

EDUCATION

Univerisity of Michigan

Ph.D. in Electrical Engineering and Computer Science

Ann Arbor, USA

09/2013–05/2019

- Advisor: Laura Balzano
- Thesis: “Extracting Compact Knowledge From Massive Data”

Nanjing University of Information Science and Technology

B.S. in Information Engineering

Nanjing, China

09/2009–06/2013

WORK EXPERIENCE

Amazon Web Services

Applied Scientist II at AWS AI Labs

New York City, USA

08/2019–Current

- Projects: Meeting Summarization, and Theme Detection in Dyadic Conversations

Technicolor AI Lab

Data Science PhD Intern

Los Altos, USA

06/2017–09/2017

- Mentor: Brian Eriksson and Yifan Sun
- Project: Deep Unsupervised Clustering with Mixture of Autoencoders

TEACHING

Graduate Student Instructor

University of Michigan

Ann Arbor, USA

09/2018–12/2018

- Reinforcement Learning (EECS 598)

PATENTS

- [1] *Apparatus and Method to Process and Cluster Data*, B. Eriksson, Y. Sun, **D. Zhang**. Patent grant 2019.
- [2] *Programmatic Theme Detection in Contacts Analytics Services*, A. Arora, A. Deo, R. Nallapati, H. Zhu, A. Arikatla, S. Kanduri, S. Prabala, **D. Zhang**. Patent filed 2020.
- [3] *Questions Disambiguation Using Generative Evidence Fusion and Round-Trip Prediction*, Y. Gao, H. Zhu, P. Ng, C. N. dos Santos, Z. Wang, F Nan, **D. Zhang**, R. Nallapati, A. Arnold, B. Xiang. Patent filed 2021.

PUBLICATIONS

Journal

- [1] J. He, **D. Zhang**, L. Balzano, and T. Tao, “Iterative Grassmannian optimization for robust image alignment”, *Image and Vision Computing*, vol. 32, no. 10, pp. 800–813, 2014.

Conference

- [1] Y. Gao, H. Zhu, P. Ng, C. N. dos Santos, Z. Wang, F. Nan, **D. Zhang**, R. Nallapati, A. Arnold, and B. Xiang, “*Answering Ambiguous Questions through Generative Evidence Fusion and Round-Trip Prediction*”, Accepted to ACL-IJCNLP, 2021.
- [2] F. Nan, R. Nallapati, Z. Wang, C. Nogueira dos Santos, H. Zhu, **D. Zhang**, K. McKeown, and B. Xiang, “*Entity-level Factual Consistency of Abstractive Text Summarization*”, Accepted to EACL, 2021.
- [3] F. Nan, N. dos Santos, H. Zhu, P. Ng, K. McKeown, R. Nallapati, **D. Zhang**, Z. Wang, A. Arnold, and B. Xiang, “*Improving Factual Consistency of Abstractive Summarization via Question Answering*”, Accepted to ACL-IJCNLP, 2021.
- [4] **D. Zhang**, F. Nan, X. Wei, S. Li, H. Zhu, K. McKeown, R. Nallapati, A. Arnold, and B. Xiang, “*Supporting Clustering with Contrastive Learning*”, Accepted to NAACL, 2021.
- [5] **D. Zhang**, R. Nallapati, H. Zhu, F. Nan, C. Nogueira dos Santos, K. McKeown, and B. Xiang, “*Margin-aware Unsupervised Domain Adaptation for Cross-lingual Text Labeling*”, Accepted to Findings of EMNLP, 2020.
- [6] G. Ongie, D. Hong, **D. Zhang**, and L. Balzano, “*Online Estimation of Coherent Subspaces with Adaptive Sampling*”, Accepted to the IEEE Statistical Signal Processing Workshop (SSP), 2018.
- [7] **D. Zhang**, J. Katz-Samuels, M. A. Figueiredo, and L. Balzano, “*Simultaneous Sparsity and Parameter Tying for Deep Learning Using Ordered Weighted L1 Regularization*”, Accepted to the IEEE Statistical Signal Processing Workshop (SSP), 2018.
- [8] **D. Zhang**, H. Wang, M. Figueiredo, and L. Balzano, “*Learning to Share: Simultaneous Parameter Tying and Sparsification in Deep Learning*”, Accepted to ICLR, 2018.
- [9] **D. Zhang**, T. Zhao, and L. Balzano, “*Information Maximization Auto-Encoding*”, Workshop on Bayesian Deep Learning, NeurIPS, 2018.
- [10] T. Zhao, **D. Zhang**, Z. Sun, and L. Honglak, “*Information Regularized Neural Networks*”, Workshop on Integration of Deep Learning Theories, NeurIPS, 2018.
- [11] G. Ongie, D. Hong, **D. Zhang**, and L. Balzano, “*Enhanced Online Subspace Estimation via Adaptive Sensing*”, Accepted to the Asilomar Conference on Signals, Systems, and Computers (Asilomar), 2017.
- [12] **D. Zhang** and L. Balzano, “*Matched Subspace Detection Using Compressively Sampled Data*”, Accepted to the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2017.
- [13] **D. Zhang** and L. Balzano, “*Global Convergence of A Grassmannian Gradient Descent Algorithm for Subspace Estimation.*”, Accepted to the International Conference on Artificial Intelligence and Statistics (AISTATS), 2016.
- [14] J. He, **D. Zhang**, L. Balzano, and T. Tao, “*Iterative Online Subspace Learning for Robust Image Alignment*”, Accepted to the IEEE International Conference and Workshops on Automatic Face and Gesture Recognition (FG), 2013.

Preprints / Technical Report

- [1] **D. Zhang**, S. Li, W. Xiao, H. Zhu, R. Nallapati, A. Arnold, and B. Xiang, *Pairwise Supervised Contrastive Learning of Sentence Representations*. Submitted to EMNLP, 2021.
- [2] **D. Zhang** and L. Balzano, *Convergence of a Grassmannian Gradient Descent Algorithm for Subspace Estimation from Undersampled Data*. 2018.

- [3] **D. Zhang**, Y. Sun, B. Eriksson, and L. Balzano, *Deep Unsupervised Clustering with Mixture of Autoencoders*. UMich Deep Blue Technical Report, 2017.

SKILLS

Languages: Python (preferred), CUDA, C/C++, Latex

Tools: PyTorch (preferred), TensorFlow, Theano, Keras, Matlab

PROFESSIONAL REVIEWING ACTIVITIES

Journal

IEEE Transactions on Information Theory (T-IT)
IEEE Transactions on Signal Processing (TSP)
IEEE Sensors Journal

Conference

COLT 2017, ICML 2019