Tianyu Zhang

Department of Statistics and Data Science   Phone: (+1) 206-488-2242
Carnegie Mellon University   Email: tianyuz3@andrew.cmu.edu
Pittsburgh, PA 15213

Education

Ph.D. Biostatistics, University of Washington   9/2017-8/2022

      Dissertation Title   *Modern Sieve Estimators for Nonparametric Problems: Streaming Data and High-dimensional Data.*

      Committee Members   *Noah Simon (Chair), Alex Luedtke Marco Carone, Rekha Thomas*

B.S. Life Science & Mathematics (Double Major), Peking University   9/2013-7/2017

      POSCO Scholarship 2015-2016
      Suzhou Industrial Park Scholarship 2014-2015

Working Experience

Post Doctoral Researcher
Department of Statistics & Data Science, Carnegie Mellon University   9/2022-Present
      Hosting Faculty   *Jing Lei and Kathryn Roeder*
Research Assistant
Department of Biostatistics, University of Washington   3/2018-8/2022
Statistical Consultant
FOXO Technologies Inc.   9/2021-8/2022
Research Scientist Intern
Modeling and Optimization team, Amazon   6-9/2020 & 6-9/2021

Research Publication (* indicates co-first author)

Preprints or Submitted

1. **Tianyu Zhang**, Hao Lee, and Jing Lei. "Winners with Confidence: Discrete Argmin Inference with an Application to Model Selection" arXiv:2408.02060 (2024).
   The third author presented at the Medallion Lecture, 2024 Joint Statistical Meetings.

2. Kenta Takatsu, **Tianyu Zhang**, and Arun Kumar Kuchibhotla. "From isotonic to Lipschitz regression: a new interpolative perspective on shape-restricted estimation" arXiv:2307.05732 (2024).–Under Review

3. **Tianyu Zhang**, Jing Lei, and Kathryn Roeder. "Debiased Projected Two-Sample Comparisonscfor Single-Cell Expression Data." arXiv preprint arXiv:2403.05679 (2024).–Under Review

    Presented at topic-contributed session, *American Statistical Association STATGEN* 2024

4. Conghao Zhou, Hao-Yi Wu, Andrés N. Salcedo, Sebastian Grandis, Tesla Jeltema, Alexie Leauthaud, Matteo Costanzi, Tomomi Sunayama, David H. Weinberg, **Tianyu Zhang**, Eduardo Rozo, Chun-Hao To, Sebastian Bocquet, Tamas Varga, Matthew Kwiecien. "Forecasting the constraints on optical selection bias and projection effects of galaxy cluster lensing with multiwavelength data." arXiv:2312.11789 (2023). –Under Review

5. **Tianyu Zhang** and Jing Lei. "Online Estimation with Rolling Validation: Adaptive Nonparametric Estimation with Streaming Data." arXiv preprint arXiv:2310.12140 (2023).–Under Review

Peer-Reviewed Articles

1. **Tianyu Zhang**, Geyu Zhou, Lambertus Klei, Peng Liu, Alexandra Chouldechova, Hongyu Zhao, Kathryn Roeder, Max G'Sell, and Bernie Devlin. "Evaluating and Improving Health Equity and Fairness of Polygenic Scores." *Human Genetics and Genomics Advances* (2023)

    Featured at *HGG Advances* monthly author interview series;
    Invited to the *American Society of Human Genetics* monthly journal club.
    Invited presentation at the Heart Institute (InCor), University of São Paulo Medical School, Brazil (remote)

2. Yihang Shen, Lingge Yu, Yutong Qiu, **Tianyu Zhang** and Carl Kingsford. "Improving Hi-C contact matrices using genome graphs". (*RECOMB* 2024, accepted).

3. **Tianyu Zhang**, Noah Simon "Regression in Tensor Product Spaces by the Method of Sieves," *Electronic Journal of Statistics*, 17(2), 3660-3727, (2023)
    Best Student Oral Presentation at *WNAR* 2022

4. Yunhua Xiang*, **Tianyu Zhang***, Xu Wang, Ali Shojaie, and Noah Simon. "On the Optimality of Nuclear-norm-based Matrix Completion for Problems with Smooth Non-linear Structure." *Journal of Machine Learning Research* 24, no. 228 (2023): 1-38.

5. **Tianyu Zhang** and Noah Simon. "An Online Projection Estimator for Nonparametric Regression in Reproducing Kernel Hilbert Spaces." *Statistica Sinica* 33.1 (2023): 127.

6. Despina Michailidou, **Tianyu Zhang***, Nicole M. Kuderer, Gary H. Lyman, Andreas P. Diamantopoulos, Pavlos Stamatis, and Bernard Ng. "Predictive Models for Thromboembolic Events in Giant Cell Arteritis: A US Veterans Health Administration Population-based Study." *Frontiers in Immunology* 13 (2022): 997347.

The first author presented at Oral presentation session, American College of Rheumatology Convergence, 2022

7. **Tianyu Zhang** and Noah Simon. "A Sieve Stochastic Gradient Descent Estimator for Online Nonparametric Regression in Sobolev Ellipsoids." *The Annals of Statistics* 50, no. 5 (2022): 2848-2871.

8. Despina Michailidou, **Tianyu Zhang**, Pavlos Stamatis, and Bernard Ng. "Risk of venous and arterial thromboembolism in patients with giant cell arteritis and/or polymyalgia rheumatica: A Veterans Health Administration population‑based study in the United States." *Journal of Internal Medicine* 291, no. 5 (2022): 665-675.

The first author presented at Oral presentation session, American College of Rheumatology Convergence, 2021

9. Yiming Wang, Weikaixin Kong, Liang Wang, **Tianyu Zhang**, Boyue Huang, Jia Meng, Baoxue Yang, Zhengwei Xie, and Hong Zhou. "Multiple-purpose Connectivity Map Analysis Reveals the Benefits of Esculetin to Hyperuricemia and Renal Fibrosis." *International Journal of Molecular Sciences* 21, no. 20 (2020): 7695.

10. Zhengwei Xie*****, **Tianyu Zhang***, and Qi Ouyang. "Genome-scale Fluxes Predicted under the Guidance of Enzyme Abundance using a Novel Hyper-cube Shrink Algorithm." *Bioinformatics* 34, no. 3 (2018): 502-510.

Teaching Experience

Teaching Assistant, University of Washington

Fall 2020: BIOST 514/517 Biostatistics;
        Instructor: Ken Rice

Winter 2019: BIOST 546 Machine Learning for Biomedical and Public Health Big Data;
        Instructor: Daniela Witten

Teaching Assistant, Peking University

Summer 2016 & 2017: Calculus I;
        Instructor: Jiazhong Yang

Professional Activities

Reviewer Biometrika, Biostatistics, Journal of Computational and Applied Mathematics, Journal of Machine Learning Research (4), PLOS genetics

Leadership Experience

Statistical Learning Applied to Biostatistics (SLAB) Lab, University of Washington

- The main organizer of weekly presentations.
  9/2020-9/2021
- Presenting personal and literature research   2018-Present

Department peer mentor, University of Washington

Skills

Computer: R, SQL, Python, Shell script, C++, MATLAB.
Language: Chinese (native); English (proficient); Japanese (beginner).