

Pengyu Cheng

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Research Interests

My research interests focus on Bayesian deep learning and its applications in natural language processing. Currently, I am doing research on matching and optimizing problems of discrete distributions via probabilities measurement methods, *e.g.* discrete Wasserstein distance and Wasserstein gradient flow.

Education

Duke University 08/2017–Present
Ph.D. Student, Electrical and Computer Engineering

Tsinghua University 08/2013–07/2017
B.S., Mathematics and Statistics

Publications

- **P. Cheng**, C. Liu, C. Li, D. Shen, H. Ricardo, and L. Carin. “Straight-Through Estimator as Projected Wasserstein Gradient Flow”, Neural Information Processing Systems (NeurIPS) Workshop, 2018 **Spotlight**
- C. Liu, J. Zhuo, **P. Cheng**, R. Zhang, J. Zhu, and L. Carin. “Accelerated First-order Methods on the Wasserstein Space for Bayesian Inference”, arXiv preprint arXiv:1807.01750, 2018

Experience

Information Initiative at Duke (iiD) 08/2017–Present
Research Assistant *Adviser: Lawrence Carin*
Distribution matching and optimization problems and their applications in natural language processing.

Tsinghua Intelligent Vision Group (IVG) 03/2016–07/2016
Student Researcher *Adviser: Jiwen Lu*
Deep metric learning for person re-identification based on sequential frames information.

Student Research Program at Tsinghua 11/2015–05/2017
Student Researcher *Adviser: Xuegong Zhang*
Non-parametric k-sample tests using statistics which are based on local maximum energy distance.

Beijing Sogou Information Service Co., Ltd. 08/2014–09/2014
Research Internship *Mentor: Mao Wang*
Polygonal line-like city road data smoothing via Spline Interpolation; road data compressing via Douglas-Peucker algorithm.

Awards

- Fellowship of Electrical and Computer Engineering at Duke 08/2017
- First in Duke-Tsinghua Machine Learning Summer School (1/112) 08/2017
- Academic Excellence Award of Tsinghua University (top 30%) 10/2014
- Top 5 in the 18-th “Sogou Cup” Artificial Intelligence Programming Contest (5/200) 04/2014
- Silver medal in the 28-th Chinese Mathematical Olympiad (CMO) 01/2013

Technical Strengths

Computer Languages : Python (Tensorflow, Pytorch), R, C/C++
Software & Tools : LaTeX, Emacs, Mathematica, MATLAB, Excel, Markdown