

Zhanyu Ma

Contact Information	Pattern Recognition and Intelligent Systems (PRIS) Laboratory National Engineering Laboratory for Information Security Technology School of Information and Communication Engineering Beijing University of Posts and Telecommunications, Beijing, China. E-mail: mazhanyu@bupt.edu.cn Homepage: http://www.pris.net.cn/en/zhanyu
Research Interests	Pattern Recognition and Machine Learning Variational Bayes, Multimedia Signal Processing, Biomedical Signal Processing, Bioinformatics
Professional Experience	Aalborg University, Aalborg, Denmark <i>Adjunct Associate Professor</i> 2015.07 – Now Beijing University of Posts and Telecommunications, Beijing, China <i>Associate Professor</i> 2014.12 – Now University College London, London, United Kingdom <i>UCL Big Data Institute Visiting Scholar</i> 2014.07 – 2014.08 Beijing University of Posts and Telecommunications, Beijing, China <i>Assistant Professor</i> 2013.08 – 2014.11 KTH - Royal Institute of Technology, Stockholm, Sweden <i>Postdoc Researcher</i> 2012.01 – 2013.06
Education	KTH - Royal Institute of Technology, Stockholm, Sweden <i>Doctor of Philosophy in Telecommunications</i> 2007.09 – 2011.12 <ul style="list-style-type: none">• Advisors: Professor Arne Leijon and Professor W. Bastiaan Kleijn• Thesis title: Non-Gaussian Statistical Models and Their Applications, <i>best thesis award of the defence committee</i>.
Supervision	Co-supervisor for 3 Ph.D. student (Ongoing: Hong Yu with Prof. Jun Guo and Assoc. Prof. Zheng-Hua Tan (Aalborg University, Denmark), Peng Xu with Prof. Jun Guo and Prof. Yi-Zhe Song (Queen Mary University of London, UK), and Fangyi Zhu with Prof. Jun Guo and Prof. Jen-Tzung Chien (National Chiao Tung University, Taiwan)), 1 PostDoc (Ongoing: Xiaoyu Li), 11 Master students (Finished: Rasmus L. Kristensen, with Assoc. Prof. Zheng-Hua Tan. Ongoing: Chuyi Feng, Huiyan Dong by myself, Di Huang, Xiaohui Shan, Huanyu Zhou, Guangqi Chen with Prof. Jun Guo, Xiaoyu Zhao, Yongye Huang, Jing Peng, Yanlong Hao with Prof. Zhiqing Lin).
Teaching	At KTH: Speech Signal Processing (graduate level) At BUPT: Data Structure (bachelor level), Internet Security (bachelor level), Video Signal Processing (graduate level)
Professional Activities	<ul style="list-style-type: none">• Deputy Secretary-in-General, China Computer Federation, Computer Vision Task Force, 2015-Now.• Technical Co-Chair, SPLINE (International Workshop on Sensing, Processing and Learning for Intelligent Machines), 2016.• Tutorial Co-chair, ICCo5 (International Conference on Communications, Connectivity, Convergence, Content and Co-operation), 2013.• Special Session Chair, GWS (Global Wireless Summit), 2014.• Special Session Chair, QSHINE (International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness), 2015.
Main Project Funding	<ol style="list-style-type: none">1. “Study of Efficient Variational Approximate Inference Method for Non-Gaussian Probabilistic Models”, <i>National Nature Science Foundation of China (NSFC)</i>, 2015.01-2017.12. (PI)2. “Non-Gaussian Statistical Model-based Cross-domain Visual Analysis”, <i>National Nature Science Foundation of China (NSFC)</i>, 2015.04-2017.03. (PI)3. “Bayesian Prior-based Single Channel Speech Enhancement with Variational Inference Framework”, <i>Ministry of Education of China</i>, 2015.1-2016.12. (PI)

4. "Non-Gaussian Cross-domain Analysis-based Research on Multi-view Depth Image Enhancement", *Beijing Natural Science Foundation*, 2016.10-2018.12. (PI)
5. "Study of Non-Gaussian Probabilistic Model Estimation Methods with Bayesian Network", *Ministry of Education of China*, 2013.10-2015.09. (PI)
6. "New advanced probabilistic models for multimedia signal processing", *KTH research funding*, 2010.09-2013.06. (PI)
7. "MobileCloud", *EU FP7 IRSES Project*, 2014.01-2016.12.
8. "Developing a new strategy for the operation of the CHP and district heating system based on the end user heat demand", *Angpanneforeningens Forskningsstiftelse*, 2012.09-2013.08.

Publications

Selected Journal Papers

Impact factors: TPAMI: 5.694, J-STSP: 3.629, KBS: 3.058, TASLP: 2.625, PR: 2.584, ENB: 2.465, IJMS: 2.339, SP: 2.238, NEUROCOMPUTING: 2.005

*=corresponding author

1. Z. Ma*, J.-H. Xue, A. Leijon, Z.-H. Tan, Z. Yang, and J. Guo, "Decorrelation of Neutral Vector Variable: Theory and Applications", *IEEE Trans. on Neural Networks and Learning Systems*, accepted for publication.
2. Q. Sun, H. Li, Z. Ma*, C. Wang, J. Campillo, F. Wallin, and Jun Guo, "A Comprehensive Review of Smart Meters in Intelligent Energy Networks", *IEEE Internet of Things Journal (IoT-J)*, accepted for publication.
3. C. Zhang, Z. Si, Z. Ma*, X. Xi, Y. Yin, "Mining Sequential Update Summarization with Hierarchical Text Analysis", *Mobile Information Systems*, vol. 2016, Article ID 1340973, 10 pages, 2016.
4. Z. Ma*, Z.-H. Tan, and J. Guo, "Feature Selection for Neutral Vector in EEG Signal Classification", *NEUROCOMPUTING*, vol. 174, pp. 937-945, Jan. 2016.
5. M. Davis*, Z. Ma*, W. Liu, P. Miller, R. Hunter, F. Kee, "Generating realistic labelled, weighted random graphs", *Algorithms*, 8(4), 1143-1174, 2015
6. Z. Ma*, A.E. Teschendorff, A. Leijon, Y. Qiao, H. Zhang, and J. Guo, "Variational Bayesian Matrix Factorization for Bounded Support Data", *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Volume 37, Issue 4, pp. 876-889, Apr. 2015.
7. P. K. Rana*, J. Taghia, Z. Ma, and M. Flierl, "Probabilistic Multiview Depth Image Enhancement Using Variational Inference", *IEEE Journal of Selected Topics in Signal Processing (J-STSP)*, Vol. 9, No. 3, pp. 435-448, April 2015.
8. Z. Ma*, J. Taghia, W. B. Kleijn, A. Leijon, and J. Guo, "Line Spectral Frequencies Modeling by a Mixture of von Mises-Fisher Distributions", *Signal Processing (SP)*, vol. 114, 219-224, Sep. 2015.
9. C. Zhang, Y. Zhang, W. Xu*, Z. Ma, Y. Leng, and J. Guo, "Mining Activation Force Dened Dependency Patterns for Relation Extraction", *Knowledge-Based Systems(KBS)*, vol. 86, pp. 278C287, Sep. 2015.
10. C. Zhang*, W. Xu, Z. Ma, S. Gao, Q. Li, and J. Guo, "Construction of Semantic Bootstrapping Models for Relation Extraction", *Knowledge-Based Systems(KBS)*, 83, 128-137, 2015.
11. K. Zhao*, H. Zhang, Z. Ma, Y.-Z. Song and J. Guo, "Multi-label Learning with Prior Knowledge for Facial Expression Analysis", *NEUROCOMPUTING*, vol 157, pp. 280-289, June 2015.
12. J. Taghia, Z. Ma*, and A. Leijon, "Bayesian Estimation of the von Mises-Fisher Mixture Model with Variational Inference", *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Volume:36, Issue9, pp. 1701-1715, Sept., 2014.
13. Z. Ma*, P. K. Rana, J. Taghia, M. Flierl, and A. Leijon, "Bayesian Estimation of Dirichlet Mixture Model with Variational Inference", *Pattern Recognition (PR)*, Volume 47, Issue 9, pp. 3143-3157, Sept. 2014.
14. Z. Ma*, H. Li, Q. Sun, C. Wang, A. Yan, and F. Starfel, "Statistical analysis of energy consumption patterns on the heat demand of buildings in district heating systems", *Energy and Buildings(ENB)*, pp. 464-472, Volume 85, December 2014.

15. Z. Ma*, S. Chatterjee, W. B. Kleijn and J. Guo, "Dirichlet Mixture Modeling to Estimate an Empirical Lower Bound for LSF Quantization", *Signal Processing (SP)*, Volume 104, pp. 291-295, Nov. 2014.
16. Z. Ma*, A.E. Teschendorff, H. Yu, J. Taghia, and J. Guo, "Comparisons of Non-Gaussian Statistical Models in DNA Methylation Analysis", *International Journal of Molecular Sciences (IJMS)*, 15(6), 10835-10854, 2014.
17. Z. Ma*, A. Leijon, Z.-H. Tan, and S. Gao, "Predictive Distribution of the Dirichlet Mixture Model by Local Variational Inference", *Journal of Signal Processing System (JSPS)*, Volume 74, Issue 3, pp.359-374, Mar. 2014.
18. S. Gao, H. Luo, D. Chen, S. Li, P. Gallinari, Z. Ma*, and J. Guo "A Cross-Domain Recommendation Model for Cyber-Physical Systems", *IEEE Trans. on Emerging Topics in Computing*, Vol. 1, No. 2, pp.384-393, 2013.
19. Z. Ma* and A. E. Teschendorff, "A Variational Bayes Beta Mixture Model for Feature Selection in DNA Methylation Studies", *Journal of Bioinformatics and Computational Biology (JBCB)*, Vol. 11, No. 4 (2013) 1350005 (19 pages), 2013.
20. Z. Ma*, A. Leijon, and W. B. Kleijn, "Vector Quantization of LSF Parameters with a Mixture of Dirichlet Distributions", *IEEE Trans. on Audio, Speech, and Language Processing (TASLP)*, vol.21, no.9, pp.1777-1790, Sept. 2013.
21. Z. Ma* and A. Leijon, "Bayesian Estimation of Beta Mixture Models with Variational Inference", *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 33, pp. 2160-2173, Nov. 2011.

Conference Papers

1. P. Xu, K. Li, Z. Ma*, Y.-Z. Song, L. Wang, J. Guo, "Cross-modal Subspace Learning for Sketch-based Image Retrieval: A Comparative Study", in *Proceedings of IEEE International Conference on Network Infrastructure and Digital Content*, Sept. 23-25, 2016.
2. H. Zhou, N. Zhang, D. Huang, Z. Ma*, W. Hu, and J. Guo, Activation Force-based Air Pollution Tracing, in *Proceedings of IEEE International Conference on Network Infrastructure and Digital Content*, Sept. 23-25, 2016.
3. Z. Wang*, Y. Qi, J. Liu, and Z. Ma, "User Intention Understanding from Scratch", in *Proceedings of IEEE International Workshop on Sensing, Processing and Learning for Intelligent Machines (SPLINE)*, 6-8 July, 2016.
4. Y. Chen, Y. Li, F. Qi, Z. Ma, H. Zhang, "Cycled Merging Registration of Point Clouds for 3D Human Body Modeling", in *Proceedings of IEEE International Workshop on Sensing, Processing and Learning for Intelligent Machines (SPLINE)*, 6-8 July, 2016.
5. H. Yu, A. Sarkar, D. A. L. Thomsen, Z.-H. Tan, Z. Ma, and J. Guo, "Effect of Multi-Condition Training and Speech Enhancement Methods on Spoofing Detection", in *Proceedings of IEEE International Workshop on Sensing, Processing and Learning for Intelligent Machines (SPLINE)*, 6-8 July, 2016.
6. Y. Sun, W. Wang, H. Zhang, Z. Ma, "Detecting Formula based on Stroke Width Transform for online Chinese Examination Question Retrieval", in *Proceedings of IEEE Digital Media Industry and Academic Forum*, 4-6 July, 2016.
7. L. Qi, Y. Qiao, F. B. Abdesslem, Z. Ma, J. Yang, "Oscillation Resolution for Massive Cell Phone Traffic Data", in *Proceedings of ACM MobiSys Workshop on Mobile Data*, 30 June, 2016.
8. V. Nian, Q. Sun, and Z. Ma. "A comparative cost assessment of energy production from central heating plant or power plant waste heat recovery", in *Proceedings of CUE2016-Applied Energy Symposium and Forum*, June 13-15, 2016.
9. D. Huang, N. Zhang, H. Yu, H. Zhou, Z. Ma*, W. Hu, and J. Guo, "Activation Force-based Air Pollution Observation Station Clustering", in *Proceedings of QSHINE*, 19-20 August, Taipei, 2015.
10. C. Zhang, Z. Ma*, J. Zhang, W. Xu, and J. Guo, "A Multi-Level System for Sequential Update Summarization", in *Proceedings of QSHINE*, 19-20 August, Taipei, 2015.

11. R. L. Kristensen*, Z.-H. Tan, Z. Ma, and J. Guo, "Binary Pattern Flavored Feature Extractors for Facial Expression Recognition: An Overview", in *Proceedings of CIS-MIPRO*, 25-29 May 2015.
12. H. Yu, Z. Ma, M. Li, and J. Guo, "Histogram Transform Model Using MFCC Features for Text-independent Speaker Identification", in *Proceedings of IEEE Asilomar Conference on Signals, Systems, and Computers (Asilomar SS&C)*, 2014.
13. F. Qi, H. Zhang, Z. Ma, and N. Liu, "Supervoxel for Human and Clothes in RGB-D Image", in *Proceedings of Global Wireless Summit (GWS)*, 2014.
14. Z. Ma, R. Martin, J. Guo, and H. Zhang, "Nonlinear estimation of missing LSF parameters by a mixture of Dirichlet distributions", in *Proceedings of International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2014.
15. S. Di, Z. Yang, H. Zhang, Z. Ma, and J. Guo, "A Robust Lane Detection Algorithm for Lane Departure Warning Systems", in *Proceedings of International Conference on Communications, Connectivity, Convergence, Content and Co-operation (ICCo5)*, 2013.
16. Z. Ma, Q. Sun, H. Li, C. Wang, A. Yan, and F. Starfelt, "Dynamic Prediction of the Heat Demand for Buildings in District Heating Systems", in *Proceedings of International Conference on Applied Energy (ICAE)*, 2013.
17. P. K. Rana, Z. Ma, J. Taghia, and M. Flierl, "Multiview Depth Map Enhancement by Variational Bayes Inference Estimation of Dirichlet Mixture Models", in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2013.
18. J. Taghia, Z. Ma, and A. Leijon, "On Von-Mises Fisher Mixture Model in Text-Independent Speaker Identification", in *Proceedings of INTERSPEECH*, 2013.
19. Z. Ma, "Bayesian Estimation of the Dirichlet Distribution with Expectation Propagation", in *Proceedings of European Signal Processing Conference (EUSIPCO)*, 2012.
20. Z. Ma, Z.-H. Tan, and S. Prasad, "EEG Signal Classification with Super-Dirichlet Mixture Model", in *Proceedings of IEEE Statistical Signal Processing Workshop (SSP)*, 2012.
21. Z. Ma and A. Leijon, "A Model-based Collaborative Filtering Method for Bounded Support Data", in *Proceedings of IEEE International Conference on Network Infrastructure and Digital Content (IC-NIDC)*, 2012.
22. Z. Ma and A. Leijon, "Approximating the Predictive Distribution of the Beta Distribution with the Local Variational Method", in *Proceedings of IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, 2011.
23. Z. Ma and A. Leijon, "Super-Dirichlet Mixture Models using Differential Line Spectral Frequencies for Text-Independent Speaker Identification", in *Proceedings of INTERSPEECH*, 2011.
24. Z. Ma and A. Leijon, "Expectation Propagation for Estimating the Parameters of the Beta Distribution", in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2010.
25. Z. Ma and A. Leijon, "Modeling Speech Line Spectral Frequencies with Dirichlet Mixture Models", in *Proceedings of INTERSPEECH*, 2010.
26. Z. Ma and A. Leijon, "PDF-optimized LSF Vector Quantization Based on Beta Mixture Models", in *Proceedings of INTERSPEECH*, 2010.
27. Z. Ma and A. Leijon, "Human Skin Color Detection in RGB Space with Bayesian Estimation of Beta Mixture Models", in *Proceedings of European Signal Processing Conference (EUSIPCO)*, 2010.
28. Z. Ma and A. Leijon, "Coding Bounded Support Data with Beta Distribution", in *Proceedings of IEEE International Conference on Network Infrastructure and Digital Content (IC-NIDC)*, 2010.
29. Z. Ma and A. Leijon, "Beta Mixture Models and the Application to Image Classification", in *Proceedings of IEEE International Conference on Image Processing (ICIP)*, 2009.
30. Z. Ma and A. Leijon, "Human Audio-Visual Consonant Recognition Analyzed with Three Bimodal Integration Models", in *Proceedings of INTERSPEECH*, 2009.
31. Z. Ma and A. Leijon, "A Probabilistic Principal Component Analysis Based Hidden Markov Model for Audio-Visual Speech Recognition", in *Proceedings of IEEE Asilomar Conference on Signals, Systems, and Computers (Asilomar SS&C)*, 2008.