Tianfan Fu

CONTACT INFORMATION

Computational Science and Engineering
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RESEARCH INTERESTS

AI for Drug Discovery, Machine Learning for Healthcare, Natural Language Processing, Deep Learning, Speech Processing, Bayesian Statistics.

EDUCATION

Georgia Institute of Technology, Atlanta, US.

PhD candidate, Advisor: **Jimeng Sun**, Computer Science Program in Department of Computational Science and Engineering, August 2018 - Present.

Shanghai Jiao Tong University (SJTU), Shanghai, CHINA

M.S., Advisor: **Zhihua Zhang**, Computer Science and Technology, Sept 2015 - April 2018.

Shanghai Jiao Tong University (SJTU), Shanghai, CHINA

B.E., Electronics and Electric Engineering (IEEE Honor Class), Computer Science, Sept 2011 - June 2015.

RESEARCH EXPERIENCE

Research Assistant, Speech Lab, Shanghai Jiao Tong University (SJTU)

Advisor: **Kai Yu**, June 2013 - Jan 2015.
Research topic: application of deep learning on speech recognition and speaker verification.

Research Assistant, Learning and Optimization Group, Shanghai Jiao Tong University (SJTU)

Advisor: **Zhihua Zhang**, Feb 2015 - May 2017.
Research topic: Bayesian computation and inference.

Research Assistant, SunLab, Georgia Institute of Technology

Advisor: **Jimeng Sun**, Sept 2018 - Present.
Research topic: Drug Discovery, Predictive Phenotyping.

INDUSTRY EXPERIENCE

Research Intern, Machine Learning Group, IQVIA, Boston

Advisor: **Cao Xiao**, May 2020 - Aug 2020.
Research topic: clinical trial prediction

Research Intern, Machine Learning Group, Disney Research Institute, Pittsburgh

Advisor: **Cheng Zhang & Stephan Mandt**, Sept 2017 - Dec 2017.
Research topic: word/user embeddings algorithm

Intern, Dialogue System Group, AISPEECH, Suzhou, China

Project: Text Similarity for QA system, Feb 2018 - June 2018.

PUBLICATIONS

Tianfan Fu, Cao Xiao, Lucas Glass, Jimeng Sun: MOLER: Incorporate Molecule-Level Reward to Enhance Deep Generative Model for Molecule Optimization. IEEE Transactions on Knowledge and Data Engineering (TKDE) 2021.

Tianfan Fu, Cao Xiao, Xinhao Li, Lucas Glass, Jimeng Sun: MIMOSA: Multi-constraint Molecule Sampling for Molecule Optimization. Association for the Advancement of Artificial Intelligence (**AAAI**) 2021.

Tianfan Fu, Cao Xiao, Lucas Glass, Jimeng Sun: α-MOP: Molecule Optimization with α-divergence. International Conference on Bioinformatics and Biomedicine (**BIBM**) 2020 (short paper).

Kexin Huang, **Tianfan Fu**, Lucas Glass, Marinka Zitnik, Cao Xiao, Jimeng Sun: DeepPurpose: a Deep Learning Library for Drug-Target Interaction Prediction. **Bioinformatics** 2020.

Tianfan Fu, Cao Xiao, Jimeng Sun: CORE: Automatic Molecule Optimization using Copy & Refine Strategy. Association for the Advancement of Artificial Intelligence (**AAAI**) 2020, New York, NY, USA. (**Oral**)

Tianfan Fu*, Tian Gao*, Cao Xiao, Tengfei Ma, Jimeng Sun: PEARL: Prototype Learning via Rule Learning. ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (**ACM BCB**) 2019, Niagara Fall, NY, USA. (**Oral**)

Tianfan Fu*, Trong Nghia Hoang*, Cao Xiao, Jimeng Sun: DDL: Deep Dictionary Learning for Predictive Phenotyping. International Joint Conferences on Artificial Intelligence (**IJCAI** 2019), Macau, China. (**Oral**)

Tianfan Fu, Cheng Zhang, Stephan Mandt: Continuous Word Embedding Fusion via Spectral Decomposition. SIGNLL Conference on Natural Language Learning (**CoNLL** 2018), Brussels, Belgium. (**Oral**)

Shenjian Zhao, Yujun Li, **Tianfan Fu**, Kai Li, Zhihua Zhang: **Chinese Translation of "Deep Learning (Goodfellow et al)"**. Sales volume: receiving **160,000+** comments in `jd.com`. **深度学习中译版** 京东评论180,000+条

Tianfan Fu, Zhihua Zhang: CPSG-MCMC: Clustering-Based Preprocessing method for Stochastic Gradient MCMC. **AISTATS** 2017: 841-850, Lauderdale, FL, USA. (**Poster**)

Tianfan Fu, Luo Luo, Zhihua Zhang: Quasi-Newton Hamiltonian Monte Carlo. Conference on Uncertainty in Artificial Intelligence, **UAI** 2016, New York, NY, USA. (**Poster**)

Yuan Liu, Yanmin Qian, Nanxin Chen, **Tianfan Fu**, Ya Zhang, Kai Yu: Deep feature for text-dependent speaker verification. **Speech Communication** 73: 1-13, 2015.

Wei Li, **Tianfan Fu**, Jie Zhu: An improved i-vector extraction algorithm for speaker verification. **EURASIP J. Audio, Speech and Music Processing** 2015: 18, 2015.

Yuan Liu, **Tianfan Fu**, Yuchen Fan, Yanmin Qian, Kai Yu: Speaker verification with deep features. International Joint Conference on Neural Networks, **IJCNN** 2014: 747-753, Beijing, China (**Oral**)

Tianfan Fu, Yanmin Qian, Yuan Liu, Kai Yu: Tandem deep features for text-dependent speaker verification. **INTERSPEECH** 2014: 1327-1331, Singapore. (**Oral**)

Related Skills

- Programming Skills: Python, C++, Bash(awk, sed, etc.), LaTex, git, Pytorch, Tensorflow

Awards

- 2014 Shanghai Jiao Tong University Academic Excellence scholarship (Top 10%)
- 2016 SJTU Academic Excellence Scholarship Class-A (Top 15%)
- 2017 CS Graduates Education & Development Fund and Yang Yuanqing Education Fund (Top-3 in all graduate students in CS Department).

Academic involvement

- 2016 UAI Travel Award & Volunteer
- 2016 NIPS Reviewer (5 papers)

- 2017 AAAI sub-reviewer (2 papers)
- 2017 AISTATS Travel Award
- 2018 AAAI Reviewer (1 paper)
- 2020 IEEE Journal of Biomedical and Health Informatics (JBHI) Reviewer (1 paper)
- 2020 KDD sub-reviewer (2 papers)
- 2020 IEEE Transactions on Cybernetics reviewer (1 paper)
- 2020 ICCCN (The 29th International Conference on Computer Communications and Networks) Program Committee Member and reviewer.
- 2020 PLOS Computational Biology (1 paper)
- 2020 NeurIPS (6 papers)
- 2021 AAAI (3 papers)
- 2021 IJCAI (Senior PC)

TEACHING

- 2016 Spring Prof. Zhihua Zhang's course "Statistical Machine Learning" TA
- 2018 Spring Prof. Bo Yuan's course "Artificial Intelligence" TA
- 2019 Fall Prof. Jimeng Sun's course "Big Data Analytics for Healthcare" TA
- 2020 Spring Prof. Jimeng Sun's course "Big Data Analytics for Healthcare" TA
- 2020 Fall Prof. Jimeng Sun's course "Big Data Analytics for Healthcare" TA