

# Hongfu Liu

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<b>POSITION</b>	<b>Brandeis University</b> Assistant Professor in Michtom School of Computer Science	Waltham, MA, USA 07/2018 - now
<b>EDUCATION</b>	<b>Northeastern University</b> Ph.D. in Computer Engineering <i>Advisor:</i> Professor Yun Raymond Fu	Boston, MA, USA 09/2014 - 04/2018
	<b>Beihang University</b> M.Eng. in Management Science and Engineering <i>Advisor:</i> Professor Junjie Wu	Beijing, China 09/2011 - 06/2014
	<b>Beihang University</b> B.Eng. in Information Management and Information System	Beijing, China 09/2007 - 06/2011
	<b>Beihang University</b> B.S. in Applied Mathematics	Beijing, China 09/2007 - 06/2011
	<b>Beihang University</b> B.A. in Law	Beijing, China 09/2007 - 06/2011
<b>RESEARCH INTERESTS</b>	<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>	
<b>INDUSTRY EXPERIENCE</b>	<ul style="list-style-type: none"><li>• <b>Microsoft Research Asia</b> Data Scientist Intern, <i>Mentor:</i> Dr. Lintao Zhang &amp; Dr. Qi Chen Project: Fast Clustering with Flexible Balance Constraints</li><li>• <b>Adobe Research</b> Data Scientist Intern, <i>Mentor:</i> Dr. Nikos Vlassis Project: Greedy K-means-based Consensus Clustering for Customer Segmentation</li></ul>	Beijing, China 06/2017 - 08/2017  San Jose, CA 05/2016 - 07/2016
<b>TEACHING EXPERIENCE</b>	<ul style="list-style-type: none"><li>• LECTURER<ul style="list-style-type: none"><li>◇ <i>Introduction to Big Data, Undergraduate &amp; Graduate</i>, Spring 2019</li><li>◇ <i>Introduction to Data Mining, Undergraduate &amp; Graduate</i>, Fall 2018</li><li>◇ <i>Introduction to E-Commerce, Undergraduate</i>, Fall 2013</li><li>◇ <i>Operation Research, Junior College Student</i>, Fall 2011</li></ul></li><li>• ASSISTANT<ul style="list-style-type: none"><li>◇ <i>Machine Learning and Pattern Recognition</i>, Fall 2016</li><li>◇ <i>Foundation of Visualization</i>, Fall 2015</li><li>◇ <i>Modern Programming Design, Undergraduate</i>, Fall 2013</li><li>◇ <i>Introduction to Java Programming, Undergraduate</i>, Fall 2009, 2010, Spring 2013</li><li>◇ <i>Management Information Systems, MBA</i>, Spring &amp; Fall 2011, Spring 2013</li><li>◇ <i>Linear Algebra, Undergraduate</i>, Fall 2012</li></ul></li></ul>	
<b>TUTORIAL</b>	<ol style="list-style-type: none"><li>1. Zhengming Ding, <b>Hongfu Liu</b> and Handong Zhao. Deep Multi-view Visual Data Analytics. <i>AAAI Conference on Artificial Intelligence (AAAI)</i>, 2019.</li></ol>	

## PUBLICATIONS • JOURNAL PAPERS

◇ 2 **TPAMI**, 4 **TKDE**, 1 **DMKD**, 2 **TKDD**, 1 **BMC**, 1 **TFS**, 1 **TIP**, 1 **IS**

1. Deqing Wang, Chenwei Lu, Junjie Wu, **Hongfu Liu**, Wenjie Zhang and Fuzhen Zhuang. Softly Associative Transfer Learning for Cross-domain Classification. *IEEE Transactions on Cybernetics (TC)*, 2019.
2. **Hongfu Liu**, Ming Shao and Yun Fu. Feature Selection with Unsupervised Consensus Guidance. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2018.
3. 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)*, 2018.
4. Yue Wu, **Hongfu Liu**, Jun Li and Yun Fu. Improving Face Representation Learning with Center Invariant Loss. *Image and Vision Computing (IVC)*, 2018.
5. **Hongfu Liu**, Ming Shao, Zhengming Ding and Yun Fu. Structure-Preserved Unsupervised Domain Adaptation. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2018.
6. Joseph Robinson, Ming Shao, Yue Wu, **Hongfu Liu**, Timothy Gillis and Yun Fu. Visual Kinship Recognition of Families in the Wild. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2018.
7. **Hongfu Liu** and Yun Fu. Consensus Guided Multi-View Clustering. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 2018.
8. Xue Li and **Hongfu Liu**. Greedy Optimization for K-means-based Consensus Clustering. *Tsinghua Science and Technology (TST)*, 2018.
9. **Hongfu Liu**, Zhiqiang Tao and Yun Fu. Partition Level Constrained Clustering. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2017.
10. **Hongfu Liu**, Ming Shao, Sheng Li and Yun Fu. Infinite Ensemble Clustering. *Data Mining and Knowledge Discovery (DMKD)*, 2017.
11. **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.
12. **Hongfu Liu**, Rui Zhao, Hongsheng Fang, Feixiong Chen, Yun Fu and Yuyang Liu. Entropy-based Consensus Clustering for Patient Stratification. *Bioinformatics (BMC)*, 2017.
13. Handong Zhao, **Hongfu Liu**, Zhengming Ding and Yun Fu. Consensus Regularized Multi-View Outlier Detection. *IEEE Transactions on Image Processing (TIP)*, 2017.
14. 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.
15. 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.
16. Junjie Wu, Shiwei Zhu, **Hongfu Liu** and Guoping Xia. Cosine Interesting Pattern Discovery. *Information Sciences (IS)*, 2012.

## • CONFERENCE PAPERS

◇ 3 **KDD**, 4 **ICDM**, 1 **SDM**, 4 **IJCAI**, 5 **AAAI**, 1 **CIKM**, 3 **IEEE BigData**, 1 **HPCC**, 1 **ICSSSM Best Paper**

1. Haitao Xiong, **Hongfu Liu**, Bineng Zhong and Yun Fu. Structured and Sparse Annotations for Image Emotion Distribution Learning. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2019.
2. **Hongfu Liu**, Ziming Huang, Yun Fu, Qi Chen, Mingqin Li, and Lintao Zhang. Fast Clustering with Flexible Balance Constraints. *In Proceedings of IEEE International Conference on Big Data (IEEE BigData)*, 2018.

3. 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.
4. Yue Wu, Zhengming Ding, **Hongfu Liu**, Joseph Robinson and Yun Fu. Kinship Classification through Latent Adaptive Subspace. *In Proceedings of IEEE Conference on Automatic Face and Gesture Recognition (FG)*, 2018.
5. 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.
6. 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.
7. 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)
8. Zhiqiang Tao, **Hongfu Liu** and Yun Fu. Simultaneous Clustering and Ensemble. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2017.
9. 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.
10. **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.
11. **Hongfu Liu**, Haiyi Mao and Yun Fu. Robust Multi-View Feature Selection. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
12. **Hongfu Liu**, Ming Shao and Yun Fu. Structure-Preserved Multi-Source Domain Adaptation. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
13. **Hongfu Liu**, Ming Shao and Yun Fu. Consensus Guided Unsupervised Feature Selection. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2016.
14. **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.
15. 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.
16. Handong Zhao, **Hongfu Liu** and Yun Fu. Incomplete Multi-modal Visual Data Grouping. *In Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.
17. **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)
18. **Hongfu Liu** and Yun Fu. Clustering with Partition Level Side Information. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2015.
19. **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.
20. **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.
21. **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.
22. **Hongfu Liu**, Yuchao Zhang and Xue Li. Consensus Ranking From a Utility View. *In Proceeding of International Conference on Natural Computation (ICNC)*, 2013.

23. 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.
24. 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.
25. 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.
26. 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.
27. Yuchao Zhang, **Hongfu Liu** and Bo Deng. Evolutionary Clustering with DBSCAN. *In Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
28. 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.

#### HONORS & AWARDS

- Outstanding Self-Financed Students Abroad 2018  
*Chinese Government Award*
- 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*

## ACADEMIC TALKS

- ◇ **Invited Talks**
- *From Consensus Clustering to K-means Clustering* 2018  
Baidu, Sunnyvale, CA
- *From Consensus Clustering to K-means Clustering* 2018  
University of Michigan-Dearborn, Dearborn, MI
- *From Consensus Clustering to K-means Clustering* 2018  
Tulane University, New Orleans, LA
- *From Consensus Clustering to K-means Clustering* 2018  
University of Miami, Coral Gables, FL
- *From Consensus Clustering to K-means Clustering* 2018  
Stevens Institute of Technology, Hoboken, NJ
- *From Consensus Clustering to K-means Clustering* 2018  
Rochester Institute of Technology, Rochester, NY
- *From Consensus Clustering to K-means Clustering* 2018  
San Diego State University, San Diego, CA
- *From Consensus Clustering to K-means Clustering* 2018  
Brandeis University, Waltham, MA
- *From Consensus Clustering to K-means Clustering* 2018  
Case Western Reserve University, Cleveland, OH
- *Consensus Clustering: A Tutorial* 2017  
The Ohio State University, Columbus, OH

- *K-means Solution for Complex Problem*  
Texas State University, San Marcos, TX 2017
- *K-means-based Consensus Clustering*  
Texas A&M University, College Station, TX 2017
- *Infinite Ensemble Clustering*  
Boston College, Chestnut Hill, MA 2017
- *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

- **Associate Editor**
  - ◇ IEEE Computational Intelligence Magazine (**IEEE CIM**)
- **Editorial Board**
  - ◇ Architecture and Design Review
  - ◇ Annals of Mathematics and Physics
- **Publicity Chair**
  - ◇ International Workshop on Big Data Transfer Learning 2017
- **Senior Program Committee**
  - ◇ AAAI Conference on Artificial Intelligence (**AAAI**) 2019
- **Program Committee**
  - ◇ IEEE Conference on Machine Learning (**ICML**) 2019
  - ◇ IEEE Conference on Multimedia Information Processing and Retrieval (**MIPR**) 2019
  - ◇ IEEE Conference on Data Mining (**ICDM**) 2018
  - ◇ IEEE Conference on Big Data (**IEEE BigData**) 2018
  - ◇ International Conference on Information Systems (**ICIS**) 2018
  - ◇ Neural Information Processing Systems (**NIPS**) 2018
  - ◇ AAAI Conference on Artificial Intelligence (**AAAI**) 2018

- ◇ IEEE 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 Pattern Analysis and Machine Intelligence (**TPAMI**)
- ◇ 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 Biomedical Engineering (**TBME**)
- ◇ IEEE Transactions on Cybernetics (**TC**)
- ◇ IEEE Transactions on Big Data (**TBD**)
- ◇ IEEE Computational Intelligence Magazine (**CIM**)
- ◇ IEEE Transactions on Emerging Topics in Computational Intelligence (**TETCI**)
- ◇ ACM Transactions on Knowledge Discovery from Data (**TKDD**)
- ◇ ACM Transactions on the Web (**TW**)
- ◇ Scientific Reports (**SR**)
- ◇ Bioinformatics (**BMC**)
- ◇ Information Science (**IS**)
- ◇ Neural Networks (**NN**)
- ◇ Applied Computing and Informatics (**ACI**)
- ◇ Computer Methods and Programs in Biomedicine (**CMPB**)
- ◇ Human-centric Computing and Information Sciences (**HCIS**)
- ◇ Journal of Electronic Imaging (**JEI**)
- ◇ International Journal on Artificial Intelligence Tools (**IJAIT**)
- ◇ Pattern Analysis and Applications (**PAA**)
- ◇ Mathematical Problems in Engineering (**MPE**)