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SHORT BIO

Xiaofei He is a professor in the College of Computer Science at Zhejiang University, China. He received the PhD degree from the University of Chicago, thereafter worked as a research scientist at Yahoo! Research Labs, and then joined Zhejiang University as a full professor. His research is mainly focused on applying statistics and mathematics for data analysis problems in pattern recognition, multimedia, and computer vision. He has extensive publications in leading international journals/conferences, e.g., IEEE TPAMI, IEEE TIP, IEEE TCSVT, IEEE TKDE, ACM Multimedia, CVPR, ICCV, NIPS, and ICML. He served and serves as associate editor, session chair, PC member and reviewer of top journals/conferences. His Locality Preserving Projection has been cited 1,967 times in Google Scholar, and his Laplacianfaces has been cited 1,930 times. His TPAMI paper "Face Recognition using Laplacianfaces" received an interview with ScienceWatch.com (Thomson Scientific). According to Thomson Reuters' Special Topics analysis of face recognition technology over the past decade, this paper ranks at #14 on the list of most-cited papers over the past decade. His entire publications have been cited over 10,000 times. The Google H-index of his publications is 42. He received the Best Paper Award at AAAI 2012 and the best paper Runner-Up Award at ACM Multimedia 2010. He is a senior member of the IEEE and a member of the ACM.

EDUCATION

PhD, Computer Science
University of Chicago, Chicago, IL, September 2000 - December 2005
Advisor: Professor Partha Niyogi

Bachelor of Science, Computer Science
Zhejiang University, Zhejiang, China, September 1996 - June 2000
Advisor: Professor Chun Chen

WORKING EXPERIENCE

Full Professor
College of Computer Science, Zhejiang University, China, Nov. 2007 - present

Research Scientist
Yahoo! Inc., Oct. 2005 - Nov. 2007

Projects:

Session based Click Prediction: The goal of this project is to build models that predict sponsored-search revenue and click probability for a particular point in time, based on information about the current user session. The application we looked at was presentation. Specifically, if we can predict with confidence that a click is unlikely, we can systematically remove results from the top of the page. In this project, my responsibility is to perform statistical modeling to estimate the click probability and revenue.

Active Learning Keyword Recommendation: Keyword Recommendation System (KRS) in Yahoo! Search Marketing is used by editors and customers of the Yahoo! Search Marketing to find keywords that best describes customer's business. Customers then bid on these keywords to show their advertisements along with the

Yahoo! search results. The KRS involves an iterative process of manual labeling of terms to find more terms according to the labels provided earlier by the labeler. This is a very labor-intensive and time-consuming process. In this project, I developed a novel active learning algorithm called Laplacian Optimal Design and used it to enhance existing KRS to present less number of terms (than the existing system) to the labeler and to get maximum benefit out of labeling task, thus saving time and money for Yahoo! Search Marketing and delivering more customer satisfaction. The central idea of my proposed algorithm is to find data points which are the most informative and hard to predict.

Query Classification: Due to the rapid growth of the number of web based applications, there is an increasing demand for effective and efficient method for query understanding. Successfully assigning a category label to a user query would potentially help many applications such as web search, web based advertisement, recommendation system, etc. In this project, I developed a novel query representation and classification algorithm using Laplacian regularized regression. For each query, we submit it to a search engine and use the top returned web documents to represent this query. Traditional regression is too flexible in situations with large numbers of highly correlated predictor variables. It may suffer from the overfitting problem. By using search engine logs containing user's search-click information, the semantic relationship between queries can be incorporated into the learning system as a regularizer. Specifically, from all the functions which minimize the empirical loss on the labeled queries, we select the one which best preserves the semantic relationship between queries. We have gained 3.19% performance improvement over the state-of-the-art algorithms.

RESEARCH INTERESTS

Multimedia Information Retrieval: I use information in the broad sense to include text, image, audio, and video. In particular, my research work in this direction contains two parts: social media recommendation and image retrieval. By using a mathematical model called hypergraph, we have developed a recommender system which can accurately capture the semantic relationships among various types of media objects. Comparing to traditional recommender systems based on collaborative filtering, our system can better satisfy the user's information need. For image retrieval, I consider two central questions: how to represent an image and how to judge similarity. I use techniques from statistics and differential geometry to solve these two problems.

Manifold Learning: Learning a manifold of perceptual observations is difficult because these observations usually exhibit significant nonlinear structure. To tackle this problem, I have proposed a novel manifold learning algorithm, called "Locality Preserving Projections (LPP)". LPPs are linear projective maps that arise by solving a variational problem that optimally preserves the neighborhood structure of the data set. Our theoretical analysis shows that LPP provides an optimal approximation to Linear Discriminant Analysis which is supervised.

Computer Vision: My main contribution to this subject is that I have proposed the "Laplacianface" approach to model the manifolds of face images. Different from "Eigenface" which is optimal for representation and "Fisherface" which is optimal for discrimination, Laplacianface respects both geometric and discriminative structure of the face manifolds. Our theoretical analysis shows that these three methods can be obtained from different graph models. I am also interested in image segmentation which is intrinsically a graph partitioning problem.

Web Search and Mining: The central question that I ask in my research along

this direction is “How to organize the world’s information and make it universally accessible and useful?” Working with Microsoft Research Asia, I have developed a new link analysis algorithm, called “Block Level Link Analysis”. This work has been reported by *Technology Research News* and received considerable interest from both academy and industry.

PUBLICATIONS

Journal Papers

1. Binbin Lin, Xiaofei He, Chiyuan Zhang, and Ming Ji, “Parallel Vector Field Embedding”, *Journal of Machine Learning Research*, 14(2013):2945-2977, 2013. (**JMLR**).
2. Guanhong Yao, Ke Lu, and Xiaofei He, “G-Optimal Feature Selection with Laplacian regularization”, *Neurocomputing*, 119:175-181, 2013. (**Neurocomputing**).
3. Yao Hu, Debing Zhang, Jieping Ye, Xuelong Li, and Xiaofei He, “Fast and Accurate Matrix Completion via Truncated Nuclear Norm Regularization”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 35(9):2117-2130, 2013. (**TPAMI**).
4. Chiyuan Zhang, and Xiaofei He, “Image Compression by Learning to Minimize the Total Error”, *IEEE Transactions on Circuits and System for Video Technology*, 23(4):565-576, 2013. (**TCSVT**).
5. Yan Chen, Jiemi Zhang, Deng Cai, Wei Liu, and Xiaofei He, “Nonnegative Local Coordinate Factorization for Image Representation”, *IEEE Transactions on Image Processing*, 22(3):969-979, 2013. (**TIP**).
6. Ming Ji, Binbin Lin, Xiaofei He, Deng Cai, and Jiawei Han, “Parallel Field Ranking”, *ACM Transactions on Knowledge Discovery from Data*, 7(3):15, 2013. (**TKDD**).
7. Lijun Zhang, Chun Chen, Jiajun Bu, and Xiaofei He, “A Unified Feature and Instance Selection Framework Using Optimum Experimental Design”, *IEEE Transactions on Image Processing*, 21(5):2379-2388, 2012. (**TIP**).
8. Deng Cai, and Xiaofei He, “Manifold Adaptive Experimental Design for Text Categorization”, *IEEE Transactions on Knowledge and Data Engineering*, 24(4): 707-719, 2012. (**TKDE**).
9. Jianping Fan, Xiaofei He, Ning Zhou, Jinye Peng, and Ramesh Jain, “Quantitative Characterization of Semantic Gaps for Learning Complexity Estimation and Inference Model Selection”, *IEEE Transactions on Multimedia*, 14(5):1414-1428, 2012. (**TMM**).
10. Wei Hua, and Xiaofei He, “ Discriminative concept factorization for data representation”, *Neurocomputing*, 74(18): 3800-3807, 2011. (**Neurocomputing**).
11. Can Wang, Xiaofei He, Jiajun Bu, Zhengguang Chen, Chun Chen, and Ziyu Guan, “ Image representation using Laplacian regularized nonnegative tensor factorization”, *Pattern Recognition*, 44(11):2516-2526, 2011. (**Pattern Recognition**).
12. Shulong Tan, Jiajun Bu, Chun Chen, Bin Xu, Can Wang, and Xiaofei He, “Using rich social media information for music recommendation via hypergraph model”, *ACM Transactions on Multimedia Computing, Communications and Applications*, 2011. (**TOMCCAP**).

13. Xiaofei He, Deng Cai, Yuanlong Shao, Hujun Bao, and Jiawei Han, "Laplacian Regularized Gaussian Mixture Model for Data Clustering", *IEEE Transactions on Knowledge and Data Engineering*, 23(9):1406-1418, 2011. (**TKDE**).
14. Deng Cai, Xiaofei He, Jiawei han, and Thomas Huang, "Graph Regularized Non-negative Matrix Factorization for Data Representation", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33(8):1548-1560, 2011. (**TPAMI**)
15. Lijun Zhang, Chun Chen, Jiajun Bu, Deng Cai, Xiaofei He, and Thomas Huang, "Active Learning Based on Locally Linear Reconstruction", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33(10):2026-2038, 2011. (**TPAMI**)
16. Xiaofei He, Ming Ji, Chiyuan Zhang, and Hujun Bao, "A Variance Minimization Criterion to Feature Selection using Laplacian Regularization", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33(10):2013-2025, 2011. (**TPAMI**)
17. Deng Cai, Xiaofei He, and Jiawei Han, "Locally Consistent Concept Factorization for Document Clustering", *IEEE Transactions on Knowledge and Data Engineering*, 23(6):902-913, 2011. (**TKDE**)
18. Deng Cai, Xiaofei He, and Jiawei Han, "Speed Up Kernel Discriminant Analysis", *VLDB Journal*, 20(1):21-33, 2011. (**VLDB Journal**)
19. Binbin Lin, Xiaofei He, Yuan Zhou, Ligang Liu, and Ke Lu, "Approximately Harmonic Projection: Theoretical Analysis and an Algorithm", *Pattern Recognition*, 43(10):3307-3313, 2010. (**Pattern Recognition**)
20. Xiaofei He, "Laplacian Regularized D-Optimal Design and Its Application to Image Retrieval", 19(1):254-263, 2010. (**TIP**).
21. Can Wang, Jun Zhao, Xiaofei He, Chun Chen, and Jiajun Bu, "Image Retrieval using Nonlinear Manifold Embedding", *Neurocomputing*, 72(16-18):3922-3929, 2009. (**Neurocomputing**)
22. Xiaofei He and Pradhuman Jhala, "Regularized query classification using search click information", *Pattern Recognition Journal*, 41(7):2289-2297, 2008. (**Pattern Recognition**)
23. Xiaofei He, Deng Cai, and Jiawei Han, "Learning a Maximum Margin Subspace for Image Retrieval", *IEEE Transactions on Knowledge and Data Engineering*, 20(2):189-201, 2008. (**TKDE**)
24. Deng Cai, Xiaofei He, and Jiawei Han, "SRDA: An Efficient Algorithm for Large Scale Discriminant Analysis", *IEEE Transactions on Knowledge and Data Engineering*, 20(1):1-12, 2008. (**TKDE**)
25. Jidong Zhao, Ke Lu, and Xiaofei He, "Locality Sensitive Semi-Supervised Feature Selection", *Neurocomputing*, 71(10-12): 1842-1849, 2008. (**Neurocomputing**)
26. Xiaofei He, Deng Cai, Ji-Rong Wen, Wei-Ying Ma, Hong-Jiang Zhang, "Clustering and Searching WWW Images using Link and Page Layout Analysis", *ACM Transactions on Multimedia Computing, Communications and Applications*, Vol. 3, No. 1, 2007. (**TOMCCAP**)
27. Deng Cai, Xiaofei He, Jiawei Han, and Hong-Jiang Zhang, "Orthogonal Laplacianfaces for Face Recognition", *IEEE Transactions on Image Processing*, 15(11):3608-3614, 2006. (**TIP**)

28. Deng Cai, Xiaofei He, and Jiawei Han, “Document Clustering using Locality Preserving Indexing”, *IEEE Transactions on Knowledge and Data Engineering*, 17(12):1624-1637, 2005. (**TKDE**)
29. Xiaofei He, Shuicheng Yan, Yuxiao Hu, Partha Niyogi, and Hong-Jiang Zhang, “Face Recognition Using Laplacianfaces”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 27(3):1-13, 2005. (**TPAMI**)
30. Ke Lu and Xiaofei He, “Image Retrieval based on Incremental Subspace Learning”, *Pattern Recognition Journal*, 38(11):2047-2054, 2005. (**Pattern Recognition**)
31. Wanli Min, Ke Lu, and Xiaofei He, “Locality Pursuit Embedding”, *Pattern Recognition Journal*, 37(4):781-788, 2004. (**Pattern Recognition**)
32. Shuicheng Yan, Xiaofei He, Yuxiao Hu, Hong-Jiang Zhang, Mingjing Li, and Qiansheng Cheng, “Bayesian Shape Localization for Face Recognition Using Global and Local Textures”, *IEEE Transactions on Circuits and System for Video Technology*, 14(1):102-113, 2004. (**TCSVT**)
33. Xiaofei He, Oliver King, Wei-Ying Ma, Mingjing Li and Hong-Jiang Zhang, “Learning a Semantic Space from User’s Relevance Feedback for Image Retrieval”, *IEEE Transactions on Circuits and System for Video Technology*, 13(1):39-48, 2003. (**TCSVT**)

Conference Papers

1. Lijun Zhang, Jinfeng Yi, Rong Jin, Ming Lin, and Xiaofei He, “Online Kernel Learning with a Near Optimal Sparsity Bound”, *Proc. 2013 International Conference on Machine Learning*, Atlanta, USA, June 2013. (**ICML**)
2. Lijun Zhang, Tianbao Yang, Rong Jin, and Xiaofei He, “O(logT) Projections for Stochastic Optimization of Smooth and Strongly Convex Functions”, *Proc. 2013 International Conference on Machine Learning*, Atlanta, USA, June 2013. (**ICML**)
3. Yao Hu, Debing Zhang, Zhongming Jin, Deng Cai, and Xiaofei He, “Active Learning Based on Local Representation”, *Proc. 2013 International Joint Conference on Artificial Intelligence*, Beijing, China, July 2013. (**IJCAI**)
4. Bin Xu, Jiajun Bu, Yue Lin, Chun Chen, Xiaofei He, and Deng Cai, “Harmonious Hashing”, *Proc. 2013 International Joint Conference on Artificial Intelligence*, Beijing, China, July 2013. (**IJCAI**)
5. Debing Zhang, Genmao Yang, Yao Hu, Zhongming Jin, Deng Cai, and Xiaofei He, “A Unified Approximate Nearest Neighbor Search Scheme by Combining Data Structure and Hashing”, *Proc. 2013 International Joint Conference on Artificial Intelligence*, Beijing, China, July 2013. (**IJCAI**)
6. Chuhang Zou, Yao Hu, Deng Cai, and Xiaofei He, “Salient Object Detection via Fast Iterative Truncated Nuclear Norm Recovery”, *International Conference on Intelligence Science and Big Data Engineering*, pages 238-245, 2013. (**IScIDE**)
7. Xiangbo Mao, Binbin Lin, Deng Cai, Xiaofei He, and Jian Pei, “Parallel field alignment for cross media retrieval”, *Proc. 2013 ACM International Conference on Multimedia*, pages 897-906, 2013. (**ACM Multimedia**)
8. Xinyan Lu, Fei Wu, Siliang Tang, Zhongfei Zhang, Xiaofei He, and Yueting Zhuang, “A low rank structural large margin method for cross-modal ranking”, *The 36th Annual ACM International Conference on Research and Development in Information Retrieval*, Dublin, Ireland, July 28-August 1, 2013. (**SIGIR**)

9. Beidou Wang, Can Wang, Jiajun Bu, Chun Chen, Wei Vivian Zhang, Deng Cai, and Xiaofei He, "Whom to mention: expand the diffusion of tweets by @ recommendation on micro-blogging systems", Proc. 2013 ACM International Conference on World Wide Web, Rio de Janeiro, Brazil, May, 2013. (**WWW**)
10. Zhanying He, Chun Chen, Jiajun Bu, Can Wang, Lijun Zhang, Deng Cai, and Xiaofei He, "Document Summarization Based on Data Reconstruction", The 26th AAAI Conference on Artificial Intelligence, Toronto, Ontario, Canada, July 2012. (**AAAI**)
11. Yue Lin, Rong Jin, Deng Cai, and Xiaofei He, "Random Projection with Filtering for Nearly Duplicate Search", The 26th AAAI Conference on Artificial Intelligence, Toronto, Ontario, Canada, July 2012. (**AAAI**)
12. Lijun Zhang, Rong Jin, Chun Chen, Jiajun Bu, and Xiaofei He, "Efficient Online Learning for Large-Scale Sparse Kernel Logistic Regression", The 26th AAAI Conference on Artificial Intelligence, Toronto, Ontario, Canada, July 2012. (**AAAI**)
13. Debing Zhang, Yao Hu, Jieping Ye, Xuelong Li, and Xiaofei He, "Matrix completion by Truncated Nuclear Norm Regularization", IEEE International Conference on Computer Vision and Pattern Recognition, Providence, RI, USA, pages 2192-2199, 2012. (**CVPR**)
14. Yao Hu, Debing Zhang, Jun Liu, Jieping Ye, and Xiaofei He, "Accelerated singular value thresholding for matrix completion", The 18th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, pages 298-306, Beijing, China, August 12-16, 2012. (**SIGKDD**)
15. Ming Ji, Binbin Lin, Xiaofei He, Deng Cai, and Jiawei Han, "Parallel field ranking", The 18th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, pages 723-731, Beijing, China, August 12-16, 2012. (**SIGKDD**)
16. Jiajun Bu, Bin Xu, Chenxia Wu, Chun Chen, Jianke Zhu, Deng Cai, and Xiaofei He, "Unsupervised face-name association via commute distance", Proc. 2012 ACM International Conference on Multimedia, pages 219-228, 2012. (**ACM Multimedia**)
17. Binbin Lin, Sen Yang, Chiyuan Zhang, Jieping Ye, and Xiaofei He, "Multi-task Vector Field Learning", Advances in Neural Information Systems, pages 296-304, 2012. (**NIPS**)
18. Binbin Lin, Chiyuan Zhang, and Xiaofei He, "Orthogonal Projection Analysis", International Conference on Intelligence Science and Big Data Engineering, pages 1-8, 2011. (**IScIDE**)
19. Binbin Lin, Chiyuan Zhang, and Xiaofei He, "Semi-supervised Regression via Parallel Field Regularization", Advances in Neural Information Systems, pages 433-441, 2011. (**NIPS**)
20. Ming Ji, Jun Yan, Siyu Gu, Jiawei Han, Xiaofei He, Wei Vivian Zhang, and Zheng Chen, "Learning Search Tasks in Queries and Web Pages via Graph Regularization", The 34th Annual ACM International Conference on Research and Development in Information Retrieval, Beijing, China, July 24-28, 2011. (**SIGIR**)
21. Bin Xu, Jiajun Bu, Chun Chen, Zhanying He, Deng Cai, Xiaofei He, Wei Liu, and Jiebo Luo, "Efficient Manifold Ranking for Image Retrieval", The 34th Annual ACM International Conference on Research and Development in Information Retrieval, Beijing, China, July 24-28, 2011. (**SIGIR**)

22. Yan Chen, Hujun Bao, and Xiaofei He, “Non-negative Local Coordinate Factorization for Image Representation”, IEEE International Conference on Computer Vision and Pattern Recognition, Colorado Springs, CO, 2011. (**CVPR**)
23. Deng Cai, Hujun Bao, and Xiaofei He, “Sparse Concept Coding for Visual Analysis”, IEEE International Conference on Computer Vision and Pattern Recognition, Colorado Springs, CO, 2011. (**CVPR**)
24. Jiajun Bu, Shulong Tan, Chun Chen, Can Wang, Hao Wu, Lijun Zhang, and Xiaofei He, “Music Recommendation by Unified Hypergraph: Combining Social Media Information and Music Content”, Proc. 2010 ACM International Conference on Multimedia, Firenze, Italy, October, 2010. (**ACM Multimedia**)
25. Lijun Zhang, Chun Chen, Jiajun Bu, Zhengguang Chen, Shulong Tan, and Xiaofei He, “Discriminative Codeword Selection for Image Representation”, Proc. 2010 ACM International Conference on Multimedia, Firenze, Italy, October, 2010. (**ACM Multimedia**)
26. Deng Cai, Chiyuan Zhang, and Xiaofei He, “Feature Selection for Multi-Cluster Data”, The 16th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Washington, DC, USA, July 2010. (**SIGKDD**)
27. Jialu Liu, Deng Cai, and Xiaofei He, “Gaussian Mixture Model with Local Consistency”, The 24th AAAI Conference on Artificial Intelligence, Atlanta, Georgia, USA, July 2010. (**AAAI**)
28. Ziyu Guan, Can Wang, Jiajun Bu, Chun Chen, Kun Yang, Deng Cai, and Xiaofei He, “Document Recommendation in Social Tagging Services”, Proc. 2010 ACM International Conference on World Wide Web, Raleigh, North Carolina, April, 2010. (**WWW**)
29. Lijun Zhang, Chun Chen, Jiajun Bu, Wei Chen, Deng Cai, and Xiaofei He, “Convex Experimental Design using Manifold Structure for Image Retrieval”, Proc. 2009 ACM International Conference on Multimedia, Beijing, China, October, 2009. (**ACM Multimedia**)
30. Yuanlong Shao, Yuan Zhou, Xiaofei He, Deng Cai, Hujun Bao, “Semi-supervised Topic Modeling for Image Annotation”, Proc. 2009 ACM International Conference on Multimedia, Beijing, China, October, 2009. (**ACM Multimedia**)
31. Xiaofei He and Deng Cai, “Active Subspace Learning”, Proc. 2009 IEEE International Conference on Computer Vision, Kyoto, Japan, September 2009. (**ICCV**)
32. Deng Cai, Xuanhui Wang, and Xiaofei He, “Probabilistic Dyadic Data Analysis with Local and Global Consistency”, Proc. 2009 International Conference on Machine Learning, Montreal, Canada, June 2009. (**ICML**)
33. Deng Cai, Xiaofei He, Xuanhui Wang, Hujun Bao, and Jiawei Han, “Locality Preserving Nonnegative Matrix Factorization”, Proc. 2009 International Joint Conference on Artificial Intelligence, Pasadena CA, July 2009. (**IJCAI**)
34. Xiaofei He, Ming Ji, and Hujun Bao, “Graph Embedding with Constraints”, Proc. 2009 International Joint Conference on Artificial Intelligence, Pasadena CA, July 2009. (**IJCAI**)
35. Xiaofei He, Ming Ji, and Hujun Bao, “A Unified Active and Semi-Supervised Learning Framework for Image Compression”, IEEE International Conference on Computer Vision and Pattern Recognition, Miami FL, June 2009. (**CVPR**)
36. Deng Cai, Xiaofei He, and Jiawei Han, “Sparse Projections over Graph”, The 23rd AAAI Conference on Artificial Intelligence. Chicago, Illinois, USA. July 2008. (**AAAI**)

37. Deng Cai, Xiaofei He, and Jiawei Han, "Training Linear Discriminant Analysis in Linear Time", Proc. 2008 International Conference on Data Engineering, Cancun, Mexico, Apr. 2008. (**ICDE**)
38. Deng Cai, Xiaofei He, Xiaoyun Wu, and Jiawei Han, "Non-negative Matrix Factorization on Manifolds", IEEE International Conference on Data Mining, Pisa, Italy, December 2008. (**ICDM**)
39. Deng Cai, Xiaofei He, and Jiawei Han, "Spectral Regression: A Unified Approach for Sparse Subspace Learning", IEEE International Conference on Data Mining, Omaha, NE, Oct. 2007. (**ICDM**)
40. Deng Cai, Xiaofei He, and Jiawei Han, "Efficient Kernel Discriminant Analysis via Spectral Regression", IEEE International Conference on Data Mining, Omaha, NE, Oct. 2007. (**ICDM**)
41. Deng Cai, Xiaofei He, and Jiawei Han, "Semi-Supervised Discriminant Analysis", IEEE International Conference on Computer Vision, Rio de Janeiro, Brazil, Oct. 2007. (**ICCV**)
42. Deng Cai, Xiaofei He, and Jiawei Han, "Spectral Regression for Efficient Regularized Subspace Learning", IEEE International Conference on Computer Vision, Rio de Janeiro, Brazil, Oct. 2007. (**ICCV**)
43. Wei Vivian Zhang, Xiaofei He, Benjamin Rey, and Rosie Jones, "Query Rewriting using Active Learning for Sponsored Search", ACM International Conference on Information Retrieval, Amsterdam, The Netherlands, July 2007. (**SIGIR**)
44. Xiaofei He, Wanli Min, Deng Cai, and Kun Zhou, "Laplacian Optimal Design for Image Retrieval", ACM International Conference on Information Retrieval, Amsterdam, The Netherlands, July 2007. (**SIGIR**)
45. Deng Cai, Xiaofei He, Wei Vivian Zhang, and Jiawei Han, "Regularized Locality Preserving Indexing", ACM 16th International Conference on Information and Knowledge Management, Lisboa, Portugal, Nov. 2007. (**CIKM**)
46. Deng Cai, Xiaofei He, and Jiawei Han, "Isometric Projection", Proc. 22nd Conference on Artificial Intelligence, Vancouver, Canada, July 2007. (**AAAI**)
47. Deng Cai, Xiaofei He, and Jiawei Han, "A Unified Subspace Learning Framework for Content-Based Image Retrieval", ACM International Conference on Multimedia, Augsburg, Germany, Sep. 2007. (**ACM Multimedia**)
48. Deng Cai, Xiaofei He, and Jiawei Han, "Regularized Regression on Image Manifold for Retrieval", Proc. 9th ACM SIGMM International Workshop on Multimedia Information Retrieval, Augsburg, Germany, Sep. 2007. (**MIR**)
49. Deng Cai, Xiaofei He, Yuxiao Hu, Jiawei Han, and Thomas Huang, "Learning a Spatially Smooth Subspace for Face Recognition", Proc. 2007 IEEE International Conference on Computer Vision and Pattern Recognition, Minneapolis, USA, June 2007. (**CVPR**)
50. Deng Cai, Xiaofei He, Kun Zhou, Jiawei Han, and Hujun Bao, "Locality Sensitive Discriminant Analysis", Proc. 2007 International Conference on Artificial Intelligence, Hyderabad, India, Jan. 2007. (**IJCAI**)
51. Deng Cai, Xiaofei He and Jiawei Han, "Tensor Subspace Model for Document Analysis", ACM SIGIR Conference on Information Retrieval, Seattle, WA, Aug. 2006. (**SIGIR**)
52. Xiaofei He, Deng Cai, and Partha Niyogi, "Laplacian Score for Feature Selection", Advances in Neural Information Processing Systems 18, 2005 (**NIPS**).

53. Xiaofei He, Deng Cai, and Partha Niyogi, "Tensor Subspace Analysis", Advances in Neural Information Processing Systems 18, 2005. (**NIPS**)
54. Xiaofei He, Deng Cai, Haifeng Liu, and Jiawei Han, "Image Clustering with Tensor Representation", ACM Conference on Multimedia, Singapore, Nov. 2005. (**ACM Multimedia**)
55. Xiaofei He, Deng Cai, Shuicheng Yan, and Hong-Jiang Zhang, "Neighborhood Preserving Embedding", IEEE International Conference on Computer Vision, Beijing, China, Oct. 2005. (**ICCV**)
56. Xiaofei He, Deng Cai, and Wanli Min, "Statistical and Computational Analysis of Locality Preserving Projection", The 22nd International Conference on Machine Learning, Bonn, Germany, Aug. 2005. (**ICML**)
57. Deng Cai and Xiaofei He, "Orthogonal Locality Preserving Indexing", ACM SIGIR Conference on Information Retrieval, Salvador, Brazil, Aug. 2005. (**SIGIR**)
58. Deng Cai, Zheng Shao, Xiaofei He, Xifeng Yan, and Jiawei Han, "Mining Hidden Community in Heterogeneous Social Networks", ACM SIGKDD Workshop on Link Discovery: Issues, Approaches and Applications, Chicago, IL, Aug. 2005. (**LinkKDD**)
59. Deng Cai, Zheng Shao, Xiaofei He, Xifeng Yan, and Jiawei Han, "Community Mining from Multi-Relational Networks", 9th European Conference on Principles and Practices of Knowledge Discovery in Databases, Porto, Portugal, Oct. 2005. (**PKDD**)
60. Xiaofei He, "Incremental Semi-Supervised Subspace Learning for Image Retrieval", ACM Conference on Multimedia, 2004. (**ACM Multimedia**)
61. Xiaofei He, Wei-Ying Ma, and Hong-Jiang Zhang, "Learning an Image Manifold for Retrieval", ACM Conference on Multimedia, 2004. (**ACM Multimedia**)
62. Deng Cai, Xiaofei He, Zhiwei Li, Wei-Ying Ma, and Ji-Rong Wen, "Hierarchical Clustering of WWW Image Search Results using Visual, Texture, and Link Analysis", ACM Conference on Multimedia, 2004. (**ACM Multimedia**)
63. Xin Zheng, Deng Cai, Xiaofei He, Wei-Ying Ma, and Xueyin Lin, "Locality Preserving Clustering for Image Database", ACM Conference on Multimedia, 2004. (**ACM Multimedia**)
64. Deng Cai, Xiaofei He, Ji-Rong Wen, Wei-Ying Ma, "Block Level Link Analysis", ACM SIGIR Conference on Information Retrieval, Sheffield, 2004. (**SIGIR**)
65. Xiaofei He, Deng Cai, Haifeng Liu, and Wei-Ying Ma, "Locality Preserving Indexing for Document Representation", ACM SIGIR Conference on Information Retrieval, Sheffield, 2004. (**SIGIR**)
66. Xiaofei He, Shuicheng Yan, Yuxiao Hu, Haifeng Liu, and Hong-Jiang Zhang, "Spectral Analysis for Face Recognition", Asian Conference on Computer Vision, 2004. (**ACCV**)
67. Deng Cai, Xiaofei He, Wei-Ying Ma, Ji-Rong Wen, and Hongjiang Zhang, "Organizing WWW Images based on the Analysis of Page Layout and Web Link Structure", IEEE International Conference on Multimedia and Expo (ICME), June 2004. (**ICME**)
68. Xiaofei He, Wei-Ying Ma, and Hongjiang Zhang, "ImageRank: Spectral Techniques for Structural Analysis of Image Database", IEEE Conference on Multimedia and Expo (ICME), July, 2003. (**ICME**)
69. Xiaofei He and Partha Niyogi, "Locality Preserving Projections", Advances in Neural Information Processing Systems, 2003. (**NIPS**)

70. Xiaofei He, Shuicheng Yan, Yuxiao Hu, and Hong-Jiang Zhang, "Learning a Locality Preserving Subspace for Visual Recognition", IEEE International Conference on Computer Vision, Nice, France, 2003. (**ICCV**)
71. Kai Yu, Wei-Ying Ma, Volker Tresp, Zhao Xu, Xiaofei He, Hongjiang Zhang, H.-P. Kriegel, "Knowing a Tree from the Forest: Art Image Retrieval Using a Society of Profiles", ACM Conference on Multimedia 2003. (**ACM Multimedia**)
72. Xiaofei He, Wei-Ying Ma, Oliver King, Mingjing Li, and Hong-Jiang Zhang, "Learning and Inferring a Semantic Space from User's Relevance Feedback for Image Retrieval", ACM Conference on Multimedia, 2002. (**ACM Multimedia**)

PATENT

1. Xiaofei He, "*System, Method, and Apparatus for Selecting One or More Representative Images*", United States Patent 8,472,705.
2. Pradhuman Jhala and Xiaofei He, "*System and Method for Determining Semantically Related Terms using an Active Learning Framework*", United States Patent 8,275,722.
3. Xiaofei He and Wei Vivian Zhang, "*System and method for selecting a training sample from a sample set*", United States Patent 7,844,567.
4. Xiaofei He, "*Web Page Categorization using Graph-Based Term Selection*", United States Patent 7,769,749.
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