

## Kejun Huang

---

CONTACT INFORMATION     **Mobile:** +1 (612) 876-5450     **E-mail:** kejun.huang@ufl.edu  
                                 **Office:** 432 Newell Dr, CSE E576, Gainesville, FL 32611     **URL:** [www.cise.ufl.edu/kejun/](http://www.cise.ufl.edu/kejun/)

ACADEMIC EMPLOYMENTS     *Assistant Professor*     Aug. 2018 – Present  
                                 Department of Computer and Information Science and Engineering, University of Florida  
*Postdoctoral Associate*     Sept. 2016 – July 2018  
                                 Department of Electrical and Computer Engineering, University of Minnesota

EDUCATION     *Ph.D. in Electrical Engineering*     Advisor: Nikos Sidiropoulos, University of Minnesota, 2016  
                                 *B.ENG.*     Nanjing University of Information Science and Technology, 2010

GRANTS AND AWARDS     “Identifying Potential Investors using Joint Factorization and Latent Clustering”,  
                                 PI: N. D. Sidiropoulos, co-PI: **K. Huang**, Corning Inc. (Amount: \$70,000; Span: 2017–2018).

TEACHING     *COT 5615 Math for Intelligent Systems*     Fall 2019  
                                 *CAP 6617 Advanced Machine Learning*     Fall 2018

RESEARCH     Dr. Huang is interested in the broad area of **machine learning, signal processing, optimization, and statistics**. His current focus is primarily on theory and algorithm design for *identifiable* latent variable modeling and unsupervised learning, using matrix and tensor factorization tools, for applications in networks analysis, text mining, image processing, etc. Other research thrusts include non-convex optimization algorithm design and analysis, nonparametric statistical models, and large-scale computations.

PUBLICATIONS     Summary: Journal 17 (16 published, 1 in press), Conference 25  
                                 Citation: 1177, *h*-index: 15, source: [Google Scholar](https://scholar.google.com/) – Sept. 10, 2019     (\*: equal contribution)

S. Ibrahim, X. Fu, N. Kargas, and **K. Huang**, “Crowdsourcing via Pairwise Co-occurrences: Identifiability and Algorithms”, in *Conference on Neural Information Processing Systems (NeurIPS)*, 2019, Vancouver, Canada. (acceptance rate: 21.2%)

**K. Huang** and X. Fu, “Low-complexity Proximal Gauss-Newton Algorithm for Nonnegative Matrix Factorization”, in *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, 2019, Ottawa, Canada.

B. Yang, X. Fu, N. D. Sidiropoulos, and **K. Huang**, “Unsupervised Learning of Nonlinear Mixtures: Identifiability and Algorithm”, in *Asilomar Conference on Signals, Systems, and Computers (Asilomar)*, 2019, Pacific Grove, CA.

X. Fu and **K. Huang**, “Block-Term Tensor Decomposition via Constrained Matrix Factorization”, in *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, 2019, Pittsburgh, PA.

**K. Huang** and X. Fu, “Detecting Overlapping and Correlated Communities without Pure Nodes: Identifiability and Algorithm”, in *International Conference on Machine Learning (ICML)*, 2019, Long Beach, CA. (acceptance rate: 22.5%)

- K. Huang**, Z. Yang, Z. Wang, and M. Hong, “Learning Partially Observable Markov Decision Processing using Coupled Canonical Polyadic Decomposition”, in *IEEE Data Science Workshop (DSW)*, 2019, Minneapolis, MN.
- X. Fu\*, **K. Huang\***, N. D. Sidiropoulos, Q. Shi, and M. Hong, “Anchor-Free Correlated Topic Modeling”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 41(5):1056–1071, May 2019.
- ▷ Part of the result appears in  
**K. Huang\***, X. Fu\*, and N. D. Sidiropoulos, “Anchor-free Correlated Topic Modeling: Identifiability and Algorithm”, in *Conference on Neural Information Processing Systems (NIPS)*, 2016, Barcelona, Spain. (acceptance rate: 22.7%)
- S. Lu, Z. Zhao, **K. Huang**, M. Hong, “Perturbed Projected Gradient Descent Converges to Approximate Second-Order Points For Bound Constrained Nonconvex Problems”, in *IEEE International Conference on Acoustic, Speech, and Signal Processing (ICASSP)*, 2019, Brighton, UK.
- X. Fu, C. Gao, H.-T. Wai, **K. Huang**, “Block-Randomized Stochastic Proximal Gradient for Constrained Low-Rank Tensor Factorization”, in *IEEE International Conference on Acoustic, Speech, and Signal Processing (ICASSP)*, 2019, Brighton, UK.
- X. Fu, **K. Huang**, N. D. Sidiropoulos, and W-K Ma, “Nonnegative Matrix Factorization for Signal and Data Analytics: Identifiability, Algorithms, and Applications”, *IEEE Signal Processing Magazine*, 36(2):59–80, Mar. 2019.
- K. Huang**, X. Fu, and N. D. Sidiropoulos, “Learning Hidden Markov Models from Pairwise Co-occurrences with Application to Topic Modeling”, in *International Conference on Machine Learning (ICML)*, 2018, Stockholm, Sweden. (acceptance rate: 25%)
- X. Fu, **K. Huang**, E. E. Papalexakis, H. Song, P. P. Talukdar, N. D. Sidiropoulos, C. Faloutsos, T. Mitchell, “Efficient and Distributed Generalized Canonical Correlation Analysis for Big Multiview Data”, *IEEE Transactions on Knowledge and Data Engineering*, Sep. 2018 (accepted).
- ▷ Part of the result appears in  
X. Fu, **K. Huang**, E. E. Papalexakis, H. Song, P. P. Talukdar, N. D. Sidiropoulos, C. Faloutsos, and T. Mitchell, “Efficient and Distributed Algorithms for Large-Scale Generalized Canonical Correlations Analysis”, in *IEEE International Conference on Data Mining (ICDM)*, 2016, Barcelona, Spain. (acceptance rate: 19.6%)
- S. Smith\*, **K. Huang\***, N. D. Sidiropoulos, and G. Karypis, “Streaming Tensor Factorization for Infinite Data Sources”, in *SIAM International Conference on Data Mining (SDM)*, 2018, San Diego, CA. (acceptance rate: 23.2%)
- X. Fu\*, **K. Huang\***, and N. D. Sidiropoulos, “On Identifiability of Nonnegative Matrix Factorization”, *IEEE Signal Processing Letters*, 25(3):328–332, Mar. 2018.
- K. Huang**, X. Fu, and N. D. Sidiropoulos, “On Convergence of Epanechnikov Mean Shift”, in *AAAI Conference on Artificial Intelligence (AAAI)*, 2018, New Orleans, LA. (acceptance rate: 25%)
- A. P. Liavas, G. Kostouloas, G. Lourakis, **K. Huang**, and N. D. Sidiropoulos, “Nesterov-based Alternating Optimization for Nonnegative Tensor Factorization: Algorithm and Parallel Implementation”, *IEEE Transactions on Signal Processing*, 66(4):944–953, Feb. 2018.
- ▷ Part of the result appears in  
A. P. Liavas, G. Kostoulas, G. Lourakis, **K. Huang**, and N. D. Sidiropoulos, “Nesterov-based Parallel Algorithm for Large-scale Nonnegative Tensor Factorization”, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2017, New Orleans, LA.
- K. Huang** and N. D. Sidiropoulos, “Kullback-Leibler Principal Component for Tensors is not NP-hard”, in *Asilomar Conference on Signals, Systems, and Computers (Asilomar)*, 2017, Pacific Grove, CA.

- X. Fu, **K. Huang**, O. Stretcu, H. Song, E. E. Papalexakis, P. P. Talukdar, T. Mitchell, N. D. Sidiropoulos, C. Faloutsos, and B. Póczos, “BrainZoom: High Resolution Reconstruction from Multi-modal Brain Signals”, in *SIAM International Conference on Data Mining (SDM)*, 2017, Houston, TX. (acceptance rate: 26%)
- K. Huang** and Y. C. Eldar, “Phase Retrieval Using a Conjugate Symmetric Reference”, in *International Conference on Sampling Theory and Applications (SampTA)*, 2017, Tallinn, Estonia.
- X. Fu, **K. Huang**, M. Hong, N. D. Sidiropoulos, and A. M. C. So, “Scalable and Flexible Multiview MAX-VAR Canonical Correlation Analysis”, *IEEE Transactions on Signal Processing*, 65(16):4150–4165, Aug. 2017.
- ▷ Part of the result appears in  
X. Fu, **K. Huang**, M. Hong, N. D. Sidiropoulos, and A. M.-C. So, “Scalable and Flexible MAX-VAR Generalized Canonical Correlation Analysis via Alternating Optimization”, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2017, New Orleans, LA.
- N. D. Sidiropoulos, L. De Lathauwer, X. Fu, **K. Huang**, E. E. Papalexakis, and C. Faloutsos, “Tensor Decomposition for Signal Processing and Machine Learning (overview article)”, *IEEE Transactions on Signal Processing*, 65(13):3551–3582, July 2017.
- X. Fu, **K. Huang**, B. Yang, W.-K. Ma, and N. D. Sidiropoulos, “Robust Volume Minimization-based Matrix Factorization for Remote Sensing and Document Clustering”, *IEEE Transactions on Signal Processing*, 64(23):6254–6268, Dec. 2016.
- ▷ Part of the result appears in  
X. Fu, W.-K. Ma, **K. Huang**, and N. D. Sidiropoulos, “Robust Volume Minimization-based Matrix Factorization via Alternating Optimization”, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016, Shanghai, China.
- K. Huang**, Y. C. Eldar, and N. D. Sidiropoulos, “Phase Retrieval from 1D Fourier Measurements: Convexity, Uniqueness, and Algorithms”, *IEEE Transactions on Signal Processing*, 64(23):6105–6117, Dec. 2016.
- ▷ Part of the result appears in  
**K. Huang**, Y. C. Eldar, and N. D. Sidiropoulos, “On Convexity and Identifiability in 1-D Fourier Phase Retrieval”, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016, Shanghai, China.
- K. Huang** and N. D. Sidiropoulos, “Consensus-ADMM for General Quadratically Constrained Quadratic Programming”, *IEEE Transactions on Signal Processing*, 64(20):5297–5310, Oct. 2016.
- C. Qian, N. D. Sidiropoulos, **K. Huang**, L. Huang, and H.-C. So, “Phase Retrieval Using Feasible Point Pursuit: Algorithms and Cramér-Rao Bound”, *IEEE Transactions on Signal Processing*, 64(20):5282–5296, Oct. 2016.
- ▷ Part of the result appears in  
C. Qian, N. D. Sidiropoulos, **K. Huang**, L. Huang, and H.-C. So, “Least Squares Phase Retrieval Using Feasible Point Pursuit”, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016, Shanghai, China.
- K. Huang**, N. D. Sidiropoulos, and A. P. Liavas, “A Flexible and Efficient Algorithmic Framework for Constrained Matrix and Tensor Factorization”, *IEEE Transactions on Signal Processing*, 64(19):5052–5065, Oct. 2016.
- ▷ Part of the result appears in  
**K. Huang**, N. D. Sidiropoulos, and A. P. Liavas, “Efficient Algorithms for ‘Universally’ Constrained Matrix and Tensor Factorization”, in *European Signal Processing Conference (EUSIPCO)*, 2015, Nice, France.

- X. Fu, **K. Huang**, W.-K. Ma, N. D. Sidiropoulos, and R. Bro, “Joint Tensor Factorization and Outlying Slab Suppression with Applications”, *IEEE Transactions on Signal Processing*, 63(23):6315–6328, Dec. 2015.
- M. Gardner\*, **K. Huang**\*, E. E. Papalexakis, X. Fu, P. P. Talukdar, C. Faloutsos, N. D. Sidiropoulos, and T. Mitchell, “Translation Invariant Word Embeddings”, in *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2015, Lisbon, Portugal. (acceptance rate: 23.7%)
- O. Mehanna, **K. Huang**, B. Gopalakrishnan, A. Konar, and N. D. Sidiropoulos, “Feasible Point Pursuit and Successive Approximation of Non-convex QCQPs”, *IEEE Signal Processing Letters*, 22(7):804–808, July 2015.
- X. Fu, W.-K. Ma, **K. Huang**, and N. D. Sidiropoulos, “Blind Separation of Quasi-stationary Sources: Exploiting Convex Geometry in Covariance Domain”, *IEEE Transactions on Signal Processing*, 63(9):2306–2320, June 2015.
- K. Huang**, N. D. Sidiropoulos, E. E. Papalexakis, C. Faloutsos, P. P. Talukdar, and T. Mitchell, “Principled Neuro-Functional Connectivity Discovery”, in *SIAM International Conference on Data Mining (SDM)*, 2015, Vancouver, Canada. (oral presentation, acceptance rate: 14.7%)
- K. Huang** and N. D. Sidiropoulos, “Putting NMF to the Test: A Tutorial Derivation of Pertinent Cramér-Rao Bounds and Performance Benchmarking”, *IEEE Signal Processing Magazine*, 31(3):76–86, May 2014.
- K. Huang**, N. D. Sidiropoulos, and A. Swami, “Non-negative Matrix Factorization Revisited: Uniqueness and Algorithm for Symmetric Decomposition”, *IEEE Transactions on Signal Processing*, 62(1):211–224, Jan. 2014.
- ▷ Part of the result appears in  
**K. Huang**, N. D. Sidiropoulos, and A. Swami, “NMF revisited: new uniqueness results and algorithms”, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2013, Vancouver, Canada.

#### COLLOQUIA

- “Latent Variable Identification using Identifiable Matrix Factorization Methods”, School of Electrical Engineering and Computer Science, Oregon State University, Apr. 2019.
- “Latent Variable Identification using Identifiable Matrix Factorization Methods”, School of Software Engineering, Tongji University, Feb. 2019.

#### STUDENT ADVISING

Aysegul Bumin	Dept. of CISE, Univ. of Florida
Jingzhou Hu	Dept. of CISE, Univ. of Florida
Yuchen Sun	Dept. of CISE, Univ. of Florida
Meghana Reddy Voladri	Dept. of CISE, Univ. of Florida

#### PROFESSIONAL ACTIVITIES

Session chair for 2019 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Brighton, UK, May 12–17, 2019.

Reviewer for the following journals: *IEEE Transactions on Signal Processing*, *IEEE Journal of Selected Topics in Signal Processing*, *IEEE Signal Processing Letters*, *SIAM Journal on Scientific Computing*, *Data Mining and Knowledge Discovery (Springer)*, *Signal Processing (Elsevier)*, *Neurocomputing (Elsevier)*, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Transactions on Knowledge and Data Engineering*, *ACM Transactions on Knowledge Discovery from Data*, *Knowledge and Information Systems*, *Pattern Recognition Letters*, *International Journal of Computer Vision*, *International Journal of Robotics Research*, *IEEE Transactions on Wireless Communications*, *IEEE*

Transactions on Aerospace and Electronic Systems, IEEE Transactions on Vehicular Technology, IEEE Journal of Oceanic Engineering, Nucleic Acids Research, International Journal of Modern Physics B.

Reviewer or program committee for the following conferences: Neural Information Processing Systems (NeurIPS) 2016, 2018, 2019, International Conference on Machine Learning (ICML) 2019, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2018, 2019, IEEE International Symposium on Information Theory (ISIT) 2017, SIAM International Conference on Data Mining (SDM) 2018, 2019, 2020, AAAI Conference on Artificial Intelligence (AAAI) 2019, 2020, International Joint Conference on Artificial Intelligence (IJCAI) 2017–2019, ACM-SIAM Symposium on Discrete Algorithms (SODA) 2018, European Signal Processing Conference (EUSIPCO) 2017, IEEE Global Conference on Signal and Information Processing (GlobalSIP) 2019, IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP) 2016, 2019 IEEE International Workshop on Machine Learning for Signal Processing (MLSP) 2016, 2019.