

# Hongfu Liu

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EDUCATION	Northeastern University	Boston, MA, USA
	Ph.D. in Computer Engineering	09/2014 - now
	Advisor: Professor Yun Raymond Fu	
	Beihang University	Beijing, China
	M.Eng. in Management Science and Engineering	09/2011 - 06/2014
	Advisor: Professor Junjie Wu	
RESEARCH INTERESTS	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 Law	09/2007 - 06/2011
HONORS & AWARDS	<ul style="list-style-type: none"><li>• <b>Cluster Analysis:</b> consensus clustering, constrained clustering, balanced clustering, multi-view clustering, interpretable clustering, big data clustering</li><li>• <b>Outlier Detection:</b> multi-view outlier detection, spammer detection, zombie user detection, bi-sampling outlier detection, jointly clustering and outlier detection</li><li>• <b>Transfer Learning:</b> heterogenous domain adaptation, unsupervised domain adaptation, structure-preserved domain adaptation</li><li>• <b>Feature Selection:</b> unsupervised feature selection, multi-view feature selection</li></ul>	
	First Place Award in MS-Celel-1M Grand Challenge	2017
	International Conference on Computer Vision	
	IJCAI Student Travel Award	2017
	International Joint Conference on Artificial Intelligence	
	KDD Student Travel Award	2016
	ACM SIGKDD Conference on Knowledge Discovery and Data Mining	
	SIGIR Student Travel Award	2016
	ACM International Conference Information and Knowledge Management	
	ICDM Student Travel Award	2016
	IEEE Conference on Data Mining	
	AAAI Student Travel Award	2016
	AAAI Conference on Artificial Intelligence	
	IEEE BigData Student Travel Award	2016
	IEEE Conference on Big Data	
	Top 20 New Star in Data Mining	2016
	Microsoft Academic Search	
The inaugural Adobe Research Fellowship Finalist	2016	
Adobe Research		
ICDM Student Travel Award	2015	
IEEE Conference on Data Mining		
Dean Fellowship	2014	
Northeastern University		
Outstanding Graduate	2014	
Beijing Education Commission		
Outstanding Graduate Thesis	2014	
Beihang University		

- National Scholarship 2013  
*Ministry of Education of China*
- Top 10 Graduate 2013  
*School of Economics and Management in Beihang University*
- 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 2011  
*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: 226; H-index: 9, i10-index: 9 by Google Scholar, Nov. 2017**

## • JOURNAL PAPERS

◇ 1 **TPAMI**, 2 **TKDE**, 1 **DMKD**, 1 **BIOINF**, 1 **TFS**, 1 **TIP**, 1 **IS**

1. **Hongfu Liu**, Zhiqiang Tao and Yun Fu. Partition Level Constrained Clustering. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2017.
2. **Hongfu Liu**, Ming Shao, Sheng Li and Yun Fu. Infinite Ensemble Clustering. *Data Mining and Knowledge Discovery (DMKD)*, 2017.
3. **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.

4. **Hongfu Liu**, Rui Zhao, Hongsheng Fang, Feixiong Chen, Yun Fu and Yuyang Liu. Entropy-based Consensus Clustering for Patient Stratification. *Bioinformatics (BIOINF)*, 2017.
  5. Handong Zhao, **Hongfu Liu**, Zhengming Ding and Yun Fu. Consensus Regularized Multi-View Outlier Detection. *IEEE Transactions on Image Processing (TIP)*, 2017.
  6. 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.
  7. 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.
  8. Junjie Wu, Shiwei Zhu, **Hongfu Liu** and Guoping Xia. Cosine Interesting Pattern Discovery. *Information Sciences (IS)*, 2012.
- ◇ Under Review: 2 **TPAMI**, 2 **TKDE**, 2 **TKDD**, 1 **JOC**, 1 **IJCV**, 1 **TSP**, 1 **JSS**, 1 **IVC**, 1 **EJOR**
1. **Hongfu Liu**, Ming Shao and Yun Fu. Feature Selection with Unsupervised Consensus Guidance. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*.
  2. **Hongfu Liu**, Ming Shao, Zhengming Ding and Yun Fu. Structure-Preserved Unsupervised Domain Adaptation. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*.
  3. **Hongfu Liu** and Yun Fu. Recursive Multi-View Clustering. *ACM Transactions on Knowledge Discovery from Data (TKDD)*.
  4. **Hongfu Liu**, Junjie Wu, Zhiang Wu, Dacheng Tao and Yun Fu. Informative Consensus Clustering. *Journal on Computing (JOC)*.
  5. Zhiqiang, Tao, **Hongfu Liu**, Huazhu Fu and Yun Fu. Multi-View Saliency-Guided Constrained Clustering for Image Cosegmentation. *International Journal of Computer Vision (IJCV)*.
  6. 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)*.
  7. 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)*.
  8. Jun Li, **Hongfu Liu** and Yun Fu. Restricted Isometry Condition by Scale Null Space Property for Compressed Sensing. *IEEE Transactions on Signal Processing (TSP)*.
  9. Hao Lin, **Hongfu Liu** and Junjie Wu. KCC: A MATLAB Package for K-means-based Consensus Clustering. *Journal of Statistical Software (JSS)*.
  10. Yue Wu, **Hongfu Liu**, Jun Li and Yun Fu. Improving Face Representation Learning with Center Invariant Loss. *Image and Vision Computing (IVC)*.
  11. Xue Li, **Hongfu Liu** and Bin Zhu. Evolutive Preference Analysis with Numerical Preference Relations. *European Journal of Operational Research (EJOR)*.
  12. Joseph Robinson, Ming Shao, Yue Wu, **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**, 4 **AAAI**, 1 **CIKM**, 2 **IEEE BigData**, 1 **HPCC**, 1 **ICSSSM Best Paper**
1. Jun Li, **Hongfu Liu** and Yun Fu. Predictive Coding Machine for Compressed Sensing and Image Denoising. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2018.

2. 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.
3. 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.
4. 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)
5. Zhiqiang Tao, **Hongfu Liu** and Yun Fu. Simultaneous Clustering and Ensemble. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2017.
6. Sheng Li, **Hongfu Liu**, Zhiqiang Tao and Yun Fu. Multi-View Graph Learning with Adaptive Label Propagation. *In Proceedings of IEEE International Conference on Big Data (IEEE BigData)*, 2017.
7. **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.
8. **Hongfu Liu**, Haiyi Mao and Yun Fu. Robust Multi-View Feature Selection. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
9. **Hongfu Liu**, Ming Shao and Yun Fu. Structure-Preserved Multi-Source Domain Adaptation. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
10. **Hongfu Liu**, Ming Shao and Yun Fu. Consensus Guided Unsupervised Feature Selection. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2016.
11. **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.
12. 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.
13. Handong Zhao, **Hongfu Liu** and Yun Fu. Incomplete Multi-modal Visual Data Grouping. *In Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.
14. **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)
15. **Hongfu Liu** and Yun Fu. Clustering with Partition Level Side Information. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2015.
16. **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.
17. **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.
18. **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.
19. **Hongfu Liu**, Yuchao Zhang and Xue Li. Consensus Ranking From a Utility View. *In Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
20. 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.
21. 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.

22. 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.
23. 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.
24. Yuchao Zhang, **Hongfu Liu** and Bo Deng. Evolutionary Clustering with DBSCAN. *In Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
25. 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: 11/12/2016.
- 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

- *Complex Problem, K-means Solution*  
University of Illinois Urbana-Champaign, Champaign, IL 2017
- *Consensus Clustering: A K-means Clustering View*  
Tufts University, Medford, MA 2017
- *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 • Editorial Board**

- ◇ Architecture and Design Review
- ◇ Annals of Mathematics and Physics

**• Publicity Chair**

- ◇ International Workshop on Big Data Transfer Learning 2017

**• Program Committee**

- ◇ AAAI Conference on Artificial Intelligence (**AAAI**) 2018
- ◇ IEEE International Conference on Multimedia Information Processing and Retrieval (**MIPR**) 2018
- ◇ AAAI Conference on Artificial Intelligence (**AAAI**) 2017
- ◇ International Joint Conference on Artificial Intelligence (**IJCAI**) 2017
- ◇ International Conference on Machine Learning and Applications (**ICMLA**) 2017
- ◇ International Joint Conference on Artificial Intelligence (**IJCAI**) 2016
- ◇ International Conference on Machine Learning and Applications (**ICMLA**) 2016

**• 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**)
- ◇ Bioinformatics (**BMC**)
- ◇ Information Science (**IS**)
- ◇ Applied Computing and Informatics (**ACI**)
- ◇ Computer Methods and Programs in Biomedicine (**CMPB**)
- ◇ Human-centric Computing and Information Sciences (**HCIS**)
- ◇ Journal of Electronic Imaging (**JEI**)