE International Joint Conference on Neural Networks (IJCNN05)*. July 31 - August 4, 2005, Montreal, QC, Canada.
- [17] **Probabilistic Tangent Subspace: a Unified View.** Jianguo Lee, Jingdong Wang, Changshui Zhang, and Zhaoqi Bian. *The Twenty-First International Conference on Machine Learning (ICML04)*. July 4-8, 2004, Banff, Alberta, Canada.
- [16] **Multi-view EM Algorithm and Its Application to Color Image Segmentation.** Xing Yi, Changshui Zhang, and Jingdong Wang. *IEEE International Conference on Multimedia & Expo (ICME04)*. June 27-30, Taipei, Taiwan.
- [15] **Face Image Resolution versus Face Recognition Performance Based on Two Global Methods.** Jingdong Wang, Changshui Zhang, and Heung-Yeung Shum. *Asian Conference on Computer Vision (ACCV04)*. 2004, Jeju, Korea.
- [14] **Color Image Segmentation: Kernel Do the Feature Space.** Jianguo Lee, Jingdong Wang, and Changshui Zhang. *The 15th European Conference on Machine Learning (ECML03)*. September 20-24, 2004, Pisa, Italy.
- [13] **Kernel GMM and Its Application to Image Binarization.** Jingdong Wang, Jianguo Lee, and Changshui Zhang. *IEEE International Conference on Multimedia & Expo (ICME03)*. July 6-9, 2003, Baltimore, Maryland, USA.
- [12] **Kernel Trick Embedded Gaussian Mixture Model.** Jingdong Wang, Jianguo Lee, and Changshui Zhang. *The 14th International Conference on Algorithmic Learning Theory (ALT03)*. October 2003, Sappora, Japan.

Demo papers

- [11] **Browse-to-Search.** Shiyang Lu, Tao Mei, Jingdong Wang, Jian Zhang, Zhiyong Wang, David D. Feng, Jian-Tao Sun, and Shipeng Li. *ACMMM 2012*.
- [10] **Color Filter for Image Search.** Peng Wang, Dongqing Zhang, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *ACMMM 2012*.
- [9] **Scalable Similar Image Search by Joint Indices.** Jing Wang, Jingdong Wang, Xian-Sheng Hua, and Shipeng Li. *ACMMM 2012*.
- [8] **Web-Scale Image Search by Color Sketch.** Jingdong Wang and Xian-Sheng Hua *ACM International Conference on Multimedia (ACMMM11) (Industrial Exhibit)*.
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- [5] **Combining Orientational Pooling Features for Scene Recognition.** Lingxi Xie, Jingdong Wang, Baining Guo, Bo Zhang, and Qi Tian. *SUNw: Scene Understanding Workshop (2014)*.
- [4] **Image Search by Graph-based Label Propagation with Image Representation from DNN.** Yingwei Pan, Ting Yao, Kuiyuan Yang, Houqiang Li, Chong-Wah Ngo, Jingdong Wang and Tao Mei. *ACMMM 2013, Multimedia Grand Challenge*.

- [3] **Contextual Dominant Color Name Extraction for Web Image Search.** Peng Wang, Dongqing Zhang, Gang Zeng, and Jingdong Wang. *ICMEWS 2012*.
- [2] **MSRA at TRECVID 2008: High-Level Feature Extraction and Automatic Search.** Tao Mei, Zheng-Jun Zha, Yuan Liu, Meng Wang, Guo-Jun Qi, Xinmei Tian, Jingdong Wang, Linjun Yang, and Xian-Sheng Hua. *TRECVID 2008*.
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- [13] **Hashing for Similarity Search: A Survey.** Jingdong Wang, Heng Tao Shen, Jingkuan Song, and Jianqiu Ji. *CoRR abs/1409.5230 (2014)*.
- [12] **Deep Regression for Face Alignment.** Baoguang Shi, Xiang Bai, Wenyu Liu, and Jingdong Wang. *CoRR abs/1409.5230 (2014)*.
- [11] **Inner Product Similarity Search using Compositional Codes.** Chao Du and Jingdong Wang. *CoRR abs/1405.4054 (2014)*.
- [10] **Optimized Cartesian  $K$ -Means.** Jianfeng Wang, Jingdong Wang, Jingkuan Song, Xin-Shun Xu, Heng Tao Shen, and Shipeng Li. *CoRR abs/1406.4966 (2014)*.
- [9] **Fast Neighborhood Graph Search using Cartesian Concatenation.** Jingdong Wang, Jing Wang, Gang Zeng, Rui Gan, Shipeng Li, and Baining Guo. *CoRR abs/1312.3062 (2013)*.
- [8] **Fast Approximate  $K$ -Means via Cluster Closures.** Jingdong Wang, Jing Wang, Qifa Ke, Gang Zeng, and Shipeng Li. *CoRR abs/1312.3061 (2013)*.
- [7] **Hybrid Affinity Propagation.** Jingdong Wang, Hao Xu, Xian-Sheng Hua, and Shipeng Li. *CoRR abs/1307.7851 (2013)*.
- [6] **Scalable  $k$ -NN graph construction.** Jingdong Wang, Jing Wang, Gang Zeng, Zhuowen Tu, Rui Gan, and Shipeng Li. *CoRR abs/1307.7852 (2013)*.
- [5] **Image Tag Refinement by Regularized Latent Dirichlet Allocation.** Jingdong Wang, Jiazhen Zhou, Hao Xu, Tao Mei, Xian-Sheng Hua, and Shipeng Li. *CoRR abs/1307.7974 (2013)*.
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- [3] **Contextual Image Search.** Jingdong Wang, Wenhao Lu, Shengjin Wang, Xian-Sheng Hua and Shipeng Li. *MSR-TR-2010-84. June 27, 2010*.

PhD thesis

- [2] **Graph Based Image Segmentation.** Jingdong Wang. *Department of Computer Science and Engineering, the Hong Kong University of Science and Technology. August 2007*.

Master degree thesis

- [1] **Research on Linear, Kernel Gaussian Models and Their Mixtures.** Jingdong Wang. *Department of Automation, Tsinghua University. June, 2004*.

## Product Transfer

How-Old Fasion	Shipped to XiaoIce, 2016
How-Old 2.0	Shipped to XiaoIce, 2015
Celebrity for chat	Shipped to XiaoIce, 2015
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
Neighborhood graph-based approximate 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.
Dominant color filter	Shipped to Microsoft Bing image search, 2012
Image search by color map	Shipped to Microsoft Bing image search, 2010

## Professional Activities

### *International Conference*

International Conference on Computer Vision (ICCV17)	Area Chair
International Conference on Computer Vision and Pattern Recognition (CVPR17)	Area Chair
Conference on Neural Information Processing Systems (NIPS16)	Reviewer
International Conference on Computer Vision (ECCV16)	Area Chair
International Conference on Computer Vision and Pattern Recognition (CVPR16)	PC member
Conference on Neural Information Processing Systems (NIPS15)	Reviewer
ACM International Conference on Multimedia (ACMMM15)	Area Chair
International Conference on Computer Vision (ICCV15)	PC member
International Conference on Computer Vision and Pattern Recognition (CVPR15)	PC member
International Conference on Multimedia & Expo (ICME15)	Area Chair
Scene Understanding Workshop (SUNw14)	PC member
ACM International Conference on Multimedia (ACMMM14)	PC member
Siggraph Asia 2014	Workshops jury
Conference on Neural Information Processing Systems (NIPS14)	Reviewer
International Conference on Computer Vision (ECCV14)	Reviewer
International Conference on Computer Vision and Pattern Recognition (CVPR14)	PC member
ACM International Conference on Multimedia Retrieval (ICMR14)	Special Session Chair
Pacific Graphics 2013	Reviewer
CAD/Graphics 2013	IPC member
ACM International Conference on Multimedia (ACMMM13)	Reviewer
International Conference on Computer Vision (ICCV13)	PC member
International Joint Conference on Artificial Intelligence (IJCAI13)	Reviewer
ACM International Conference on Research and Development in Information Retrieval (SIGIR13)	Reviewer
International Conference on Computer Vision and Pattern Recognition (CVPR13)	PC member
European Conference on Computer Vision (ECCV12)	Reviewer
International Conference on Computer Vision and Pattern Recognition (CVPR12)	PC member
ACM International Conference on Multimedia (ACMMM12)	Reviewer
ACM International Conference on Multimedia Retrieval (ICMR12)	Reviewer
International Conference on Multimedia & Expo (ICME12)	Track Chair
International Joint Conference on Artificial Intelligence (IJCAI11)	Reviewer
ACM International Conference on Research and Development in Information Retrieval (SIGIR11)	PC member
ACM International Conference on Multimedia Retrieval (ICMR11)	Reviewer
International Conference on Computer Vision (ICCV11)	PC member
International Conference on Computer Vision and Pattern Recognition (CVPR11)	PC member
International Conference on Multimedia & Expo (ICME11)	TPC member
Siggraph Asia 2010	Reviewer
European Conference on Computer Vision (ECCV10)	Reviewer
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD10)	PC member
ACM International Conference on Image and Video Retrieval (CIVR10)	TPC member
International Conference on Computer Vision and Pattern Recognition (CVPR10)	PC member
ACM Conference on Human Factors in Computing Systems (SIGCHI10)	Reviewer
International Conference on Multimedia & Expo (ICME10)	TPC member
NIPS-09 Workshop on Transfer Learning for Structured Data	PC member
International Conference on Internet Multimedia Computing and Service (ICIMCS09)	PC member
ACM International Conference on Multimedia (ACMMM09)	Reviewer
International Conference on Multimedia & Expo (ICME09)	Reviewer

International Conference on Computer Vision (ICCV09)	Reviewer
International Joint Conferences on Neural Networks (IJCNN09)	Reviewer
International Conference on Computer Vision and Pattern Recognition (CVPR09)	PC member
Multimedia Signal Processing (MMSP08)	PC member
International Conference on Computer Vision (ICCV07)	PC member
Asian Conference on Computer Vision (ACCV07)	Reviewer
International Joint Conferences on Neural Networks (IJCNN07)	Reviewer
International Conference of Pattern Recognition (ICPR06)	Reviewer
International Conference on Computer Vision (ICCV03)	Reviewer

*International Journal*

IEEE Transactions on Multimedia	Associate Editor
Neurocomputing	Associate Editor
Multimedia Tools and Applications	Editorial board member
International Journal of Computer Vision	Reviewer
IEEE Transactions on Pattern Analysis and Machine Intelligence	Reviewer
IEEE Transactions on Image Processing	Reviewer
IEEE Transactions on Knowledge and Data Engineering	Reviewer
IEEE Transactions on Circuits and Systems for Video Technology	Reviewer
IEEE Transactions on Multimedia	Reviewer
IEEE Multimedia	Reviewer
IEEE Transactions on Systems, Man, and Cybernetics Part B	Reviewer
Pattern Recognition	Reviewer
ACM Transactions on Information Systems	Reviewer
ACM Transactions on Sensor Networks	Reviewer
ACM Transactions on Multimedia Computing, Communications and Applications	Reviewer
ACM Transactions on Intelligent Systems and Technology	Reviewer
Computer Vision and Image Understanding	Reviewer
Machine Vision and Applications	Reviewer
Image and Vision Computing	Reviewer
Knowledge and Information Systems	Reviewer
Advances in Multimedia	Reviewer

## Interns and students ever working with me

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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)	
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Lingxi Xie	Tsinghua University (13)	
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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)	
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Hao Xu	USTC (08-09)	
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Liyang Jia	Tsinghua University (09)	Cornell University
Heng Zhang	Peking University (08-09)	
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Yinghai Zhao	USTC (08)	
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Mingjie Qian	Tsinghua University (09)	UIUC

Beijing, January 22, 2017