# Martin Jinye Zhang

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## Position

- **Harvard University** — Boston, MA
  *Postdoctoral Researcher, T.H. Chan School of Public Health, Advisor: Alkes Price* — *Sept 2019 - Present*

## Education

- **Stanford University** — Stanford, CA
  *Doctor of Philosophy (PhD), Department of Electrical Engineering, Advisor: David Tse* — *Sept 2014 - Sept 2019*
- **Stanford University** — Stanford, CA
  *Master of Science (MS), Department of Electrical Engineering* — *Sept 2014 - Jul 2017*
- **Tsinghua University** — Beijing, China
  *Bachelor of Engineering (B.Eng.), Department of Electrical Engineering* — *Sept 2010 - Jul 2014*

## Research Interest

My research focuses on the development of statistical methods for the inference in various high-throughput genetic data applications 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. The Tabula Muris Consortium. "A Single Cell Transcriptomic Atlas Characterizes Aging Tissues in the Mouse", under review in *Nature*, 2019.
2. **Martin Zhang**, James Zou, and David Tse. "Adaptive Monte Carlo Multiple Testing via Multi-armed Bandits", *ICML 2019*.
3. **Martin Zhang**, Fei Xia, and James Zou. "Fast and covariate-adaptive method amplifies detection power in large-scale multiple hypothesis testing", preliminary version received the RECOMB Best Paper Award, *Nature Communications*, 2018.
4. **Martin Zhang***, Vasilis Ntranos*, and David Tse. "Determining sequencing depth in a single-cell RNA-seq experiment", *Nature Communications*, 2019.
5. Abubakar Abid*, **Martin Zhang***, Vivek K. Bagaria, and James Zou, "Exploring Patterns Unique to a Dataset with Contrastive Principal Component Analysis", *Nature Communications*, 2018.
6. Wenyu Zhou*, M. Reza Sailani*, Kévin Contrepois*, Yanjiao Zhou*, Sara Ahadi*, Shana Leopold, **Martin Zhang**, $\cdots$, George M. Weinstock, Michael Snyder, "Longitudinal multi-omics of host-microbe dynamics in prediabetes", *Nature*, 2018.
7. Vivek Bagaria*, Govinda Kamath*, Vasilis Ntranos*, **Martin Zhang***, and David Tse, "Medoids in Almost Linear Time via Multi-armed Bandits", *AISTATS 2018*.
8. Fei Xia*, **Martin Zhang***, James Zou, and David Tse, "NeuralFDR: Learning Discovery Thresholds from Hypothesis Features", *NeurIPS 2017*.
9. **Martin Zhang**, and Zhijian Ou, "Block-wise MAP Inference for the Determinantal Point Processes with Application to Change Point Detection", *SSP 2016*.
10. **Jinye Zhang**, Laming Chen, Petros T. Boufounos, and Yuantao Gu, "On the Theoretical Analysis of Cross Validation in Compressive Sensing", *ICASSP 2014*.

## Talks

1. "Adaptive Monte Carlo Multiple Testing via Multi-armed Bandits", ICML 2019.
2. "AdaFDR: a Fast, Powerful and Covariate-Adaptive Approach to Multiple Hypothesis Testing", RECOMB 2019.
3. "Optimal sequencing-budget allocation for single-cell RNA-seq", CISS 2019.
4. "Adaptive Monte Carlo Multiple Testing via Multi-armed Bandits", ITA 2019.

## Professional Services

1. Reviewer for *Nature Communications*, *Bioinformatics*, *Journal of Genetics and Genomics*, *NeurIPS 2016*, *NeurIPS 2019*.
2. 2015 - 2019: organizer for Information Systems Laboratory Colloquium, EE, Stanford.

## 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.

## Distinctions

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