Martin Jinye Zhang

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Position

- **Harvard University** — Boston, MA
  Postdoctoral Researcher, Department of Epidemiology, 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 developing statistical methods for high-throughput sequencing data analysis like GWAS, RNA-Seq, and single-cell RNA-seq. I am also interested in general statistical and machine learning algorithms, particularly those involving data integration, adaptive sampling, and empirical Bayes modeling.

Manuscripts

(* equal contributions)

1. **Martin Jinye Zhang**, Angela Oliveira Pisco, Spyros Darmanis, James Zou. "Mouse Aging Cell Atlas Analysis Reveals Global and Cell Type Specific Aging Signatures", under review in *eLife*, 2021.

Publications

(* equal contributions)

1. Mo Tiwari, **Martin Jinye Zhang**, James Mayclin, Sebastian Thrun, Chris Piech, Ilan Shomorony. "Bandit-PAM: Almost Linear Time k-Medoids Clustering via Multi-Armed Bandits", *NeurIPS*, 2020.

2. M Reza Sailani*, Ahmed A Metwally*, Wenyu Zhou, Sophia Miryam Schüssler-Fiorenza Rose, Sara Ahadi, Kevin Contrepois, Tejaswini Mishra, **Martin Jinye Zhang**, Łukasz Kidziński, Theodore J Chu, Michael P Snyder. "Deep longitudinal multiomics profiling reveals two biological seasonal patterns in California", *Nature Communications*, 2020.

3. The Tabula Muris Consortium. "A single-cell transcriptomic atlas characterizes ageing tissues in the mouse", *Nature*, 2020.

4. Li Gao, Misun Kang, **Martin Jinye Zhang**, M. Reza Sailani, Ryutaro Kuraji, April Martinez, Changchang Ye, Pachiyappan Kamarajan, Charles Le, Ling Zhan, Hélène Rangé, Sunita P. Ho, Yvonne L. Kapila. "Polymicrobial periodontal disease triggers a wide radius of effect and unique virome", *npj Biofilms and Microbiomes*, 2020.

5. **Martin Jinye Zhang***, Vasilis Ntranos*, and David Tse. "Determining sequencing depth in a single-cell RNA-seq experiment", *Nature Communications*, 2020.

6. **Martin J. Zhang**, James Zou, and David Tse. "Adaptive Monte Carlo Multiple Testing via Multi-armed Bandits", *ICML*, 2019.

7. **Martin J. Zhang**, Fei Xia, and James Zou. "Fast and covariate-adaptive method amplifies detection power in large-scale multiple hypothesis testing", *Nature Communications*, 2019.
Preliminary version, named "AdaFDR: a Fast, Powerful and Covariate-Adaptive Approach to Multiple Hypothesis Testing", received the RECOMB 2019 Best Paper Award, one out of 175 submissions and 37 accepted papers.

8. Abubakar Abid*, **Martin J. Zhang***, Vivek K. Bagaria, and James Zou, "Exploring patterns enriched in a dataset with contrastive principal component analysis", *Nature Communications*, 2018.

9. Wenyu Zhou*, M. Reza Sailani*, Kévin Contrepois*, Yanjiao Zhou*, Sara Ahadi*, Shana Leopold, **Martin J. Zhang**, $\cdots$, George M. Weinstock, Michael Snyder, "Longitudinal multi-omics of host-microbe dynamics in prediabetes", *Nature*, 2018.

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

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

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

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

Professional Services

1. Journal reviewer for *Nature Communications*, *BMC Biology*, *Bioinformatics*, *Biometrics*, *Journal of Genetics and Genomics*, *Scientific Reports*,

2. Conference reviewer for *IJCAI 2021* (senior area chair), *ICML 2021*, *ICLR 2021*, *NeurIPS 2020*, *ICML 2020*, *NeurIPS 2019*, *NeurIPS 2019*.

3. 2015 - 2019: organizer for Information Systems Laboratory Colloquium, EE, Stanford.

Distinctions

1. RECOMB 2019 Best Paper Award (Research in Computational Molecular Biology)

2. Travel Awards: RECOMB 2019, NeurIPS 2017, PQG (Program in Quantitative Genomics at Harvard T.H. Chan School of Public Health)

3. 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 Ph.D. qualifying exam, Stanford University, 2015

6. Outstanding Undergraduate Thesis for "Speech Diarization Based on the Determinantal Point Processes", Tsinghua University, 2014

7. Comprehensive Excellence Scholarship in Electronic Engineering, Tsinghua University, 2013