Hao Zhang

Electrical and Computer Engineering
Duke University, Durham, NC, US
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Education

- Xidian University , Xi'an, China
  Ph.D.in Signal and Information Processing, advised by Bo Chen and Mingyuan Zhou (UT-Austin), June 2019.
  M.Sc in Signal and Information Processing, advised by Hongwei Liu, June 2014
  B.Sc. in School of Electronic Engineering, June 2012

Work Experience

2019.8.1~present: postdoctoral researcher at ECE, Duke University.

Research Interests

My primary research interests include **statistical machine learning** and **deep learning.** Currently, I am working on deep or hierarchical probabilistic models and their applications on document analysis and image processing, mainly focusing on the interpretable modeling for real applications.

Publication

[1] **Hao Zhang**, Bo Chen, Dandan Guo, and Mingyuan Zhou, "WHAI: Weibull hybrid autoencoding inference for deep topic modeling", International Conference on Learning Representations (**ICLR**), 2018, Vancouver, Canada.

[2] **Hao Zhang**, Bo Chen, Long Tian, Zhengjue Wang, and Mingyuan Zhou, "Variational Hetero-Encoder Randomized GANs for Joint Image-Text Modeling", International Conference on Learning Representations (**ICLR**), 2020, Addis Ababa, Ethiopia.

[3] **Hao Zhang**, Bo Chen, Zhengjue Wang, and Hongwei Liu, "Deep Max-Margin Discriminant Projection", to appear in IEEE Transactions on Cybernetics.

[4] Bo Chen, **Hao Zhang**, Xuefeng Zhang, Wei Wen, Hongwei Liu and Jun Liu, "Max-Margin Discriminant Projection via Data Augmentation", IEEE Transactions on Knowledge and Data Engineering, 27(7), 1964-1976, 2015.

[5] Dandan Guo, Bo Chen, **Hao Zhang**, and Mingyuan Zhou, "Deep Poisson Gamma Dynamic System", Neural Information Processing Systems (NeurIPS), 2018, Montreal, Canada.

[6] Zhengjue Wang, Chaojie Wang, **Hao Zhang**, Zhibin Duan, Mingyuan Zhou, and

Bo Chen, "Learning dynamic hierarchical topic graph with graph convolutional network for document classification," International Conference on Artificial Intelligence and Statistics (AISTATS), 2020, Palermo, Sicily, Italy.

[7] Zhengjue Wang, Bo Chen, **Hao Zhang**, and Hongwei Liu, “Variational Probabilistic Generative Framework for Single Image Super-Resolution”, to appear in Signal Processing.

[8] Zhengjue Wang, Yinghua Wang, Hongwei Liu, **Hao Zhang**. Structured Kernel Dictionary Learning with Correlation Constraint for Object Recognition[J]. IEEE Transactions on Image Processing, 26(9), 4578-4590, 2017.

[9] Ying Zhai, Bo Chen, **Hao Zhang**, Zhengjue Wang. Robust Variational AutoEncoder for Radar HRRP Target Recognition[C]. Intelligence Science and Big Data Engineering, 2017, Dalian, China.

Ongoing work

[1] **Hao Zhang**, Bo Chen, Yulai Cong, Dandan Guo, Hongwei Liu, and Mingyuan Zhou, “Deep Autoencoding Topic Model with Scalable Hybrid Bayesian Inference”, submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence.

[2] Zhengjue Wang, Bo Chen, **Hao Zhang**, and Hongwei Liu, “Unsupervised Hyperspectral and Multispectral Images Fusion Based on Nonlinear Variational Probabilistic Generative Model”, submitted to IEEE Transactions on Neural Networks and Learning Systems.

[3] Zhengjue Wang, Bo Chen, **Hao Zhang**, and Hongwei Liu, “FusionNet: An Unsupervised Convolutional Variational Network for Hyperspectral and Multispectral Image Fusion”, submitted to IEEE Transactions on Image Processing.

[4] A hierarchical document graph with the help of a deep probabilistic topic model for various document comprehension tasks, such as document classification, summarization and matching.

[5] A hierarchical probabilistic topic relational autoencoding network.

Honors and Awards

- Chinese National Scholarship for master, 2013
- Chinese National Scholarship for Ph.D. student, 2015

Other Experience

[1] 2016 Duke-Tsinghua Machine Learning Summer School, KunShan, China,