DONGSHENG AN

Mobile: (+1) 631-310-9645 Email: doan@cs.stonybrook.edu
Address: CEWIT 283, 1500 Stony Brook Rd, Stony Brook University, NY 11790

EDUCATION

Stony Brook University, U.S. 09/2016–05/2022

- PhD candidate, Computer Science Department, advised by Prof. Xianfeng Gu

Harvard University, U.S. 05/2019–05/2020

- Visiting Scholar, Center of Mathematical Sciences and Applications (CMSA)

Tsinghua University, China 09/2013–07/2016

- M.S. Department of Automation, advised by Prof. Qionghai Dai and Prof. Jinli Suo

Tsinghua University, China 09/2008–07/2012

- B.S., Department of Automation

RESEARCH INTEREST

Optimal transport, Generative modeling, Energy based models, Manifold embedding, Medical image processing, Mesh generation, Computational conformal/quasi-conformal geometry

PUBLICATIONS & PREPRINTS

* indicates equal contribution.

- **Dongsheng An**, Jianwen Xie, Ping Li. Learning Top-Down Generative Models by Short-Run Markov Chain Monte Carlo Inference with Optimal Transport Correction. In submission.
- Na Lei*, **Dongsheng An***, Min Zhang, Xiaoyin Xu, Jiakun Liu, Xianfeng Gu. FFT-OT: Optimal Transportation by Fast Fourier Transformation. In submission.
- Min Zhang*, **Dongsheng An***, Geoffrey S. Young, Xianfeng Gu, Xiaoyin Xu. A New Data Augmentation Method Using Quasi Conformal Mapping to Improve Training of Deep Learning. In submission.
- **Dongsheng An**, Na Lei, Min Zhang, Xianfeng Gu. Approximate Discrete Optimal Transport Plan by Auxiliary Measure. In submission.
- **Dongsheng An**, Na Lei, Xin Qi, Hang Si, Tong Zhao, Xianfeng Gu. Accurate, Robust, and Efficient Algorithms for Computing Low Dimensional Optimal Transportation Maps. In submission
- Na Lei, Xin Qi, **Dongsheng An**, Xinyuan Li, Tong Zhao, Xianfeng Gu. Intrinsic Symmetry Between Optimal and Worst Transportation Maps. In submission.
- **Dongsheng An**, Na Lei, Xiaoyin Xu and Xianfeng Gu. Efficient Optimal Transport Algorithm by Accelerated Gradient descent. The Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI) 2022.
- **Dongsheng An**, Na Lei, Wei Chen, Zhongxuan Luo, Tong Zhao, Hang Si and Xianfeng Gu. Efficient Approximation of Optimal Transportation Map by Pogorelov Map. 29th International Meshing Roundtable (IMR) Information, 2021.
- **Dongsheng An**, Na Lei, Tong Zhao, Hang Si and Xianfeng Gu. A Moving Mesh Adaptation Method by Optimal Transport. 29th International Meshing Roundtable (IMR) Information, 2021.

- **Dongsheng An**, Jianwen Xie, Ping Li. Learning Deep Generative Models by Short-run MCMC Inference with Optimal Transport Correction. Conference on Computer Vision and Pattern Recognition (CVPR), 2021.
- Min Zhang*, **Dongsheng An***, Jianfeng Wu, Tong Zhao, Yalin Wang, Xianfeng Gu. Cortical Morphometry Analysis based on Worst Transportation Theory. Information Processing in Medical Imaging (IPMI), 2021.
- **Dongsheng An**, Yang Guo, Min Zhang, Xin Qi, Na Lei, Shing-Tung Yau, Xianfeng Gu. AE-OT-GAN: Training GANs from data specific latent distribution. European Conference on Computer Vision (ECCV), 2020.
- Na Lei*, **Dongsheng An***, Yang Guo, Kehua Su, Shixia Liu, Zhongxuan Luo, Shing-Tung Yau, Xianfeng Gu. A Geometric Understanding of Deep Learning. Engineering 2020.
- **Dongsheng An**, Yang Guo, Na Lei, Zhongxuan Luo, Shing-Tung Yau, Xianfeng Gu: AE-OT. A new Generative Model based on extended semi-discrete optimal transport. International Conference on Learning Representations (ICLR), 2020.
- Min Zhang*, **Dongsheng An***, Geoffrey S. Young, Xianfeng Gu, Xiaoyin Xu. A Quasi-conformal Mapping based Data Augmentation Technique for Improving Deep Learning Techniques on Brain Tumor Segmentation. SPIE Medical Imaging 2020.
- Na Lei, Yang Guo, **Dongsheng An**, Xin Qi, Zhongxuan Luo, Shing-Tung Yau, Xianfeng Gu. Mode Collapse and Regularity of Optimal Transportation Maps. arxiv: 1902.02934.
- Jinli Suo, **Dongsheng An**, Xiangyang Ji, Haoqian Wang and Qionghai Dai. Fast and High Quality Highlight Removal from A Single Image. IEEE Trans. Image Process (2016).
- **Dongsheng An**, Jinli Suo, Haoqian Wang and Qionghai Dai. Illumination Estimation From Specular Highlight in a Multi-spectral Image. Optics Express (2015).

EXPERIENCE

Cognitive Computing Lab, Baidu Research, U.S. Summer 2020

- Research Intern, advisor: Jianwen Xie, Ping Li
- Learning Deep Generative Models by MCMC Inference with Optimal Transport Correction

Harvard Medical School, MA, U.S. Summer 2019

- Research Trainee, advisor: Min Zhang, Xiaoyin Xu
- Medical Image Augmentation by Quasi Conformal Mappings

Stony Brook University, NY, U.S. Summer 2018

- Research Assistant
- 3D face tracking by 3D morphable model and blendshape model

PROFESSIONAL SERVICE

- Program Committee & Reviewer: CVPR 2020, 2021, 2022; ECCV 2020; NeurIPS 2020, 2021; AISTATS 2021; ICML 2021, 2022; ICCV 2021; IMR 2021; ICLR 2022

LANGUAGES AND SOFTWARES

- Python, Matlab, C/C++, LaTex, Pytorch, Tensorflow

AWARDS

- National Scholarship in China, 2015

- Huangyicong Couple Scholarship in Department of Automation, 2011
- Li Yanda Endeavor Scholarship in Department of Automation, 2010
- Second-class Scholarship for freshman in Tsinghua University, 2009