

Hongfu Liu

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EDUCATION	Northeastern University	Boston, MA, USA
	Ph.D. in Computer Engineering	09/2014 - now
	<i>Advisor:</i> Professor Yun Raymond Fu	
	Beihang University	Beijing, China
	M.Eng. in Management Science and Engineering	09/2011 - 06/2014
	<i>Advisor:</i> Professor Junjie Wu	
	Beihang University	Beijing, China
	B.Eng. in Information Management and Information System	09/2007 - 06/2011
	Beihang University	Beijing, China
	B.S. in Applied Mathematics	09/2007 - 06/2011
	Beihang University	Beijing, China
	B.A. in Laws	09/2007 - 06/2011

RESEARCH INTERESTS	• Cluster Analysis: consensus clustering, constrained clustering, balanced clustering, multi-view clustering, interpretable clustering, big data clustering	
	• Outlier Detection: multi-view outlier detection, spammer detection, zombie user detection, bi-sampling outlier detection, jointly clustering and outlier detection	
	• Transfer Learning: heterogenous domain adaptation, unsupervised domain adaptation, structure-preserved domain adaptation	
	• Feature Selection: unsupervised feature selection, multi-view feature selection	

HONORS & AWARDS	• IJCAI Student Travel Award	2017
	<i>International Joint Conference on Artificial Intelligence</i>	
	• KDD Student Travel Award	2016
	<i>ACM SIGKDD Conference on Knowledge Discovery and Data Mining</i>	
	• SIGIR Student Travel Award	2016
	<i>ACM International Conference Information and Knowledge Management</i>	
	• ICDM Student Travel Award	2016
	<i>IEEE Conference on Data Mining</i>	
	• AAAI Student Travel Award	2016
	<i>AAAI Conference on Artificial Intelligence</i>	
	• IEEE BigData Student Travel Award	2016
	<i>IEEE Conference on Big Data</i>	
	• Top 20 New Star in Data Mining	2016
	<i>Microsoft Academic Search</i>	
	• The inaugural Adobe Research Fellowship Finalist	2016
	<i>Adobe Research</i>	
	• ICDM Student Travel Award	2015
	<i>IEEE Conference on Data Mining</i>	
	• Dean Fellowship	2014
	<i>Northeastern University</i>	
	• Outstanding Graduate	2014
	<i>Beijing Education Commission</i>	
	• Outstanding Graduate Thesis	2014
	<i>Beihang University</i>	
	• National Scholarship	2013
	<i>Ministry of Education of China</i>	
	• Top 10 Graduate	2013
	<i>School of Economics and Management in Beihang University</i>	

- Data Mining Innovation Award 2013
China Internet Network Information Center
- Airbus Scholarship 2012
Beihang University
- Outstanding Volunteer Prize 2012
School of Economics and Management in Beihang University
- Outstanding Undergraduate Thesis 2011
Beihang University
- Outstanding Undergraduate 2011
Beijing Education Commission
- Board Scholarships 2012
School of Economics and Management in Beihang University
- Google Student Travel Award 2010
Student Symposium on Machine Learning and Applications
- Citigroup Scholarship 2010
Beihang University
- Kwang-Hua Scholarship 2009
Beihang University
- Samsung Scholarship 2008
Beihang University

INDUSTRY EXPERIENCE

- **Microsoft Research Asia** Beijing, China
Data Scientist Intern, *Mentor*: Dr. Lintao Zhang & Dr. Qi Chen 06/2017 - 08/2017
Project: Fast Clustering with Flexible Balance Constraints
- **Adobe Research** San Jose, CA
Data Scientist Intern, *Mentor*: Dr. Nikos Vlassis 05/2016 - 07/2016
Project: Greedy K-means-based Consensus Clustering for Customer Segmentation

TEACHING EXPERIENCE

- LECTURER
 - ◇ *Introduction to E-Commerce, Undergraduate*, Fall 2013
 - ◇ *Operation Research, Junior College Student*, Fall 2011
- ASSISTANT
 - ◇ *Machine Learning and Pattern Recognition*, Fall 2016
 - ◇ *Foundation of Visualization*, Fall 2015
 - ◇ *Modern Programming Design, Undergraduate*, Fall 2013
 - ◇ *Introduction to Java Programming*, Undergraduate, Fall 2009, 2010, Spring 2013
 - ◇ *Management Information Systems*, MBA, Spring & Fall 2011, Spring 2013
 - ◇ *Linear Algebra*, Undergraduate, Fall 2012

PUBLICATIONS Citations: 206; H-index: 8, i10-index: 8 by Google Scholar, Sept. 2017

- JOURNAL PAPERS
 - ◇ 2 TKDE, 1 TFS, 1 TIP, 1 DMKD, 1 BIOINF, 1 IS
 - 1. **Hongfu Liu**, Ming Shao, Sheng Li and Yun Fu. Infinite Ensemble Clustering. *Data Mining and Knowledge Discovery (DMKD)*, 2017.
 - 2. **Hongfu Liu**, Junjie Wu, Tongliang Liu, Dacheng Tao and Yun Fu. Spectral Ensemble Clustering: Theoretical and Practical Evidence. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2017.
 - 3. **Hongfu Liu**, Rui Zhao, Hongsheng Fang, Feixiong Chen, Yun Fu and Yuyang Liu. Entropy-based Consensus Clustering for Patient Stratification. *Bioinformatics (BIOINF)*, 2017.
 - 4. Handong Zhao, **Hongfu Liu**, Zhengming Ding and Yun Fu. Consensus Regularized Multi-View Outlier Detection. *IEEE Transactions on Image Processing (TIP)*, 2017.

5. Junjie Wu, Ziang Wu, Jie Cao, **Hongfu Liu**, Guoqing Chen and Yanchuan Zhang. Fuzzy Consensus Clustering with Applications on Big Data. *IEEE Transactions on Fuzzy Systems (TFS)*, 2017.
 6. Junjie Wu, **Hongfu Liu**, Hui Xiong, Jie Cao and Jian Chen. K-means-based Consensus Clustering: A Unified View. *IEEE Transactions on Knowledge And Data Engineering (TKDE)*, 2015.
 7. Junjie Wu, Shiwei Zhu, **Hongfu Liu** and Guoping Xia. Cosine Interesting Pattern Discovery. *Information Sciences (IS)*, 2012.
- ◇ Under Review: 3 **TPAMI**, 2 **TKDE**, 2 **TKDD**, 1 **JOC**, 1 **IJCV**, 1 **TSP**, 1 **JSS**
1. **Hongfu Liu**, Zhiqiang Tao and Yun Fu. Partition Level Constrained Clustering. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*.
 2. **Hongfu Liu**, Ming Shao and Yun Fu. Feature Selection with Unsupervised Consensus Guidance. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*.
 3. **Hongfu Liu**, Ming Shao, Zhengming Ding and Yun Fu. Structure-Preserved Unsupervised Domain Adaptation. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*.
 4. **Hongfu Liu** and Yun Fu. Recursive Multi-View Clustering. *ACM Transactions on Knowledge Discovery from Data (TKDD)*.
 5. **Hongfu Liu**, Junjie Wu, Zhiqiang Wu, Dacheng Tao and Yun Fu. Informative Consensus Clustering. *Journal on Computing (JOC)*.
 6. Zhiqiang, Tao, **Hongfu Liu**, Huazhu Fu and Yun Fu. Multi-View Saliency-Guided Constrained Clustering for Image Cosegmentation. *International Journal of Computer Vision (IJCV)*.
 7. Zhiqiang Tao, **Hongfu Liu**, Sheng Li, Zhengming Ding and Yun Fu. Robust Spectral Ensemble Clustering via Rank Minimization. *ACM Transactions on Knowledge Discovery from Data (TKDD)*.
 8. Handong Zhao, **Hongfu Liu**, Zhengming Ding and Yun Fu. Robust Graph Regularized Incomplete Multi-view Clustering. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*.
 9. Jun Li, **Hongfu Liu** and Yun Fu. Restricted Isometry Condition by Scale Null Space Property for Compressed Sensing. *IEEE Transactions on Signal Processing (TSP)*.
 10. Hao Lin, **Hongfu Liu** and Junjie Wu. KCC: A MATLAB Package for K-means-based Consensus Clustering. *Journal of Statistical Software (JSS)*.
 11. Joseph Robinson, Ming Shao, Yue Wu, Yue, **Hongfu Liu**, Timothy Gillis, and Yun Fu. Visual Kinship Recognition of Families In the Wild (FIW). *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*.
- CONFERENCE PAPERS
- ◇ 3 **KDD**, 4 **ICDM**, 1 **SDM**, 4 **IJCAI**, 3 **AAAI**, 1 **CIKM**, 1 **IEEE BigData**, 1 **HPCC**, 1 **ICSSM Best Paper**
1. Jun Li, **Hongfu Liu**, Handong Zhao, and Yun Fu. Projective Low-rank Subspace Clustering via Learning Deep Encoder. *In Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2017.
 2. Zhiqiang Tao, **Hongfu Liu**, Sheng Li, Zhengming Ding and Yun Fu. From Ensemble Clustering to Multi-View Clustering. *In Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2017.
 3. Zhiqiang Tao*, **Hongfu Liu***, Huazhu Fu and Yun Fu. Image Cosegmentation via Saliency-Guided Constraint Clustering with Cosine Similarity. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2017. (* means equal contribution)
 4. Zhiqiang Tao, **Hongfu Liu** and Yun Fu. Simultaneous Clustering and Ensemble. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2017.

5. **Hongfu Liu**, Ming Shao, Sheng Li and Yun Fu. Infinite Ensemble for Image Clustering. In *Proceedings of ACM SIGKDD international conference on Knowledge Discovery and Data mining (KDD)*, 2016.
6. **Hongfu Liu**, Haiyi Mao and Yun Fu. Robust Multi-View Feature Selection. In *Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
7. **Hongfu Liu**, Ming Shao and Yun Fu. Structure-Preserved Multi-Source Domain Adaptation. In *Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
8. **Hongfu Liu**, Ming Shao and Yun Fu. Consensus Guided Unsupervised Feature Selection. In *Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2016.
9. **Hongfu Liu**, Yuchao Zhang, Bo Deng and Yun Fu. Bi-sampling Ensemble Outlier Detection. In *Proceedings of IEEE International Conference on Big Data (IEEE BigData)*, 2016.
10. Zhiqiang Tao, **Hongfu Liu**, Sheng Li and Yun Fu. Robust Spectral Ensemble Clustering. In *Proceeding of ACM International Conference on Information and Knowledge Management (CIKM)*, 2016.
11. Handong Zhao, **Hongfu Liu** and Yun Fu. Incomplete Multi-modal Visual Data Grouping. In *Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.
12. **Hongfu Liu***, Tongliang Liu*, Junjie Wu, Dacheng Tao and Yun Fu. Spectral Ensemble Clustering. In *Proceedings of ACM SIGKDD international conference on Knowledge Discovery and Data mining (KDD)*, 2015. (* means equal contribution)
13. **Hongfu Liu** and Yun Fu. Clustering with Partition Level Side Information. In *Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2015.
14. **Hongfu Liu**, Junjie Wu, Dacheng Tao, Yuchao Zhang and Yun Fu. DIAS: A Disassemble-Assemble Framework for Highly Sparse Text Clustering. In *Proceedings of SIAM International Conference on Data Mining (SDM)*, 2015.
15. **Hongfu Liu**, Cheng Gong and Junjie Wu. Consensus Clustering on big data. In *Proceedings of IEEE International Conference on Service Systems and Service Management (ICSSSM Best Paper)*, 2015.
16. **Hongfu Liu**, Yuchao Zhang, Hao Lin and Junjie Wu. How Many Zombies Around You. In *Proceedings of the IEEE International Conference on Data Mining (ICDM)*, 2013.
17. **Hongfu Liu**, Yuchao Zhang and Xue Li. Consensus Ranking From a Utility View. In *Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
18. Junjie Wu, **Hongfu Liu**, Hui Xiong and Jie Cao. A Theoretic Framework of K-means-based Consensus Clustering. In *Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2013.
19. Yaqiong Wang, **Hongfu Liu**, Hao Lin, Junjie Wu, Zhiang Wu and Jie Cao. SEA: A System for Event Analysis on Chinese Tweets. In *Proceedings of ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2013.
20. Yuchao Zhang and **Hongfu Liu**. A Reliable QoE-aware Framework for Cloud Service Monitoring and Ranking. In *Proceedings of International Conference on Electrical and Information Technologies for Rail Transportation (EITRT)*, 2013.
21. Yuchao Zhang, **Hongfu Liu** and Bo Deng. SLA-Driven State Monitoring for Cloud Services. In *Proceedings of the 15th IEEE International Conference on High Performance Computing and Communications (HPCC)*, 2013.
22. Yuchao Zhang, **Hongfu Liu** and Bo Deng. Evolutionary Clustering with DBSCAN. In *Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
23. Di Zhao, **Hongfu Liu**, Hongyi Li. A Method Based on Grey Correlation Clustering for Improving the Hierarchy of Analytic Hierarchy Process. In *Proceedings of IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT)*, 2010.

- WORKSHOP AND DOCTORAL CONSORTIUM PAPERS

1. Yue Wu, **Hongfu Liu**, Yun Fu. Low-shot Face Recognition with Hybrid Classifiers. *In Proceedings of International Conference on Computer Vision Workshop (ICCV-W)*, 2017.
2. Yue Wu, **Hongfu Liu**, Jun Li and Yun Fu. Deep Face Recognition with Center Invariant Loss. *In Proceedings of ACM Multimedia Thematic Workshop (MM-W)*, 2017.

PATENTS

- **Hongfu Liu**, Nikolaos Vlassis. *Customer Segmentation Via Consensus Clustering* US Patent. Filed: 11/12/2015.
- Junjie Wu, **Hongfu Liu**, Hong Li and Xiaoting Han. *A Kind of Text Classification Method Based on Consensus Clustering* CN Patent. Filed: 10/07/2015.

ACADEMIC TALKS

- ◇ **Invited Talks**

- *Consensus Clustering for industrial applications*
JD, Beijing, China 2017
- *Fast Clustering with Flexible Balance Constraints*
Microsoft Research Asia, Beijing, China 2017
- *Spectral and Infinite Ensemble Clustering*
UMass Dartmouth, North Dartmouth, MA 2017
- *Greedy K-means-based Consensus Clustering*
Adobe Research, San Jose, CA 2016
- *K-means-based Consensus Clustering and its Applications*
NEPSSS, Northeastern University, Boston, MA 2015

- ◇ **Presentations at International Conferences**

- International Joint Conference on Artificial Intelligence (**IJCAI**), Melbourne, Australia 2017
- IEEE Conference on Big Data (**IEEE BigData**), Washington, D.C. 2016
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), San Francisco, CA 2016
- AAAI Conference on Artificial Intelligence (**AAAI**), Phoenix, AZ 2016
- IEEE Conference on Data Mining (**ICDM**), Atlantic City, NJ 2015
- SIAM International Conference on Data Mining (**SDM**), Vancouver, Canada 2015
- International Joint Conference on Artificial Intelligence (**IJCAI**), Beijing, China 2013
- IEEE Conference on Data Mining (**ICDM**), Dallas, TX 2013

PROFESSIONAL ACTIVITIES

- **Publicity Chair**

- ◇ International Workshop on Big Data Transfer Learning 2017

- **Program Committee**

- ◇ AAAI Conference on Artificial Intelligence (**AAAI**) 2017, 2018
- ◇ International Joint Conference on Artificial Intelligence (**IJCAI**) 2016, 2017
- ◇ International Conference on Machine Learning and Applications (**ICMLA**) 2016, 2017

- **Journal Reviewer**

- ◇ IEEE Transactions on Knowledge and Data Engineering (**TKDE**)
- ◇ IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**)
- ◇ IEEE Transactions on Image Processing (**TIP**)
- ◇ IEEE Transactions on Cybernetics (**TCYB**)
- ◇ IEEE Computational Intelligence Magazine (**CIM**)
- ◇ IEEE Transactions on Emerging Topics in Computational Intelligence (**TETCI**)
- ◇ ACM Transactions on Knowledge Discovery from Data (**TKDD**)

- ◇ Information Science (**IS**)
- ◇ Applied Computing and Informatics (**ACI**)