Martin Jinye Zhang

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Education

- **Stanford University** — Stanford, CA
  PhD Candidate (5th year), Dept. of Electrical Engineering, Advisor: David Tse — *Sep 2014 - Present*
- **Stanford University** — Stanford, CA
  Master of Science, Dept. of Electrical Engineering — *Sep 2014 - Jul 2017*
- **Tsinghua University** — Beijing, China
  Bachelor of Engineering, Dept. of Electrical Engineering — *Sep 2010 - Jul 2014*

Research Interest

My background is in statistics and machine learning. My research focus on the development of statistical methods for the inference in various high-throughput genetic data like GWAS, RNA-seq, single-cell RNA-seq, and multi-omics. I am particularly interested in methods that systematically aggregate different datasets, algorithm acceleration via adaptive sampling, and empirical Bayes modeling.

Publications

(* equal contributions)

1. **Martin J. Zhang**, Fei Xia, and James Zou. "AdaFDR: a Fast, Powerful and Covariate-Adaptive Approach to Multiple Hypothesis Testing", accepted as top 5% best paper in *RECOMB 2019*, under review in *Nature Communications*, 2018.

2. **Martin J. Zhang***, Vasilis Ntranos*, and David Tse. "One read per cell per gene is optimal for single-cell RNA-Seq", under review (2nd round) in *Nature Communications*, 2018.

3. **Martin J. Zhang*** , Abubakar Abid*, Vivek K. Bagaria, and James Zou, "Exploring Patterns Unique to a Dataset with Contrastive Principal Component Analysis", *Nature Communications*, 2018.

4. Wenyu Zhou*, M. Reza Sailani*, Kvin Contrepois*, Yanjiao Zhou*, Sara Ahadi*, Shana Leopold, **Martin J. Zhang**, $\cdots$, George M. Weinstock, Michael Snyder, "Complex host-microbial dynamics in prediabetes revealed through longitudinal multi-omics profiling", under review (2nd round) in *Nature*, 2018. Contributed 4 panels in 2 figures.

5. **Martin J. Zhang***, Vivek Bagaria*, Govinda Kamath*, Vasilis Ntranos*, and David Tse, "Medoids in Almost Linear Time via Multi-armed Bandits", *AISTATS 2018*.

6. **Martin J. Zhang***, Fei Xia*, James Zou, and David Tse, "NeuralFDR: Learning Discovery Thresholds from Hypothesis Features", *NeurIPS 2017*.

7. **Martin Jinye Zhang**, and Zhijian Ou, "Block-wise MAP Inference for the Determinantal Point Processes with Application to Change Point Detection", *SSP 2016*.

8. **Martin J. Zhang**, Laming Chen, Petros T. Boufounos, and Yuantao Gu, "On the Theoretical Analysis of Cross Validation in Compressive Sensing", *ICASSP 2014*.

Skills

- **Proficient**: Python, R, Matlab, Hadoop, Bash
- **Familiar**: PyTorch (for deep learning), SQL, C++

Internships

- **Grail, Inc. (early cancer detection via cell-free DNA)** Menlo Park, CA
  Bioinformatician *Jun - Sep, 2018*
  - **Project**: cancer patient classification via cell-free RNA.
- **Genapsys, Inc. (next generation high-throughput sequencer)** Redwood city, CA
  Research Scientist *Jun - Sep, 2017*
  - **Project**: sensor signal clustering.
- **Baidu, Inc.** Beijing, China
  R & D Engineer, Department of Natural Language Processing *Sep 2013 - Feb 2014*
  - **Project**: query-parsing or Baidu's voice assistant.

Relevant Courses

- **Stanford**: theory of statistics; theory of probability; applied statistics; statistical learning theory; information theory; statistical signal processing; linear dynamic systems; convex optimization; design and analysis of algorithms; mining massive datasets; deep learning;
- **Tsinghua**: signals and systems; stochastic process; communications and networks; digital signal processing; machine learning and pattern recognition; digital image processing;

Distinctions

1. Top 5% best paper in RECOMB 2019
2. NeurIPS travel award, 2017
3. Inventec Fellow, Stanford Graduate Fellowship (SGF), Stanford University 2015
4. Numerical Technologies Award in Electrical Engineering (Numerical Technologies Founders Graduate Fellowship), Stanford University, 2015
5. Ranked 2/79 in the EE PhD Qualifying Exam, Stanford University, 2015
6. Outstanding Undergraduate Thesis "Speech Diarization Based on the Determinantal Point Processes", Tsinghua University, 2014
7. Comprehensive Excellence Scholarship in Electronic Engineering, Tsinghua University, 2013
8. First award in Beijing College Student Physics Competition, 3/186 in Department of Electronic Engineering, Tsinghua University, 2011
9. First Prize Provincial and Bronze Medal National, Chinese Physics Olympiad, 2009