Liang Du

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Research Interests

Data Mining, Machine Learning

Education

Ph.D. in Computer Science[1]. Institute of Software, Chinese Academy of Sciences, Beijing China Sep. 2007 – Jun. 2013
B.Eng. in Software Engineering. Wuhan University, Wuhan, China Sep. 2003 – Jun. 2007

Work Experience

Research Assistant Institute of Software, CAS July. 2014 – Present

I am working on the topic of the representation, similarity measurement and semantic comprehension of the internet big data, the sub-project of a 973 program.

Software Engineer Alibaba Group July. 2013 – July. 2014

I am working on the topic of computational advertising on big data, including the development of ranking and personalized recommendation algorithms.

Doctoral Research Institute of Software, CAS Sep. 2007 – July 2013

I am working with my supervisor Prof. Yi-Dong Shen on the topic of clustering with robust non-negative matrix factorization, document summarization, collaborative filtering and feature selection.

Research intern (Part time) HP Lab China Apr. 2010 – Apr. 2011

I am working with Dr. Zhiyong Shen on the topic of collaborative filtering and topic models.

Honors and Awards

Presidential Prize, CAS 2013
Outstanding Graduates, CAS 2013
Outstanding Graduates, Beijing 2013
Student Travel Award, IEEE ICDM 2012
Graduate Student Scholarship, CAS 2009

Publications

Highlights:KDD(1), IJCAI(4), AAAI(1), TKDE(1), ICDM(6), SDM(2), CIKM(1).
* indicates corresponding author

1 Graduates with highest honor

1. Hanmo Wang, **Liang Du***, Peng Zhou, Lei Shi, YuHua Qian and Yi-Dong Shen. Localized Multiple Kernel Experimental Design. in Proceedings of the Fifteenth IEEE International Conference on Data Mining (**ICDM**), pages xxx-xxx, Atlantic City, NJ, USA, November 1417, 2015, To appear. (Regular paper, acceptance rate 68/806 = 8.4%).

2. NanNan Gu, MingYu Fan, Di Wang, LiHao Jia and **Liang Du**. Semi-supervised classification based on affine subspace sparse representation. Science in China-Series F: Information Sciences, 2015, To appear.

3. **Liang Du**, Yi-Dong Shen. Unsupervised Feature Selection with Adaptive Structure Learning. in Proceedings of the 21th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), pages 209-218, Sydney, Australia, August 1013, 2015, To appear.

4. Nannan Gu, Mingyu Fan, **Liang Du**, Dongchun Ren. Efficient Sequential Feature Selection Based on Adaptive Eigenspace Model. Neurocomputing, August 2015, Volume 161, Pages 199-209.

5. **Liang Du**, Peng Zhou, Lei Shi, Hanmo Wang, Mingyu Fan, Wenjian Wang, Yi-Dong Shen. Robust Multiple Kernel K-means Clustering using $\ell_{2,1}$-norm. in Proceedings of the Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence (**IJCAI**), pages 3476-3482, Buenos Aires, Argentinean, July 25-31, 2015.

6. Peng Zhou, **Liang Du***, Lei Shi, Hanmo Wang, Yi-Dong Shen. Robust Multiple Kernel Learning. in Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence (**IJCAI**), pages 4105-4111, Buenos Aires, Argentinean, July 25-31, 2015.

7. Peng Zhou, **Liang Du***, Hanmo Wang, Lei Shi, Yi-Dong Shen. Learning a Robust Consensus Matrix for Clustering Ensemble via Kullback-Leibler Divergence Minimization. in Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence (**IJCAI**), pages 4112-4118, Buenos Aires, Argentinean, July 25-31, 2015.

8. Peng Zhou, **Liang Du**, Mingyu Fan, Yi-Dong Shen. An LLE based Heterogeneous Metric Learning for Cross-media Retrieval. In Proceedings of the Eleventh SIAM International Conference on Data Mining (**SDM**), pages 64-72, Vancouver, British Columbia, Canda, April 30-May 2, 2015. (Regular paper, acceptance rate 72/491 = 14.66%).

9. Hanmo Wang, **Liang Du**, Peng Zhou, Lei Shi, Yi-Dong Shen. Convex Batch Mode Active Sampling via α-relative Pearson Divergence. in Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (**AAAI**), pages 3045-3051, Austin Texas, USA, January 2530, 2015.

10. Liang Wu, Hui Xiong, **Liang Du**, Yuanchun Zhou. Heterogeneous Metric Learning with Content-based Regularization for Software Artifact Retrieval. The 14th IEEE International Conference on Data Mining (**ICDM**), pages 610-619, Shenzhen, China, December 14-17, 2014. (Regular paper, acceptance rate 71/727 = 9.7%).

11. Lei Shi, **Liang Du**, and Yi-Dong Shen. Robust Spectral Learning for Unsupervised Feature Selection. The 14th IEEE International Conference on Data Mining (**ICDM**), pages 977-982, Shenzhen, China, December 14-17, 2014.

12. **Liang Du**, Zhiyong Shen, Xuan Li, Peng Zhou and Yi-Dong Shen. Local and Global Discriminative Learning for Unsupervised Feature Selection. The 13th IEEE International Conference on Data Mining (**ICDM**), pages 131-140, Dallas, TX, USA, December 7-10, 2013. (Regular paper, acceptance rate $94/809 = 11.6\%$).

13. Jun Deng, **Liang Du**, and Yi-Dong Shen. Heterogeneous Metric Learning for Cross-Modal Multimedia Retrieval, The 14th International Conference on Web Information System Engineering (WISE), pages 43-56, Nanjing, China, October 13-15, 2013.

14. **Liang Du** and Yi-Dong Shen. Towards robust co-clustering. The 23rd International Joint Conference on Artificial Intelligence (**IJCAI**), pages 1317-1322, Beijing, China, August 3-9, 2013. (Oral paper, acceptance rate $195/1473 = 13.2\%$).

15. **Liang Du** and Yi-Dong Shen. Joint clustering and feature selection. The 14th International Conference on Web-Age Information Management (WAIM), pages 253-264, Beidaihe, China, June 14-16, 2013.

16. **Liang Du**, Yi-Dong Shen, Zhiyong Shen, Jianying Wang and Zhiwu Xu. A self-supervised framework for clustering ensemble. The 14th International Conference on Web-Age Information Management (WAIM), pages 253-264, Beidaihe, China, June 14-16, 2013.

17. Xuan Li, **Liang Du** and Yi-Dong Shen. Update summarization via graph-based sentence ranking. IEEE Transactions on Knowledge and Data Engineering (**TKDE**), May 2013, vol.25, no.5, pages 1162-1174.

18. Liang Wu, Alvin Chin, Guandong Xu, **Liang Du**, Xia Wang, Kangjian Meng, Yonggang Guo and Yuanchun Zhou. Who Will Follow Your Shop? Exploiting Multiple Information Sources in Finding Followers. Database Systems for Advanced Applications (DASFAA), pages 401-415, Wuhan, China, April 22-25, 2013.

19. **Liang Du**, Xuan Li and Yi-Dong Shen. Robust nonnegative matrix factorization via half-quadratic minimization. In Proceedings of IEEE 12th International Conference on Data Mining (**ICDM**), pages 201-210, Brussels, Belgium, December 10-13, 2012. (Regular paper, acceptance rate $81/756 = 10.7\%$).

20. **Liang Du**, Xuan Li and Yi-Dong Shen. Cluster ensembles via weighted graph regularized nonnegative matrix factorization. Advanced Data Mining and Applications (ADMA), pages 215-228, Beijing, China, December 18-20, 2011.

21. **Liang Du**, Xuan Li and Yi-Dong Shen. User graph regularized pairwise matrix factorization for item recommendation. Advanced Data Mining and Applications (ADMA), pages 372-385, Beijing, China, December 18-20, 2011.

22. Xuan Li, **Liang Du** and Yi-Dong Shen. Graph-based marginal ranking for update summarization. In Proceedings of the Eleventh SIAM International Conference on Data Mining (**SDM**), pages 486-497, Arizona, USA, April 28-30, 2011.

23. Zhiyong Shen, **Liang Du**, Xukun Shen and Yi-Dong Shen. Interval-valued matrix factorization with applications. In Proceedings of the IEEE 10th International Conference on Data Mining (**ICDM**), pages 1037-1042, Sydney, Australia, December 14-17, 2010.

24. Xuan Li, Yi-Dong Shen, **Liang Du** and Chen-Yan Xiong. Exploiting novelty, coverage and balance for topic-focused multi-document summarization. In Proceedings of the 19th ACM international conference on Information and knowledge management (**CIKM**), pages 1765-1768, Toronto, Canada, October 26-30, 2010.

Manuscripts

1. Dual Unsupervised Learning for Feature and Instance Selection
2. Robust Concept Factorization for Multiple Kernel Clustering
3. Incomplete Affinity Aggregation for Multi-View Spectral Clustering (under review)

Presentations

Robust Nonnegative Matrix Factorization via Half-Quadratic Minimization, ICDM 2012, Brussels Belgium.
User Graph Regularized Pairwise Matrix Factorization for Item Recommendation. ADMA 2011, Beijing China.
Cluster Ensembles via Weighted Graph Regularized Nonnegative Matrix Factorization. ADMA 2011, Beijing China.

Technical Strengths

Programming skill: Hadoop, Java, Python, C++, Matlab, R, LaTeX
System: Linux, Windows

Professional Activities

Reviewer for TKDE, DMKD, Neurocomputing, IJPRAI, etc.
Sub-reviewer KDD 2010, 2013; AAAI 2012, 2013; ISWC 2010, 2011; CIKM 2011; PAKDD 2011, 2012, 2013; PRICAI 2010, 2012; SEKE 2010, 2011, etc.

References

References are available upon request.