# Jiaming Song

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## Education

2016 – **Stanford University,** Palo Alto, CA.
Ph.D. Program in Computer Science. Advisor: Stefano Ermon.

2012 – 2016 **Tsinghua University (THU),** Beijing, China.
B.Eng. in Computer Science and Technology. Graduated with Outstanding Honor (Top 1%).

## Publications

June 2019 **Multi-Agent Adversarial Inverse Reinforcement Learning**
Lantao Yu, Jiaming Song, Stefano Ermon.
In *the 36th International Conference on Machine Learning (ICML 2019)*.

June 2019 **Calibrated Model-based Reinforcement Learning**
Ali Malik, Volodymyr Kuleshov, Jiaming Song, Danny Nemer, Harlan Seymour, Stefano Ermon.
In *the 36th International Conference on Machine Learning (ICML 2019)*.

April 2019 **Learning Controllable Fair Representations**
Jiaming Song, Pratyusha Kalluri, Aditya Grover, Shengjia Zhao, Stefano Ermon.
In *the 22nd International Conference on Artificial Intelligence and Statistics (AISTATS 2019)*.
Abridged in *ICML Workshop on Theoretical Foundations and Applications of Deep Generative Models*.

January 2019 **InfoVAE: Information Maximizing Variational Autoencoders**
Shengjia Zhao, Jiaming Song, Stefano Ermon.
In *the 33rd AAAI Conference on Artificial Intelligence (AAAI 2018)*.
Abridged in *ICML Workshop on Theoretical Foundations and Applications of Deep Generative Models*.

December 2018 **Multi-Agent Generative Adversarial Imitation Learning**
Jiaming Song, Hongyu Ren, Dorsa Sadigh, Stefano Ermon.
In *the 31th Neural Information Processing Systems (NIPS 2018)*.
Abridged in *the 6th International Conference on Learning Representations (ICLR 2018) Workshop Track*, *1st Workshop on Goal Specifications for Reinforcement Learning*.

December 2018 **Bias and Generalization in Deep Generative Models: An Empirical Study**
Shengjia Zhao*, Hongyu Ren*, Arianna Yuan, Jiaming Song, Noah Goodman, Stefano Ermon.
In *the 31th Neural Information Processing Systems (NIPS 2018)*.. Spotlight Presentation.

August 2018 **Learning with Weak Supervision from Physics and Data-Driven Constraints**
Hongyu Ren, Russell Stewart, Jiaming Song, Volodymyr Kuleshov, Stefano Ermon.
In *AI Magazine 39(1): 27-38*.

August 2018 **A Lagrangian Perspective on Latent Variable Generative Models**
Shengjia Zhao, Jiaming Song, Stefano Ermon.
In *the 2018 Conference on Uncertainty in Artificial Intelligence (UAI 2018)*. Oral Presentation.
Abridged in *2018 Bay Area Machine Learning Symposium*, *ICML 2018 Workshop on Theoretical Foundations and Applications of Deep Generative Models*.

July 2018 **Accelerating Natural Gradient with Higher-Order Invariance**
Yang Song, Jiaming Song, Stefano Ermon.
In *the 35th International Conference on Machine Learning (ICML 2018)*.

July 2018 **Adversarial Constraint Learning for Structured Prediction**
Hongyu Ren, Russell Stewart, Jiaming Song, Volodymyr Kuleshov, Stefano Ermon.
In *2018 International Joint Conference on Artificial Intelligence (IJCAI 2018)*.
Abridged in *NIPS Workshop on Learning with Limited Data*.

December 2017 **A-NICE-MC: Adversarial Training for MCMC**
Jiaming Song, Shengjia Zhao, Stefano Ermon.
In *the 30th Neural Information Processing Systems (NIPS 2017)*.
Abridged in *ICML 2017 Workshop on Implicit Models*.

December 2017 **InfoGAIL: Interpretable Imitation Learning from Visual Demonstration**
Yunzhu Li, Jiaming Song, Stefano Ermon.
In *the 30th Neural Information Processing Systems (NIPS 2017)*.

August 2017 **Learning Hierarchical Features from Generative Models**
Shengjia Zhao, Jiaming Song, Stefano Ermon.
In *the 34th International Conference on Machine Learning (ICML 2017)*.

June 2016 **Factored Sigmoid Belief Networks for Sequence Learning**
Jiaming Song, Zhe Gan, Lawrence Carin.
In *33rd International Conference on Machine Learning (ICML 2016)*.

June 2015 **Organizational Churn: A Roll of the Dice?**
Canyao Liu*, Jiaming Song*, Chuan Yu*.
In *Undergraduate Mathematics and its Applications (UMAP), Issue 36.2*. Invited paper.

June 2015 **Discriminative Nonparametric Latent Feature Relational Models with Data Augmentation**
Bei Chen, Ning Chen, Jun Zhu, Jiaming Song, Bo Zhang.
In *10th Association for the Advancement of Artificial Intelligence Conference (AAAI 2016)*.

## Workshop Papers and Manuscripts

July 2018 **Dual Optimization for Latent Variable Generative Models**
Shengjia Zhao*, Jiaming Song*, Stefano Ermon.
In *ICML 2018 Workshop on Theoretical Foundations and Applications of Deep Generative Models*.

July 2018 **Markov Chain Monte Carlo for Learning Belief Networks**
Laetitia Shao*, Jiaming Song*, Aditya Grover, Stefano Ermon.
In *ICML 2018 Workshop on Theoretical Foundations and Applications of Deep Generative Models*.

December 2017 **Structured Prediction with Adversarial Constraint Learning**
Hongyu Ren, Russell Stweart, Jiaming Song, Volodymyr Kuleshov, Stefano Ermon.
In *NIPS 2017 Workshop on Learning with Limited Data*.

December 2017 **A Lagrangian Perspective on Latent Variable Generative Modeling**
Shengjia Zhao, Jiaming Song, Stefano Ermon.
In *NIPS 2017 Workshop on Bayesian Deep Learning*.

December 2017 **An Empirical Study of the Generalization Behavior of Generative Adversarial Networks**
Hongyu Ren, Shengjia Zhao, Jiaming Song, Lijie Fan, Stefano Ermon.
In *NIPS 2017 Workshop on Deep Learning: Bridging Theory and Practice*.

April 2017 **Generative Adversarial Learning of Markov Chains**
Jiaming Song, Shengjia Zhao, Stefano Ermon.
In *the 5th International Conference on Learning Representations (ICLR 2017) Workshop*.

February 2016 **Max-Margin Nonparametric Latent Feature Relational Models for Link Prediction**
Jun Zhu, Jiaming Song, Bei Chen.
In *arXiv preprint arXiv:1602.07428*.

February 2017 **Torwards Deeper Understanding of Variational Autoencoding Models**
Shengjia Zhao, Jiaming Song, Stefano Ermon.
In *arXiv preprint arXiv:1702.08658*.

## Professional Experiences

June 2018 - Sept 2018 **Research Intern,** Facebook AI Research. Mentors: Michael Auli, Yann Dauphin and Tengyu Ma.
Research on deep learning and optimization.

June 2017 - Sept 2017 **Research Intern,** OpenAI. Mentors: Rocky Duan and John Schulman.
Research on deep reinforcement learning.

April 2016 - July 2016 **Detection, Tracking and Reidentification Group,** Megvii Inc. Mentor: Chi Zhang
Developed a scalable framework to provide distant supervision for unlabeled data, which allows model distillation and merging network structures for different tasks, such as detection and parsing.
Megvii Inc. is a leading unicorn start-up in China, with emphasis on machine learning and computer vision.

July 2015 - September 2015 **Information Initiative @ Duke (iiD),** Duke University. Advisor: Prof. Lawrence Carin.
Worked on conditional factored deep generative models using recent Neural Variational Inference methods, which allows for semi-supervised deep learning and sequence generation with side information.

November 2014 - June 2015 **Statistical AI & Learning (TSAIL) Group,** Tsinghua University. Advisor: Prof. Jun Zhu.
Explored stochastic variational methods for link prediction problems. Proposed an efficient method that would train on a network with over 3 million nodes, a significant improvement over original methods.

July 2014 - October 2014 **Visual Computing Group,** Microsoft Research Asia. Advisor: Jingdong Wang.
Implemented a convolutional neural network for multiple label image annotation with Caffe.

## Honors and Awards

June 2018 **Qualcomm Innovation Fellowship (US) Winner,** issued by Qualcomm.
Safe Multi-Agent Imitation Learning for Self-Driving (top 4.5%)

June 2016 **Qualcomm Scholarship,** issued by Qualcomm.
Offered to Tsinghua undergraduates with exceptional research experiences (top 1%).

June 2015 **Google Excellence Scholarship,** issued by Google.
This scholarship is offered to Chinese undergraduate and graduate students who possess remarkable academic achievements and project experiences. 58 students are selected nationwide (6 in Tsinghua University).

April 2015 **Outstanding Winner,** Interdisciplinary Contest in Modeling 2015.
Highest award (9 out of 2317) of the contest. Published a paper which models organizational churn using Bayesian-inspired methods and network science. See github.com/jiamings/icm2015 for more details.

April 2015 **Third Prize,** 33rd Tsinghua Challenge Cup, issued by Tsinghua University.
Our project implements fast, scalable video segmentation and classification which utilizes deep activation features. Please see jiamings.github.io/projects/decaf-video for details.

October 2014 **Outstanding Undergraduate,** issued by the China Computer Federation (CCF).
Only 4 students in Tsinghua, and 100 in China are awarded each year.

May 2014 **Spark Program for Technological Innovation,** Tsinghua University.
Among top 50/3000 students for achievements in scientific and technological innovations.

December 2013 **Zhong Shimo Scholarship,** issued by Dept. of Computer Science and Technology.
Highest scholarship in the CS Department. (top 0.75%)

July 2011 **Bronze Prize, National Olympiad in Informatics,** issued by China Computer Federation (CCF).

## Professional Services and Outreach

Reviewer / Program Committee — TIST, AAAI 2019, ACML 2019, NeuIPS 2019, COLT 2019, UAI 2019, ICCV 2019, ICML 2019, CVPR 2019, ACML 2019, ICLR 2018, ACML 2018, BayLearn 2018

December 2019 — **NeurIPS 2019 Workshop on Information Theory and Machine Learning,** Chair

December 2018 — **NeurIPS 2018,** Mentor.
Invited to mentoring breakfast session for researchers of color.

Fall 2017 - Now — **Ermon Group Blog,**
Maintaining an academic blog post (`http://ermongroup.github.io/blog/`), with several thousand visitors per month.

April 2018 — **Data Learning and Inference 2018,** Organizer
Organizing the Generative Models for Reinforcement Learning workshop.

December 2017 — **Women in Machine Learning (WiML) 2017,** Mentor.
Invited to discussion panel on "A-NICE-MC: Adversarial Training for MCMC".

December 2017 — **Global NIPS Paper Implementation Challenge,** Mentor.
Provide guidance to reproduce results in NIPS 2017 papers.

## Teaching

Fall 2018 — **CS236 (Deep Generative Models)**, Stanford University

## Talks

November 2018 — **Deep Generative Models for Imitation Learning and Fairness**, Microsoft Research

November 2018 — **Learning Controllable Fair Representations**, Stanford University