
Zhe Gan

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Research Interests

I focus on designing efficient and scalable Bayesian inference algorithms for deep learning models with applications in NLP and computer vision.

Education

- Duke University, Durham, NC
Ph.D., Electrical and Computer Engineering 09/2013 - present
- Peking University, Beijing, China
M.S., Electrical Engineering 09/2010 - 07/2013
B.S., Electrical Engineering 09/2006 - 07/2010

Experience

- **Information Initiative at Duke (iiD)** 09/2013 - present
Research Assistant. Advisor: Prof. Lawrence Carin
 - (i) Developing deep generative models for image analysis, topic modeling and sequence modeling
 - (ii) Designing stochastic gradient variational inference algorithms and stochastic gradient MCMC methods for scalable Bayesian inference
 - (iii) Nonparametric discriminative factor modeling for gene-expression analysis
- **Adobe Research** 06/2015 - 09/2015
Data Scientist Intern. Advisor: Hung Bui, Ph.D.
Recurrent neural networks (RNN) for NLP applications, including sentence classification, sentence retrieval and sentence generation

Publications

Submitted

1. J. Song, **Z. Gan** and L. Carin "Factored Temporal Sigmoid Belief Networks for Sequence Learning", submitted to ICML 2016
2. Y. Pu, **Z. Gan**, R. Henao and L. Carin "A Deep Generative Model for Images and Captions", submitted to ICML 2016

Refereed Conference

1. C. Chen, D. Carlson, **Z. Gan**, C. Li and L. Carin "Bridging the Gap Between Stochastic Gradient MCMC and Stochastic Optimization", *Artificial Intelligence and Statistics (AISTATS)* 2016, **Oral**
2. **Z. Gan**, C. Li, R. Henao, D. Carlson and L. Carin "Deep Temporal Sigmoid Belief Networks for Sequence Modeling", *Neural Information Processing Systems (NIPS)*, 2015
3. R. Henao, **Z. Gan**, J. Lu and L. Carin "Deep Poisson Factor Modeling", *Neural Information Processing Systems (NIPS)*, 2015
4. **Z. Gan**, C. Chen, R. Henao, D. Carlson and L. Carin "Scalable Deep Poisson Factor Analysis for Topic Modeling", *Int. Conf. Machine Learning (ICML)*, 2015
5. **Z. Gan**, R. Henao, D. Carlson and L. Carin "Learning Deep Sigmoid Belief Networks with Data Augmentation", *Artificial Intelligence and Statistics (AISTATS)*, 2015

Book Chapter

1. **Z. Gan**, X. Yuan, R. Henao, E. Tsalik and L. Carin “Inference of Gene Networks Associated with the Host Response to Infectious Disease”, Chapter 13 of Book *Big Data Over Networks*.

Software Skills

Python, Matlab, R and C

Awards

ECE Fellowship, Duke University, 2013

National Scholarship, Department of Minister of Education of China, 2010-2013.

Teaching Experience

Teaching Assistant	09/2014-12/2014
STA 601 - Bayesian and Modern Statistics	
Instructor: David Dunson, Ph.D	
Teaching Assistant	01/2015-05/2015
ECE 587 - Information Theory	
Instructor: Ahmad Beirami, Ph.D	

Graduate Coursework

Bayesian and Modern Statistics, Probabilistic Machine Learning, Advanced Machine Learning, Statistical Inference, Statistical Computation, Information Theory, Graphical Models & Inference, Optimization For Engineers