

# Hongfu Liu

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- POSITION**      **Brandeis University**      Waltham, MA, USA  
Assistant Professor in Michtom School of Computer Science      07/2018 - now
- EDUCATION**      **Northeastern University**      Boston, MA, USA  
Ph.D. in Computer Engineering      09/2014 - 04/2018  
*Advisor:* Professor Yun Raymond Fu
- Beihang University**      Beijing, China  
M.Eng. in Management Science and Engineering      09/2011 - 06/2014  
*Advisor:* 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 Law      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
- 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 Big Data, Undergraduate & Graduate*, Spring 2019
    - ◇ *Introduction to Data Mining, Undergraduate & Graduate*, Fall 2018
    - ◇ *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
- TUTORIAL**
1. Zhengming Ding, **Hongfu Liu** and Handong Zhao. Deep Multi-view Visual Data Analytics. *AAAI Conference on Artificial Intelligence (AAAI)*, 2019.

## PUBLICATIONS • JOURNAL PAPERS

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

1. Weiren Yu, Zhengming Ding, Chunming Hu and **Hongfu Liu**. Knowledge Reused Outlier Detection. *IEEE Access*, 2019.
2. Zhiqiang Tao, **Hongfu Liu**, Sheng Li, Zhengming Ding and Yun Fu. Marginalized Multi-View Ensemble Clustering. *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 2019.
3. 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.
4. **Hongfu Liu**, Ming Shao and Yun Fu. Feature Selection with Unsupervised Consensus Guidance. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2018.
5. 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.
6. Yue Wu, **Hongfu Liu**, Jun Li and Yun Fu. Improving Face Representation Learning with Center Invariant Loss. *Image and Vision Computing (IVC)*, 2018.
7. **Hongfu Liu**, Ming Shao, Zhengming Ding and Yun Fu. Structure-Preserved Unsupervised Domain Adaptation. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2018.
8. 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.
9. **Hongfu Liu** and Yun Fu. Consensus Guided Multi-View Clustering. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 2018.
10. Xue Li and **Hongfu Liu**. Greedy Optimization for K-means-based Consensus Clustering. *Tsinghua Science and Technology (TST)*, 2018.
11. **Hongfu Liu**, Zhiqiang Tao and Yun Fu. Partition Level Constrained Clustering. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2017.
12. **Hongfu Liu**, Ming Shao, Sheng Li and Yun Fu. Infinite Ensemble Clustering. *Data Mining and Knowledge Discovery (DMKD)*, 2017.
13. **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.
14. **Hongfu Liu**, Rui Zhao, Hongsheng Fang, Feixiong Chen, Yun Fu and Yuyang Liu. Entropy-based Consensus Clustering for Patient Stratification. *Bioinformatics (BMC)*, 2017.
15. Handong Zhao, **Hongfu Liu**, Zhengming Ding and Yun Fu. Consensus Regularized Multi-View Outlier Detection. *IEEE Transactions on Image Processing (TIP)*, 2017.
16. 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.
17. 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.
18. 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**, 1 **CVPR**, 4 **IJCAI**, 5 **AAAI**, 1 **CIKM**, 3 **IEEE Big-Data**, 1 **HPCC**, 1 **ICSSM Best Paper**

1. Zhengming Ding and **Hongfu Liu**. Marginalized Latent Semantic Encoder for Zero-Shot Learning. *In Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.
2. 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.
3. **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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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)
9. Zhiqiang Tao, **Hongfu Liu** and Yun Fu. Simultaneous Clustering and Ensemble. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2017.
10. 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.
11. **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.
12. **Hongfu Liu**, Haiyi Mao and Yun Fu. Robust Multi-View Feature Selection. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
13. **Hongfu Liu**, Ming Shao and Yun Fu. Structure-Preserved Multi-Source Domain Adaptation. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2016.
14. **Hongfu Liu**, Ming Shao and Yun Fu. Consensus Guided Unsupervised Feature Selection. *In Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, 2016.
15. **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.
16. 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.
17. Handong Zhao, **Hongfu Liu** and Yun Fu. Incomplete Multi-modal Visual Data Grouping. *In Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.
18. **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)
19. **Hongfu Liu** and Yun Fu. Clustering with Partition Level Side Information. *In Proceedings of IEEE International Conference on Data Mining (ICDM)*, 2015.

20. **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.
21. **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.
22. **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.
23. **Hongfu Liu**, Yuchao Zhang and Xue Li. Consensus Ranking From a Utility View. *In Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
24. 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.
25. 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.
26. 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.
27. 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.
28. Yuchao Zhang, **Hongfu Liu** and Bo Deng. Evolutionary Clustering with DBSCAN. *In Proceeding of International Conference on Natural Computation (ICNC)*, 2013.
29. 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

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-CeLe1-1M 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*  
Baidu, Sunnyvale, CA 2018
- *From Consensus Clustering to K-means Clustering*  
University of Michigan-Dearborn, Dearborn, MI 2018
- *From Consensus Clustering to K-means Clustering*  
Tulane University, New Orleans, LA 2018
- *From Consensus Clustering to K-means Clustering*  
University of Miami, Coral Gables, FL 2018
- *From Consensus Clustering to K-means Clustering*  
Stevens Institute of Technology, Hoboken, NJ 2018

- *From Consensus Clustering to K-means Clustering*  
Rochester Institute of Technology, Rochester, NY 2018
- *From Consensus Clustering to K-means Clustering*  
San Diego State University, San Diego, CA 2018
- *From Consensus Clustering to K-means Clustering*  
Brandeis University, Waltham, MA 2018
- *From Consensus Clustering to K-means Clustering*  
Case Western Reserve University, Cleveland, OH 2018
- *Consensus Clustering: A Tutorial*  
The Ohio State University, Columbus, OH 2017
- *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**
  - ◇ Conference on Uncertainty in Artificial Intelligence (**UAI**) 2019
  - ◇ Neural Information Processing Systems (**NeurIPS**) 2019
  - ◇ SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**) 2019
  - ◇ International Joint Conference on Artificial Intelligence (**IJCAI**) 2019
  - ◇ 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**)