## PUBLICATIONS

### Preprints

1. Kong, D., Huang, Y., Xie, J., and **Wu, Y. N.** (2023) Molecule design by latent prompt transformer. Submitted.
2. Xu*, D., Gao*, R., Zhang, W. H., Wei, X. X., and **Wu, Y. N.** (2023) Conformal normalization in recurrent neural network of grid cells. Submitted.

### Published

1. Yu, P. Zhu, Y., Xie, S., Ma, X., Gao, R., Zhu, S. C., and **Wu, Y. N.** (2023) Learning energy-based prior model with diffusion-amortized MCMC. *Advances in Neural Information Processing Systems (NeurIPS 2023).*
2. Zuo, J., Liu, X., **Wu**, **Y. N**., Wu, S., and Zhang, W. H. (2023) A recurrent neural circuit mechanism of temporal-scaling qquivariant representation. *Advances in Neural Information Processing Systems (NeurIPS 2023).*
3. Lu, P., Peng, B., Cheng, H., Galley, M., Chang, K. W., **Wu, Y. N.,** Zhu, S. C., and Gao, J. (2023) Chameleon: Plug-and-Play Compositional Reasoning with Large Language Models. *Advances in Neural Information Processing Systems (NeurIPS 2023).*
4. Kong, D., Pang, B., Han, T., and **Wu, Y. N.** (2023) Molecule design by latent space energy-based modeling and gradual distribution shifting. *Uncertainty in Artificial Intelligence (UAI, 2023).*
5. Zhao, Y., Zeng, Y., Long, Q., and **Wu**, **Y. N.**, and Zhu, S. C. (2023) Sim2Plan: Robot motion planning via message passing between simulation and reality. *The Future Technologies Conference, 2023.*
6. Xu*, Y., Kong*, D., Xu, D., Ji, Z., Pang, B., Fung*, P., and **Wu*, Y. N.** (2023) Diverse and faithful knowledge-grounded dialogue generation via sequential posterior inference. *International Conference on Machine Learning (ICML 2023).*
7. Shi, Y. Z., Xu, M., Hopcroft, J. E., He, K., Tenenbaum, J. B., Zhu, S. C., **Wu, Y. N.**, Han, W., and Zhu, Y. (2023) On the complexity of Bayesian generalization*. International Conference on Machine Learning (ICML 2023).*
8. Cui, J., **Wu, Y. N**, and Han, T. (2023) Learning hierarchical features with joint latent space energy-based prior. *IEEE International Conference on Computer Vision (ICCV 2023).*
9. Cui, J., **Wu, Y. N**, and Han, T. (2023) Learning joint latent space EBM prior model for multi-layer generator. *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2023).*
10. Lu, P., Qiu, L., Chang, K. W., **Wu**, **Y. N.**, Zhu, S. C., Rajpurohit, T., Clark, K., and Kalyan, A. (2023) Dynamic prompt learning via policy gradient for semi-structured mathematical reasoning. *International Conference on Learning Representations (ICLR 2023).*
11. Li, Q., Huang, S., Hong, Y., Zhu, Y., **Wu, Y. N.**, and Zhu, S. C. (2023) A minimalist dataset for systematic generalization of perception, syntax, and semantics. *International Conference on Learning Representations (ICLR 2023).*
12. Challu, C., Jiang, P., **Wu**, **Y. N.**, and Callot, L. (2023) SpectraNet: multivariate forecasting and imputation under distribution shifts and missing data. *Workshop on Machine Learning for IoT: Datasets, Perception, and Understanding, International Conference on Learning Representations (ICLR 2023).*
13. Zhu, S. C. and **Wu, Y. N.** (2023) *Computer Vision - Statistical Models for Marr's Paradigm.* Springer 2023, ISBN 978-3-030-96529-7, pp. 1-344.

14. Sauerwald, N., Zhang, Z., Ramos, I., ..., **Wu, Y. N.**, Van Bakel, H., Letizia, A. G., Sealfon, S. C., and Troyanskaya, O. G. (2022) Pre-infection antiviral innate immunity contributes to sex differences in SARS-CoV-2 infection. *Cell System.*
15. Xu*, D., Gao*, R., Zhang, W. H., Wei, X. X., and **Wu, Y. N.** (2022) Conformal isometry of Lie group representation in recurrent network of grid cells. *Symmetry and Geometry in Neural Representations (NeurReps Workshop), Neural Information Processing Systems (NeurIPS 2022).*
16. Zhang, W. H., **Wu, Y. N.,** and Wu, S. (2022). Translation-equivariant representation in recurrent networks with a continuous manifold of attractors. *Advances in Neural Information Processing Systems (NeurIPS 2022).*
17. Yu, P., Xie, S., Ma, X., Jia, B., Pang, B., Gao, R., Zhu, Y., Zhu, S. C., and **Wu, Y. N.** (2022). Latent diffusion energy-based model for interpretable text modeling. *International Conference on Machine Learning (ICML 2022).*
18. Yuan, L., Gao, X., Zheng, Z., Edmonds, M., **Wu, Y. N.**, Rossano, F., Lu, H., Zhu, Y., and Zhu, S. C. (2022). In situ bidirectional human-robot value alignment. *Science Robotics.*
19. Xu, Y., Xie, X., Zhao, T., Baker, C., Zhao, Y., and **Wu, Y. N.** (2022). Energy-based continuous inverse optimal control. *IEEE transactions on neural networks and learning systems.*
20. Zhang, C., Xie, S., Jia, B., **Wu, Y. N.**, Zhu, S. C., and Zhu, Y. (2022). Learning algebraic representation for systematic generalization in abstract reasoning. *European Conference on Computer Vision (ECCV 2022).*
21. Gao, F., Ping, Q., Thattai, G., Reganti, A., **Wu, Y. N.**, and Natarajan, P (2022). Transform-retrieve-generate: natural language-centric outside-knowledge visual question answering. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2022).*
22. Nijkamp, E., Gao, R., Sountsov, P., Vasudevan, S., Pang, B., Zhu, S. C., and **Wu, Y. N.** (2022). MCMC should mix: learning energy-based model with neural transport latent space MCMC. *International Conference on Learning Representations (ICLR 2022).*
23. Challu, C., Jiang, P., **Wu, Y. N.**, and Callot, L. (2022). Deep generative model with hierarchical latent factors for time series anomaly detection. *International Conference on Artificial Intelligence and Statistics (AISTAT 2022).*
24. Gao, R., Xie, J., Huang, S., Ren, Y., Zhu, S. C., and **Wu, Y. N.** (2022) Learning V1 simple cells with vector representations of local contents and matrix representations of local motions. *The Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI, 2022).*
25. Xu, Y., Zhang, J., He, R., Ge, L., Yang, C., Yang, C., and **Wu, Y. N.** (2022) SAS: self-augmented strategy for language model pre-training. *The Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI, 2022).*
26. Xie, J.*, Zheng, Z.*, Gao, R., Wang, W., Zhu, S. C., and **Wu, Y. N.** (2022) Generative VoxelNet: learning energy-based models for 3D shape synthesis and analysis. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI),* 44(5): 2468-2484 (2022).
27. Xing, X., Gao, R., Han, T., Zhu, S. C., and **Wu, Y. N.** (2022) Deformable generator networks: unsupervised disentanglement of appearance and geometry. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI).* 44(3): 1162-1179 (2022).
28. Xie*, J., Zheng*, Z., Fang, X., Zhu, S. C., and **Wu, Y. N.** (2022) Cooperative training of fast thinking initializer and slow thinking solver for conditional learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI),* 44(8): 3957-3973 (2022).
29. Kong, D., Pang, B., and **Wu, Y. N.** (2021) Unsupervised meta-learning via latent space energy-based model of symbol vector coupling. *Fifth Workshop on Meta-Learning at Conference on Neural Information Processing Systems.*
30. Gao, R., Xie, J., Wei, X. X., Zhu, S. C., and **Wu, Y. N.** (2021) On path integration of grid cells: group representation and isotropic scaling. *Neural Information Processing Systems (NeurIPS 2021).*

31. Yu, P., Xie, S., Ma, X., Zhu, Y., **Wu, Y. N.**, and Zhu, S. C. (2021) Unsupervised foreground extraction via deep region competition. *Neural Information Processing Systems (NeurIPS 2021).*
32. Yuan, L., Zhou, D., Shen, J., Gao, J., Chen, J. L., Gu, G., **Wu, Y. N.**, and Zhu, S. C. (2021) Iterative teacher-aware learning. *Neural Information Processing Systems (NeurIPS 2021).*
33. Pang, B. and **Wu, Y. N.** (2021) Latent space energy-based model of symbol-vector coupling for text generation and classification. *International Conference on Machine Learning (ICML 2021).*
34. Guo, Y., Tan, Z., Chen, K., Lu, S., and **Wu, Y. N.** (2021) A model obfuscation approach to IoT security. *The 9th IEEE Conference on Communications and Network Security (CNS 2021).*
35. Li, Q., Huang, S., Hong, Y., Zhu, Y. **Wu, Y. N.**, and Zhu, S. C. (2021), A HINT from arithmetic: on systematic generalization of perception, syntax, and semantics. The Role of Mathematical Reasoning in General Artificial Intelligence Workshop at ICLR *(International Conference on Learning Representations) 2021.*
36. Xie, S., Ma, X., Yu, P., Zhu, Y., **Wu, Y. N.**, and Zhu, S. C. (2021), HALMA: Humanlike Abstraction Learning Meets Affordance in rapid problem solving. *Generalization Workshop at ICLR (International Conference on Learning Representations) 2021.*
37. Han, W., Pang, B., and **Wu, Y. N.** (2021) Robust transfer learning with pretrained language models through adapters. *The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021).*
38. Qiu, L. Liang, Y., Zhao, Y., Lu, P., Peng, B., Yu, Z., **Wu, Y. N.** and Zhu, S. C. (2021) SocAoG: incremental graph parsing for social relation inference in dialogues. *The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021).*
39. Pang, B., Nijkamp, E., Han, T., and **Wu, Y. N.** (2021) Generative text modeling through short run inference. *The 16th Conference of the European Chapter of the Association for Computational Linguistics (EACL).*
40. Nijkamp, E., Pang, B., **Wu, Y. N.,** and Xiong, C. (2021) SCRIPT: Self-Critic Pre-Training of Transformers. *The 2021 Conference of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies (NAACL-HLT 2021).*
41. Xie*, J., Xu*, Y., Zheng, Z., Zhu, S. C., and **Wu, Y. N.** (2021) Generative PointNet: deep energy-based learning on unordered point sets for 3D generation, reconstruction and classification. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
42. Zhu, Y., Gao, R., Huang, S., Zhu, S. C., and **Wu, Y. N.** (2021) Learning neural representation of camera pose with matrix representation of pose shift via view synthesis. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
43. Huang, H. J., Huang, K. C., Cap, M., Zhao, Y., **Wu, Y. N.,** and Baker, C. (2021) Risk-bounded planning in probabilistic dynamic environments. *2021 IEEE International Conference on Robotics and Automation (ICRA).*
44. Xie, X., Zhang, C., Zhu, Y., **Wu, Y. N.,** and Zhu, S. C. (2021) Congestion-aware multi-agent trajectory prediction for collision avoidance. *2021 IEEE International Conference on Robotics and Automation (ICRA).*
45. Pang, B., Zhao, T., Xie, X., and **Wu, Y. N.** (2021) Trajectory prediction with latent belief energy-based model. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
46. Gao, R., Song, Y., Poole, B., **Wu, Y. N.,** and Kingma, D. P. (2021) Learning energy-based models by diffusion recovery likelihood. *International Conference on Learning Representations (ICLR).*

47. Xie*, J., Zheng*, Z., Fang, X., Zhu, S. C., and **Wu, Y. N.** (2021) Learning cycle-consistent cooperative networks via alternating MCMC teaching for unsupervised cross-domain translation. *The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI) 2021.*
48. Xie, J, Zhu, S. C., and **Wu, Y. N.** (2021) Learning energy-based spatial-temporal generative ConvNets for dynamic patterns. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI),* 43(2): 516-531 (2021).
49. Zhang, Q., Wang, X., **Wu, Y. N.,** Zhou, H., Zhu, S. C. (2021) Interpretable CNN for object classification. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI),* 43(10): 3416-3431.
50. Sang, Y., Xing, X., **Wu, Y. N.** and Ruan D. (2021) Imposing implicit feasibility constraints on deformable image registration using a statistical generative model. *Journal of Medical Imaging*.
51. Demirdjian, L., Xu, Y., Bahrami-Samani, E., Pan, Y., Pan, Z., Stein, S., Xie, Z., Park, E., **Wu, Y. N,**. and Xing ,Y. (2020) Detecting allele-specific alternative splicing from population-scale RNA-seq data. *American Journal of Human Genetics*, 107:461-72.
52. Pang, B.*, Han, T.*, Nijkamp, E.*, Zhu, S. C., and **Wu, Y. N.** (2020) Learning latent space energy-based prior model. *Neural Information Processing Systems (NeurIPS),* 2020.
53. Pang, B., Han, T., and **Wu, Y. N.** (2020) Learning latent space energy-based prior model for molecule generation. *Machine Learning for Molecules Workshop at NeurIPS 2020.*
54. Pang, B., Nijkamp, E., J. Cui, Han, T., and **Wu, Y. N.** (2020) Semi-supervised learning by latent space energy-based model of symbol-vector coupling. *ICBINB Workshop at NeurIPS 2020.*
55. Han, T., Zhang, J., and **Wu, Y. N.** (2020) From em-projections to variational auto-encoder. *Deep Learning through Information Geometry Workshop at NeurIPS 2020.*
56. Xu, Y., Xie, J., Zhao, T., Baker, C., Zhao, Y., and **Wu, Y. N.** (2020) Energy-based continuous inverse optimal control. *Machine Learning for Autonomous Driving Workshop at NeurIPS 2020.*
57. Nijkamp, E.*, Pang, B.*, Han, T., Zhou, L., Zhu, S. C., and **Wu, Y. N.** (2020) Learning multi-layer latent variable model with short run MCMC inference dynamics. *European Conference on Computer Vision (ECCV).*
58. Li, Q., Huang, S., Hong, Y., Chen, Y., **Wu, Y. N.** and Zhu, S. C. (2020) Closed loop neural-symbolic learning via integrating neural perception, grammar parsing, and symbolic reasoning. *International Conference on Machine Learning (ICML).*
59. Gao, R., Nijkamp, E., Kingma, D. P., Xu, Z., Dai, A. M., and **Wu, Y. N.** (2020) Flow contrastive estimation of energy-based model. *Computer Vision and Pattern Recognition (CVPR).*
60. Xing, X., Wu, T., Zhu, S. C., and **Wu, Y. N.** (2020) Inducing hierarchical compositional model by sparsifying generator network. *Computer Vision and Pattern Recognition (CVPR).*
61. Han, T., Nijkamp, E., Pang, B., Zhou, L., Zhu, S. C., and **Wu, Y. N.** (2020) Joint training of variational auto-encoder and latent energy-based model. *Computer Vision and Pattern Recognition (CVPR).*
62. Xie., J, Lu, Y., Gao, R., Zhu, S. C., and **Wu, Y. N.** (2020) Cooperative learning of descriptor and generator networks. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 42(1): 27-45.
63. Zhu, Y., Gao, T., Fan, L., Huang, S., Edmonds, M., Liu, H., Gao, F., Zhang, C., Qi, S., **Wu, Y. N.**, Tenenbaum, J. B., and Zhu, S. C. (2020) Dark, beyond deep: a paradigm shift to cognitive AI with humanlike common sense. *Engineering*, *Special Issue on Artificial Intelligence*.
64. Xie, J., Gao, R., Nijkamp, E., Zhu, S. C., and **Wu, Y. N.** (2020) Representation learning: a statistical perspective. *Annual Review of Statistics and Its Application*, Vol. 7, March, 2020.
65. Xie, J.*, Gao, R.*, Zheng, Z., Zhu, S. C., and **Wu, Y. N.** (2020) Motion-based generator model: unsupervised disentanglement of appearance, trackable and intrackable motions in dynamic patterns, *AAAI Conference on Artificial Intelligence (AAAI).*

66. Nijkamp, E.*, Hill, M.*, Han, T., Zhu, S. C., and **Wu, Y. N.** (2020) On the anatomy of MCMC-based maximum likelihood learning of energy-based models, *AAAI Conference on Artificial Intelligence (AAAI).*
67. Sang, Y., Xing, X., **Wu, Y. N.** and Ruan D. (2020) Imposing implicit feasibility constraints on deformable image registration using a statistical generative model. *Proc. SPIE 11313, Medical Imaging 2020*.
68. Zhang Z.*, Pan Z.*, Ying Y., Xie Z., Adhikari S., Phillips J., Carstens R.P., Black D.L., **Wu Y. N.,** Xing Y. (2019) Deep learning-augmented RNA-seq analysis of transcript splicing. *Nature Methods*, 16:307-310.
69. Gao, R., Nijkamp, E., Xu, Z., Dai, A. M., Kingma, D. P., and **Wu, Y. N.** (2019) Flow contrastive estimation of energy-based model. *Neurips Workshop on Bayesian Deep Learning.*
70. Edmonds, M.*, Gao, F.*, Liu, H.*, Xie, X.*, Qi, S., Rothrock, B., Zhu, Y., **Wu, Y. N.**, Lu, H., and Zhu, S. C. (2019) A tale of two explanations: enhancing human trust by explaining robot behavior, *Science Robotics*, Vol. 4, No. 37, 4663.
71. Han, T., Xing, X., Wu, J., and **Wu, Y. N.** (2019) Replicating neuroscience observations on ML/MF and AM face patches by deep generative model, *Neural Computation,* 31 (12), 2348-2367.
72. Pang, B., Nijkamp, E., and **Wu, Y. N.** (2019) Deep learning with TensorFlow: a review. *Journal of Educational and Behavioral Statistics.*
73. Lu, H., **Wu, Y. N.**, and Holyoak, K. J. (2019) Emergence of analogy from relation learning. *Proceedings of the National Academy of Sciences (PNAS),* 116 (10), 4176-4181.
74. Nijkamp, E., Hill, M., Zhu, S. C., and **Wu, Y. N.** (2019) Learning non-convergent non-persistent short-run MCMC toward energy-based model. *Neural Information Processing Systems (NeurIPS)*.
75. Han, T.*, Nijkamp, E.*, Fang, X., Hill, M., Zhu, S. C., and **Wu, Y. N.** (2019) Divergence triangle for joint training of generator model, energy-based model, and inference model. *Computer Vision and Pattern Recognition (CVPR).*
76. Xing, X., Han, T., Gao, R., Zhu, S. C., and **Wu, Y. N.** (2019) Unsupervised disentangling of appearance and geometry by deformable generator network. *Computer Vision and Pattern Recognition (CVPR).*
77. Zhao, T., Xu, Y., Monfort, M., Choi, W., Baker, C., Zhao, Z., Wang, Y., and **Wu, Y. N.** (2019) Multi-agent tensor fusion for contextual trajectory prediction. *Computer Vision and Pattern Recognition (CVPR).*
78. Zhang, Q., Yang, Y., Ma, H., and **Wu, Y. N.** (2019) Interpreting CNNs via decision trees. *Computer Vision and Pattern Recognition (CVPR).*
79. Gao, R.*, Xie, J.*, Zhu, S. C., and **Wu, Y. N.** (2019) Learning grid cells as vector representation of self-position coupled with matrix representation of self-motion. *International Conference on Learning Representations (ICLR).*
80. Xie, J.*, Gao, R.*, Zheng, Z., Zhu, S. C., and **Wu, Y. N.** (2019) Learning dynamic generator model by alternating back-propagation through time. *AAAI Conference on Artificial Intelligence (AAAI).*
81. **Wu, Y. N.**, Gao, R., Han, T., and Zhu, S. C. (2019) A tale of three probabilistic families: discriminative, descriptive and generative models. *Quarterly of Applied Mathematics*, Vol. 77, No. 2, pp423-465.
82. Heinzerling, K. G., Briones, M., Thames, A. D., Hinkin, C. H., Zhu, T., **Wu, Y. N.,** and Shoptaw, S. J. (2019) Randomized, placebo-controlled trial of targeting neuroinflammation with Ibudilast to treat methamphetamine use disorder. *Journal of Neuroimmune Pharmacology*.
83. Xing, X., Zhu, S. C., and **Wu, Y. N.** (2019) Inducing sparse coding and And-Or grammar from generator network. *Workshop on Network Interpretability for Deep Learning, AAAI-19: 33rd AAAI Conference on Artificial Intelligence.*

84. Han, T., Lu, Y., Wu, J., Xing, X., and **Wu, Y. N.** (2019) Learning generator networks for dynamic patterns. *2019 IEEE Winter Conference on Applications of Computer Vision (WACV)*, 809-818.
85. Huang, S., Qi, S., Xiao, Y., Zhu, Y., **Wu, Y. N.**, and Zhu, S. C. (2018) Cooperative holistic scene understanding: unifying 3D object, layout, and camera pose estimation. *Neural Information Processing Systems (NeurIPS).*
86. Zhang, Q., **Wu, Y. N.,** Zhu, S. C., and Zhang, H. (2018) Mining a deep And-OR object semantics from web images via cost-sensitive question-answer-based active annotations. *Computer Vision and Image Understanding*, vol. 176-177, page 33-44.
87. Xing, X., Gao, R., Han, T., Zhu, S. C., and **Wu, Y. N.** (2018) Deformable generator network: unsupervised disentanglement of appearance and geometry. *ICML workshop on Theoretical Foundations and Applications of Deep Generative Models.*
88. Han, T., Xing, X., and **Wu, Y. N.** (2018) Learning multi-view generator network for shared representation. *International Conference on Pattern Recognition.*
89. Han, T., Wu, J., and **Wu, Y. N.** (2018) Replicating active appearance model by generator network. *International Joint Conference on Artificial Intelligence (IJCAI).*
90. Guo, J., Xu, N., Qian, K., Shi, Y., Xu, K., **Wu, Y. N.**, and Alwan, A. (2018) Deep neural network based i-vector mapping for speaker verification using short utterances. *Speech Communication*, 105: 92-102.
91. Li, X., Guan, Y., **Wu, Y. N.,** and Zhang, Z. (2018) Piano multipitch estimation using sparse coding embedded deep learning. *EURASIP Journal on Audio, Speech, and Music*, 2018:11.
92. **Wu, Y. N.**, Xie, J., Lu, Y., and Zhu, S. C. (2018) Sparse and deep generalizations of the FRAME model. *Annals of Mathematical Sciences and Applications*, Vol.3, no. 1, 211-254.
93. Lu, Y., Gao, R., Zhu, S. C., and **Wu, Y. N.** (2018) Exploring generative perspective of convolutional neural networks by learning random field models. *Statistics and Its Interface*, Volume 11, 515-529.
94. Gao, R., Lu, Y., Zhou, J., Zhu, S. C., and **Wu, Y. N.** (2018) Learning generative ConvNets via multigrid modeling and sampling. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
95. Xie*, J., Zheng*, Z., Gao, R., Wang, W., Zhu, S. C., and **Wu, Y. N.** (2018) Learning descriptor networks for 3D shape synthesis and analysis. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
96. Zhang, Q., **Wu, Y. N.**, and Zhu, S. C. (2018) Interpretable convolutional neural networks. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
97. Xie., J, Lu, Y., Gao, R., and **Wu, Y. N.** (2018) Cooperative learning of energy-based model and latent variable model via MCMC teaching. *AAAI-18: 32nd AAAI Conference on Artificial Intelligence.*
98. Zhang, Q., Cao, R., Shi, F., **Wu, Y. N.,** and Zhu, S. C. (2018) Interpreting CNN knowledge via an explanatory graph. *AAAI-18: 32nd AAAI Conference on Artificial Intelligence.*
99. Xie, J., Zhu, S. C., and **Wu, Y. N.** (2017) Synthesizing dynamic patterns by spatial-temporal generative ConvNet. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
100. Xie, J., Xu, Y., Nijkamp, E., **Wu, Y. N.,** and Zhu, S. C. (2017) Generative hierarchical structural learning of sparse FRAME models. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
101. Zhang, Q., Cao, R., **Wu, Y. N.**, and Zhu, S. C. (2017) Mining object parts from CNNs via active question-answering. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
102. Xie, J., Douglas, P., **Wu, Y. N.**, Brody, A., and Anderson, A. (2017) Decoding the Encoding of Functional Brain Networks: an fMRI Classification Comparison of Non-negative

Matrix Factorization (NMF), Independent Component Analysis (ICA), and Sparse Coding Algorithms. *Journal of Neuroscience Methods,* 282, 81-94.

103. Park E., Guo J., Shen S., Demirdjian L., **Wu Y. N.,** Lin L., and Xing Y. (2017) Population and allelic variation of A-to-I RNA editing in human transcriptomes. *Genome Biology*, 18:143.
104. Han, T., Lu, Y., Zhu, S. C., and **Wu, Y. N.** (2017) Alternating back-propagation for generator network. *AAAI-17: 31st AAAI Conference on Artificial Intelligence.*
105. Zhang, Q., Cao, R., **Wu, Y. N.**, and Zhu, S. C. (2017) Growing interpretable part graphs on ConvNets via multi-shot learning. *AAAI-17: 31st AAAI Conference on Artificial Intelligence.*
106. Xie, J., Lu, Y., Zhu, S. C., and **Wu, Y. N.** (2016) A Theory of Generative ConvNet. *International Conference on Machine Learning (ICML)*.
107. Lu, Y., Zhu, S. C., and **Wu, Y. N.** (2016) Learning FRAME models using CNN filters. *AAAI-16: 30th AAAI Conference on Artificial Intelligence.*
108. Heinzerling, K., Demirdjian, L., **Wu, Y. N.**, and Shoptaw S. (2016). Single nucleotide polymorphism near CREB1, rs7591784, is associated with pretreatment methamphetamine use frequency and outcome of outpatient treatment for methamphetamine use disorder. *Journal Psychiatry Research*, 74:22-9.
109. Shen, S., Wang, Y., Wang, C., **Wu, Y. N.**, and Xing Y. (2016) SURVIV: Survival Analysis of mRNA Isoform Variation. *Nature Communications*, 7:11548.
110. Wu, W. B. and **Wu, Y. N.** (2016) High-dimensional linear models with dependent observations. *Electronic Journal of Statistics*, 10, 352-379.
111. Dai, J., Lu, Y., and **Wu, Y. N.** (2016) Generative modeling of convolutional neural networks. *Statistics and Its Interface*, 9, 485-496.
112. Lee, K. J., Chen, R. B., and **Wu, Y. N.** (2016) Bayesian variable selection for finite mixture model of linear regressions. *Computational Statistics and Data Analysis*, 96, 1-16.
113. Chen, R. B., Chu, C. H., Yuan, S. and **Wu, Y. N.** (2016) Bayesian sparse group selection. *Journal of Computational and Graphical Statistics*, 25, 665-683.
114. Xie, J., Lu, Y., Zhu, S. C., and **Wu, Y. N.** (2016) Inducing wavelets into random fields via generative boosting. *Applied and Computational Harmonic Analysis*, 41, 4-25.
115. Zhang, Q., **Wu, Y. N.**, and Zhu, S. C. (2015) Mining and-or graphs for graph matching and object discovery, *International Conference on Computer Vision (ICCV).*
116. Dai, J., Lu, Y., and **Wu, Y. N.** (2015) Generative modeling of convolutional neural networks. *International Conference on Learning Representations (ICLR).*
117. Fleishman, G. M., Fletcher, P. T., Gutman, B. A., Prasad, G., **Wu, Y. N.,** Thompson P. M. (2015) Geodesic Refinement Using James-Stein Estimators. *5th MICCAI Workshop on Mathematical Foundations of Computational Anatomy.*
118. Xie, J., Hu, W., Zhu, S. C., and **Wu, Y. N.** (2015). Learning sparse FRAME models for natural image patterns, *International Journal of Computer Vision*, 114，91-112.
119. Anderson, A., Douglas, P. K., Kerr, W. T., Haynes, V. S., Yuille, A. L., Xie, J., **Wu, Y. N.,** and Cohen, M. S. (2014) Non-negative Matrix Factorization of Multimodal MRI, fMRI and Phenotypic Data reveals Differential Changes in Default Mode Subnetworks in ADHD. *NeuroImage*, 102, 207-219.
120. Yi, H., Hu, W., Zi, Z., Zhu, S. C., and **Wu, Y. N.** (2014) Unsupervised learning of compositional sparse code for natural images. *Quarterly of Applied Mathematics,* 72, 373-406.
121. Xie, J., Hu, W., Zhu, S. C., and **Wu, Y. N.** (2014) Learning inhomogeneous FRAME models for object patterns. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*.
122. Dai, J., Hong, Y., Hu, W., Zhu, S. C., and **Wu, Y. N.** (2014) Unsupervised learning of dictionaries of hierarchical compositional models. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*

123. Barbu, A., Wu, T., **Wu, Y. N.** (2014) Learning mixtures of Bernoulli templates by two-round EM with performance guarantee. *Electronic Journal of Statistics,* 8, 3004-3030.
124. Lee, J., **Wu, Y. N.**, and Kim, G. (2014) Unbalanced data classification using support vector machines with active learning on scleroderma lung disease patterns. *Journal of Applied Statistics*, 42, 676-689.
125. Shen, S., Park, J. W., Lu, Z. X., Lin, L., Henry, M. D., **Wu, Y. N.**, Zhou, Q., Xing, Y. (2014) rMATS: robust and flexible detection of differential alternative splicing from replicate RNA-seq data, *Proceedings of National Academy of Science (PNAS),* 111(51):E5593-601.
126. Dai. J., **Wu, Y. N.,** Zhou, J., and Zhu, S. C. (2013) Co-segmentation and co-sketch by unsupervised learning. *Proceedings of International Conference of Computer Vision (ICCV).*
127. Chen, R. B., Chu, C. H., Lai, T. Y. and **Wu, Y. N.** (2011) Stochastic matching pursuit for Bayesian variable selection. *Statistics and Computing*, 21, 247-259.
128. Hu, W., **Wu, Y. N.,** and Zhu, S. C. (2011) Image representation by active curves. *International Conference on Computer Vision.*
129. **Wu, Y. N.**, Si, Z., Gong, H., and Zhu, S. C. (2010) Learning active basis model for object detection and recognition. *International Journal of Computer Vision*, 90, 198-235.
130. Si, Z., Gong, H., Zhu, S. C., and **Wu, Y. N.** (2010) Learning active basis models by EM-type algorithms. *Statistical Science*, 25, 458–475.
131. Si, Z. and **Wu, Y. N.** (2010) Wavelet, active basis, and shape script --- a tour in the sparse land. *ACM SIGMM International Conference on Multimedia Information Retrieval, Special session on Statistical Modeling and Learning for Multimedia*.
132. Si, Z., Gong, H., **Wu, Y. N.**, and Zhu, S. C. (2009) Learning mixed template for object recognition. *Proceedings of Computer Vision and Pattern Recognition (CVPR).*
133. **Wu, Y. N.,** Guo, C., and Zhu, S. C. (2008) From information scaling to regimes of statistical models. *Quarterly of Applied Mathematics*, 66, 81-122.
134. Guo, C., Zhu, S. C. and **Wu, Y. N.** (2007) Primal sketch: integrating structure and texture. *Computer Vision and Image Understanding*, 106, 5-19.
135. Li, J., Yang. X., **Wu, Y. N.,** and Shoptaw, S. (2007) A random-effect Markov transition model for Poisson-distributed repeated measures with nonignorable missing values. *Statistics in Medicine*, 26, 2519-2532.
136. Zheng, M., Barrera, L. O., B. Ren, and **Wu, Y. N.** (2007) ChIP-chip: data, model, and analysis. *Biometrics*, 63, 787-796.
137. **Wu, Y. N.**, Li, J., Liu, Z., and Zhu, S. C. (2007) Statistical principles in image modeling. *Technometrics*, 49, 249-261.
138. Chen, R. B. and **Wu, Y. N.** (2007) A null-space algorithm for overcomplete blind source separation. *Computational Statistics and Data Analysis*, 51, 5519-5536.
139. **Wu, Y. N.,** Si, Z., Fleming, C., and Zhu, S. C. (2007) Deformable template as active basis. *Proceedings of International Conference of Computer Vision* (*ICCV).*
140. Xing, Y. Yu, T., **Wu, Y. N.,** Roy, M., Kim, J. and Lee C. (2006) An expectation-maximization algorithm for probabilistic reconstructions of full-length isoforms from splice graphs. *Nucleic Acid Research*, 34, 3150-3160.
141. Kim, T. H, Barrera, L. O., Zheng, M., Qu, C., Singer, M. A., Richmand, T. A., **Wu, Y. N.,** Green, R. G. and Ren, B. (2005) A High-resolution map of active promoters in the human genome, *Nature*, 436, 876-880.
142. **Wu, Y. N.,** Guo, C. E., and Zhu, S. C. (2004) Perceptual scaling. *Applied Bayesian Modeling and Causal Inference from an Incomplete Data Perspective,* Eds. Gelman and Meng, John Wiley.
143. Guo, C., **Wu, Y. N.**, and Zhu, S. C. (2004) Information scaling laws in natural scenes. *Proceedings of 2nd Workshop on Generative Model Based Vision.*

144. Doretto, G., Chiuso, A, **Wu, Y. N.** and Soatto, S., (2003) Dynamic textures. *International Journal of Computer Vision*, 51, 91-109.
145. Guo, C., Zhu, S. C., and **Wu, Y. N.** (2003) Visual learning by integrating descriptive and generative models. *International Journal of Computer Vision*, 53, 5-29.
146. Guo, C., Zhu, S. C., and **Wu, Y. N.** (2003) Towards a mathematical theory of primal sketch and sketchability. *Proceedings of International Conference of Computer Vision (ICCV),* 1228-1235.
147. **Wu, Y. N.,** Zhu, S. C., and Guo, C. (2002) Statistical modeling of texture sketch. *Proceedings of European Conference of Computer Vision (ECCV),* 240-254.
148. Zhu, S. C., Guo, C., **Wu, Y. N.** and Wang, Y. (2002) What are textons? *Proceedings of European Conference of Computer Vision (ECCV)*, 793-807.
149. Pinheiro J., Liu, C., and **Wu, Y. N.** (2001) Efficient algorithms for robust estimation in linear mixed-effects models using the multivariate t-distribution. *Journal of Computational and Graphical Statistics*, 10, 249-276.
150. Guo, C., Zhu, S. C., and **Wu, Y. N.** (2001) Visual learning by integrating descriptive and generative methods. *Proceedings of International Conference on Computer Vision (ICCV).*
151. Yuille, A. L., Coughlan, J., **Wu, Y. N.,** and Zhu, S. C. (2001) Order parameters for detecting target curves in images: when does high level knowledge help? *International Journal of Computer Vision*, 41, 9-33.
152. Soatto, S., Doretto, G., and **Wu, Y. N.** (2001) Dynamic textures. *Proceedings of International Conference of Computer Vision (ICCV)*, 439-447.
153. Saisan, P., Doretto, G., **Wu, Y. N.,** and Soatto, S. (2001) Dynamic texture recognition. *Proceedings of Computer Vision and Pattern Recognition (CVPR).*
154. Zhu, S. C., Liu, X., and **Wu, Y. N.** (2000) Exploring texture ensembles by efficient Markov chain Monte Carlo - towards a `trichromacy' theory of texture. *IEEE Pattern Analysis and Machine Intelligence (PAMI)*, 22, 554-569.
155. **Wu, Y. N.,** Zhu, S. C., and Liu, X. (2000) Equivalence of Julesz ensembles and FRAME models. *International Journal of Computer Vision*, 38, 245-261.
156. Yuille, A. L., Coughlan, J., **Wu, Y. N.,** and Zhu, S. C. (2000), Order Parameter Theory for minimax entropy models: How Does High Level Knowledge Helps? *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*
157. Liu, J. S. and **Wu, Y. N.** (1999) Parameter expansion for data augmentation. *Journal of the American Statistical Association*, 94, 1264-1274.
158. **Wu, Y. N.,** Zhu, S. C., and Liu, X. (1999) Equivalence of Julesz and Gibbs texture ensembles. *Proceedings of International Conference of Computer Vision (ICCV),* 1025-1032.
159. Zhu, S. C., Liu, X. W., and **Wu, Y. N.** (1999) Exploring Julesz Ensembles by Efficient MCMC. *Proc. of Workshop on Statistical and Computational Theories of Vision (SCTV),* Fort Collins, CO.
160. Zhu, S. C. and **Wu, Y. N.** (1999) From local features to global perception. *Journal of Neurocomputing*, 26.
161. Matthysse S., Levy D. L., **Wu Y. N.,** Rubin D. B., and Holzman P. (1999) Intermittent degradation in performance in schizophrenia. *Schizophrenic Research*, 40, 131-146.
162. Zhu, S. C., **Wu, Y. N.,** and Mumford, D. B. (1998) Minimax entropy principle and its application to texture modeling. *Neural Computation*, 9, 1627-1660.
163. Liu, C., Rubin, D. B., and **Wu, Y. N.** (1998) Parameter expansion to accelerate EM - the PX-EM algorithm. *Biometrika*, 85, 755-770.
164. Rubin, D. B. and **Wu, Y. N.** (1997) Modeling schizophrenic behavior using general mixture components. *Biometrics*, 53, 243-261.
165. Zhu, S. C., **Wu, Y. N.,** and Mumford, D. B. (1997) Filter, Random field, And Maximum

Entropy (FRAME): towards a unified theory for texture modeling. *International Journal of Computer Vision*, 27, 107-126.

166. Zhu, S. C., **Wu, Y. N.,** and Mumford, D. B. (1996), Filters, Random Fields, and Maximum Entropy (FRAME): towards a unified theory for texture modeling. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR).*

167. **Wu, Y. N.** (1995) Random shuffling: a new approach to matching problem. *Proceedings of American Statistical Association,* 69-74.

168. Chernoff, H. and **Wu, Y. N.** (1994) Bounds on inconsistent inferences for sequences of trials with varying probabilities. In *Probability, Statistics and Optimisation*, Edited by F. P. Kelly. John Wiley & Sons. 351-366.