

Pengyu Cheng

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Research Interests

I am a senior researcher at Tencent Interactive Entertainment Group. My current research focuses on controllable text generation and interpretable natural language understanding. I also have a broad interests on probabilistic machine learning methods.

Education

Duke University <i>Ph.D., Electrical and Computer Engineering</i>	08/2017 – 05/2021
Tsinghua University <i>B.S., Mathematics and Statistics</i>	08/2013 – 07/2017

Experience

Tencent Interactive Entertainment Group <i>Senior Researcher</i> Controllable text generation and interpretable natural language understanding.	06/2021 – Present
Information Initiative at Duke (iiD) <i>Research Assistant</i> Bayesian deep learning, geometric deep learning, and their applications in natural language processing.	08/2017 – 03/2021 <i>Adviser: Lawrence Carin</i>
Microsoft Cloud and AI <i>Research Internship</i> Improving self-supervised multi-view contrastive learning with learnable data augmentations.	06/2020 – 08/2020 <i>Mentor: Jingjing Liu</i>
NEC Laboratories America <i>Research Internship</i> Improving disentangled text representation learning with information-theoretic guidance.	05/2019 – 08/2019 <i>Mentor: Martin Renqiang Min</i>
Sogou Map Rendering Group <i>Research Internship</i> Automatic smoothing and compression for polygonal line-like city road data.	08/2014 – 09/2014 <i>Mentor: Mao Wang</i>

Selected Publications

- **P. Cheng***, W. Hao*, S. Yuan, S. Si, L. Carin, “FairFil: Contrastive Neural Debiasing Method for Pretrained Text Encoders”, International Conference on Learning Representations (ICLR), 2021
- S. Yuan*, **P. Cheng***, R. Zhang, W. Hao, Z. Gan, and L. Carin, “Improving Zero-Shot Voice Style Transfer via Disentangled Representation Learning”, International Conference on Learning Representations (ICLR), 2021
- **P. Cheng**, W. Hao, S. Dai, J. Liu, Z. Gan, and L. Carin, “CLUB: A Contrastive Log-ratio Upper Bound of Mutual Information”, International Conference on Machine Learning (ICML), 2020

- **P. Cheng**, M. Min, D. Shen, C. Malon, Y. Zhang, Y. Li and L. Carin, “Improving Disentangled Text Representation Learning with Information-Theoretic Guidance”, Annual Meeting of the Association for Computational Linguistics (ACL), 2020
- **P. Cheng**, Y. Li, X. Zhang, L. Chen, D. Carlson, L. Carin, “Dynamic Embedding on Textual Networks via a Gaussian Process”, American Association of Artificial Intelligence (AAAI), 2020 **Oral**
- **P. Cheng***, D. Shen*, D. Sundararaman, X. Zhang, Q. Yang, M. Tang, A. Celikyilmaz, and L. Carin, “Learning Compressed Sentence Representations for On-Device Text Processing”, Annual Meeting of the Association for Computational Linguistics (ACL), 2019 **Oral**
- **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**

Academic Activities

- Oral Presentation at AAAI 2020 02/2020
- Teaching assistant for *Probabilistic Machine Learning*, Instructor: Sayan Mukherjee, Ph.D. 01/2020
- Teaching assistant for *Introduction to Deep Learning*, Instructor: Vahid Tarokh, Ph.D. 09/2019
- Oral Presentation at ACL 2019 07/2019
- Spotlight talk at NeurIPS 2019 Bayesian Deep Learning workshop 12/2018

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
- First Prize in Chinese National Olympiad in Informatics in Provinces (NOIP) 11/2012

Technical Strengths

Computer Languages : Python (Tensorflow, Pytorch), R, C/C++

Software & Tools : LaTeX, Emacs, Mathematica, MATLAB, Excel, Markdown

Graduate Courses

Theoretical : Random Signals and Noise; Information Theory; Multivariate Statistical Analysis; Stochastic Processes; Compressed Sensing;

Engineering : Programming, Data Structure and Algorithms in C++; Pattern Recognition; Machine Learning; Text Data Analysis; Scalable Reinforcement Learning;