

Tianyu Zhang

Department of Statistics and Data Science
Carnegie Mellon University
Pittsburgh, PA 15213

Phone: (+1) 206-488-2242
Email: tianyuz3@andrew.cmu.edu

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

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

1. Conghao Zhou, Hao-Yi Wu, Andrés N. Salcedo, Sebastian Grandis, Tesla Jeltema, Alexie Leauthaud, Matteo Costanzi, Tomomi Sunayama, David H. Weinberg, **Tianyu Zhang**, Eduardo Roza, 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).

2. Kenta Takatsu, **Tianyu Zhang** and Arun Kumar Kuchibhotla. "Semiparametric Shape-restricted Estimators for Nonparametric Regression." arXiv:2307.05732 (2023).
3. **Tianyu Zhang**, Lambertus Klei, Peng Liu, Alexandra Chouldechova, Kathryn Roeder, Max G'Sell, and Bernie Devlin. "Evaluating and Improving Health Equity and Fairness of Polygenic Scores." bioRxiv (2023): 2023-09.
4. **Tianyu Zhang** and Jing Lei. "Online Estimation with Rolling Validation: Adaptive Nonparametric Estimation with Stream Data." arXiv preprint arXiv:2310.12140 (2023).
5. Yihang Shen, Lingge Yu, Yutong Qiu, **Tianyu Zhang** and Carl Kingsford. "Improving Hi-C contact matrices using genome graphs". bioRxiv, 2023.11.08.566275 (2023).

Peer-Reviewed Articles

1. **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)
2. Xiang, Yunhua, **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.
3. **Tianyu Zhang** and Noah Simon. "An Online Projection Estimator for Nonparametric Regression in Reproducing Kernel Hilbert Spaces." *Statistica Sinica* 33.1 (2023): 127.
4. 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.
(This work also appeared in the oral presentation session at the American College of Rheumatology Convergence, 2022.)
5. **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.
6. 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.
(This work also appeared in the oral presentation session at the American College of Rheumatology Convergence, 2021.)
7. 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.

8. 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 Journal of Machine Learning Research, Biometrika, Biostatistics

Leadership Experience

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

- Main organizer of weekly presentation 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).