

Yan Dora Zhang

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ACADEMIC POSITIONS

- 2019– **Assistant Professor**
Department of Statistics and Actuarial Science
School of Computing and Data Science
The University of Hong Kong
- 2016–2019 **Postdoctoral Fellow** (Mentor: [Dr. Nilanjan Chatterjee](#))
Department of Biostatistics
Bloomberg School of Public Health
Johns Hopkins University

EDUCATION

- 2013–2016 **Ph.D. in Statistics**, North Carolina State University, *NC, USA*
Thesis: *Bayesian Methods for High-dimensional Data*
Advisor: [Dr. Howard D. Bondell](#) & [Dr. Brian J. Reich](#)
- 2011–2013 **M.S. in Statistics**, North Carolina State University, *NC, USA*
- 2007–2011 **B.S. in Statistics**, Nankai University, *Tianjin, China*

PUBLICATIONS

(*Co-first authors. [†]Co-corresponding authors. Students/supervisees are underlined.)

Peer-Reviewed Articles (as first/corresponding author)

1. [Wang H](#), [Li X](#), Li T, Li Z, Sham PC, **Zhang YD**. MAAT: a new nonparametric Bayesian framework for incorporating multiple functional annotations in transcriptome-wide association studies. *Genome Biology*. 2025 Feb 4;26:21.
2. [Wang A*](#), [Tian P*](#), **Zhang YD**. TWAS-GKF: a novel method for causal gene identification in transcriptome-wide association studies with knockoff inference. *Bioinformatics*. 2024 Aug;40(8):btae502.

3. Lai D, Lim D, Lu J, Wang H, Huang T, **Zhang YD**. Risk of myocarditis after three doses of COVID-19 mRNA vaccines in the United States, 2020–2022: A self-controlled case series study. *Journal of Evidence-Based Medicine*. 2024 Mar;17(1):65-77.
4. Xiong Z, Thach TQ, **Zhang YD**[†], Sham PC[†]. Improved estimation of functional enrichment in SNP heritability using feasible generalized least squares. *Human Genetics and Genomics Advances*. 2024 Apr 11;5(2).
5. Li X, Sham PC, **Zhang YD**. A Bayesian fine-mapping model using a continuous global-local shrinkage prior with applications in prostate cancer analysis. *The American Journal of Human Genetics*. 2024 Feb 1;111(2):213-26.
6. Wang X, Wang H, Yin G, **Zhang YD**. Network-based drug repurposing for the treatment of COVID-19 patients in different clinical stages. *Heliyon*. 2023 Mar 1;9(3).
7. Liu Z*, Qin Y*, Wu T, Tubbs JD, Baum L, Mak TS, Li M[†], Zhang YD[†], Sham PC[†]. Reciprocal causation mixture model for robust Mendelian randomization analysis using genome-scale summary data. *Nature Communications*. 2023 Feb 28;14(1):1131.
8. Tian P, Hu Y, Liu Z[†], **Zhang YD**[†]. Grace-AKO: a novel and stable knockoff filter for variable selection incorporating gene network structures. *BMC bioinformatics*. 2022 Nov 14;23(1):478.
9. Wang H, Wang X, Li T, Lai D, **Zhang YD**. Adverse effect signature extraction and prediction for drugs treating COVID-19. *Frontiers in Genetics*. 2022 Nov 4;13:1019940.
10. Gan D, Yin G, **Zhang YD**. The GR2D2 estimator for the precision matrices. *Briefings in Bioinformatics*. 2022 Nov;23(6):bbac426.
11. Tian P, Chan TH, Wang YF, Yang W, Yin G, **Zhang YD**. Multiethnic polygenic risk prediction in diverse populations through transfer learning. *Frontiers in Genetics*. 2022 Aug 19;13:906965.
12. Lai D, Cai Y, Chan TH, Gan D, Hurson AN, **Zhang YD**. How to organise travel restrictions in the new future: lessons from the COVID-19 response in Hong Kong and Singapore. *BMJ global health*. 2022 Feb 28;7(2).
13. **Zhang YD**, Hurson AN, Zhang H, Choudhury PP, Easton DF, Milne RL, Simard J, Hall P, Michailidou K, Dennis J, Schmidt MK, ..., Chatterjee N[†], García-Closas M[†]. Assessment of polygenic architecture and risk prediction based on common variants across fourteen cancers. *Nature communications*. 2020 Jul 3;11(1):3353.
14. **Zhang YD**, Naughton BP, Bondell HD, Reich BJ. Bayesian regression using a prior on the model fit: The R2-D2 shrinkage prior. *Journal of the American Statistical Association*. 2022 Apr 3;117(538):862-74.
15. **Zhang Y**, Qi G, Park JH, Chatterjee N. Estimation of complex effect-size distributions

using summary-level statistics from genome-wide association studies across 32 complex traits. *Nature genetics*. 2018 Sep;50(9):1318-26.

16. **Zhang Y**, Bondell HD. Variable selection via penalized credible regions with Dirichlet–Laplace global-local shrinkage priors. *Bayesian Analysis*. 2018 Sep;13(3):823-844.

Peer-Reviewed Articles (as co-author)

17. Chan TH, **Zhang DY**, Yin G, Yu L. Feature Preserving Shrinkage on Bayesian Neural Networks via the R2D2 Prior. *IEEE Transactions on Pattern Analysis and Machine Intelligence*. 2025 May 23.
18. Wang W, Jin H, **Zhang YD**, Yin G. Two-dimensional calibration-free odds design for phase I drug-combination trials. *Frontiers in Oncology*. 2023 Nov 29;13:1294258.
19. Su W, He B, **Zhang YD**, Yin G. C-index regression for recurrent event data. *Contemporary Clinical Trials*. 2022 Jul 1;118:106787.
20. Lai D, **Zhang YD**, Lu J. Venous thromboembolism following two doses of COVID-19 mRNA vaccines in the US population, 2020–2022. *Vaccines*. 2022 Aug 15;10(8):1317.
21. Meisner A, Kundu P, **Zhang YD**, Lan LV, Kim S, Ghandwani D, Choudhury PP, Berndt SI, Freedman ND, Garcia-Closas M, Chatterjee N. Combined utility of 25 disease and risk factor polygenic risk scores for stratifying risk of all-cause mortality. *The American Journal of Human Genetics*. 2020 Sep 3;107(3):418-31.
22. Tubbs JD, **Zhang YD**, Sham PC. Intermediate confounding in trio relationships: The importance of complete data in effect size estimation. *Genetic Epidemiology*. 2020 Jun;44(4):395-9.
23. Hong X, Zhang B, Liang L, **Zhang Y**, Ji Y, Wang G, Ji H, Clish CB, Burd I, Pearson C, Zuckerman B. Postpartum plasma metabolomic profile among women with preeclampsia and preterm delivery: implications for long-term health. *BMC medicine*. 2020 Dec;18:1-2.
24. Ji Y, Azuine RE, **Zhang Y**, Hou W, Hong X, Wang G, Riley A, Pearson C, Zuckerman B, Wang X. Association of cord plasma biomarkers of in utero acetaminophen exposure with risk of attention-deficit/hyperactivity disorder and autism spectrum disorder in childhood. *JAMA psychiatry*. 2020 Feb 1;77(2):180-9.
25. Pal Choudhury P, Wilcox AN, Brook MN, **Zhang Y**, Ahearn T, Orr N, Coulson P, Schoemaker MJ, Jones ME, Gail MH, Swerdlow AJ. Comparative validation of breast cancer risk prediction models and projections for future risk stratification. *JNCI: Journal of the National Cancer Institute*. 2020 Mar 1;112(3):278-85.

Book Chapter

26. **Zhang YD**, Yu W, Bondell HD. Variable selection with shrinkage priors via sparse posterior summaries. In *Handbook of Bayesian variable selection* 2021 Dec 24 (pp. 179-198). Chapman and Hall/CRC.

RESEARCH GRANTS

- (PI) Research Grants Council (RGC) General Research Fund (GRF) 2024/25, “*Integrating heterogenous data to enhance gene discovery power in transcriptome-wide association studies*”, HK\$910,742, 2024-2027
- (PI) Research Grants Council (RGC) Early Career Scheme (ECS) 2021/22, “*Integrating external knowledge in Bayesian inference with applications in genetics and genomics*”, HK\$603,303, 2021-2024
- (Co-I) Health and Medical Research Fund 2022, “*Establishing normovolemia in heart failure according to the measurement of blood volume and the Frank-Starling Law of the heart*”

TEACHING

- STAT2602, Probability and statistics II, *HKU* (Spring 2025, Fall 2024, Fall 2023, Spring 2023, Fall 2022, Fall 2021)
- STAT3902, Statistical models, *HKU* (Fall 2023, Fall 2022)
- STAT3621, Statistical data analysis, *HKU* (Spring 2021, Spring 2020)
- STAT3604, Design and analysis of experiments, *HKU* (Fall 2020)

TALKS AND PRESENTATIONS

Invited Conference Talk

July 2023	2023 Joint Conference on Statistics and Data Science in China, <i>Beijing, China</i>
July 2023	12th ICSA International Conference, <i>Hong Kong, China</i>
July 2023	2023 ICSA China Conference, <i>Chengdu, China</i>
Apr 2023	Science Public Lecture Series, Faculty of Science, The University of Hong Kong, <i>Hong Kong, China</i>
Apr 2023	The 11th World DNA Day and Bio-pharma Industry Congress 2023, <i>Dalian, China</i>
Aug 2022	AI and Big Data Research for Health Improvement Symposium, <i>Virtual Meeting</i>
Jun 2022	NSFC/RGC Workshop on Single-Cell Data Science, <i>Virtual Meeting</i>
Jun 2022	The 5th International Conference on Econometrics and Statistics (EcoSta 2022), <i>Virtual Meeting</i>
Aug 2017	Joint Statistical Meetings (JSM), <i>Baltimore, MD</i>

MENTORSHIP

(*First position after leaving the lab.)

Postdoctoral Fellows

- 2021–2023 Xin Wang, Associate Professor at Northeastern University (China)*
2021–2023 Han Wang, Associate Professor at China Agricultural University*

Doctoral Students

- 2023– Yu Yun, Department of Statistics and Actuarial Science, HKU
2021– Xiang Li, Department of Statistics and Actuarial Science, HKU
2020– Daoyuan Lai, Department of Statistics and Actuarial Science, HKU
2020–2025 Zewei Xiong (*co-supervised with Dr. Pak Sham*), Department of Psychiatry, HKU
Thesis: Exploring statistical methods for estimating heritability, functional enrichment and polygenic risk score using summary GWAS data in complex traits,
2022–2024 Anqi Wang, Department of Statistics and Actuarial Science, HKU
Thesis: Statistical methods for causal inference and bias correction in genetic studies
Postdoc at Columbia University*
2020–2024 Peixin Tian, Department of Statistics and Actuarial Science, HKU
Thesis: Development of bioinformatic tools for enhanced prediction and variable selection in genetic studies,
Data scientist at AIVI*

Master Students

- 2022–2023 Wenliang Wang, Department of Statistics and Actuarial Science, HKU
2020–2022 Hanning Chen, Department of Statistics and Actuarial Science, HKU
2020–2021 Yiqian Hu (RA), Department of Statistics and Actuarial Science, HKU

Undergraduate Research Assistants

- 2021–2021 Dickson Lim, Department of Statistics and Actuarial Science, HKU
2020–2021 Dailin Gan, Department of Statistics and Actuarial Science, HKU
2020–2021 Yuxi Cai, Department of Statistics and Actuarial Science, HKU
2020–2021 Tsai Hor Chan, Department of Statistics and Actuarial Science, HKU

Visiting Scholars

- 2025–2025 Xinyue Xu, School of Statistics and Data Science, Nankai University
2020–2020 Baihua He, School of Mathematics and Statistics, Wuhan University

SELECTED HONORS & AWARDS

- 2017 Honorable Mention for poster “Estimating effect-size distribution from summary-level statistics for large genome-wide association studies”, Genetics Research Day, The Maryland Genetics, Epidemiology, and Medicine Training Program (MD-GEM)

2013	Nomination for the University Outstanding Teaching Assistant Award, NCSU
2013	Mu Sigma Rho Statistics Society Honor, NCSU
2011	Outstanding Graduates Honor, Nankai University, China
2010	Excellent Student Leader Honor, Nankai University, China
2010	Tianjin Municipal People's Government Scholarship, China
2009	National Scholarship, China
2008	Hong Kong and Shang Hai Banking Corporation Scholarship, China

PROFESSIONAL SERVICES

School Service

2024–	School Human Resource Advisory Committee, School of Computing and Data Science, HKU
2024–	RPG Admission Committee, School of Computing and Data Science, HKU
2023–2024	Admission & Promotion Committee, Master of Statistics & Data Science Programmes, Department of Statistics and Actuarial Science, HKU
2021–2024	Member (Student Exchange) of the BSc(Bioinformatics) Curriculum Committee, School of Biomedical Sciences, LKS Faculty of Medicine, HKU
2021–2023	BSc Course Selection Advisor, Department of Statistics and Actuarial Science, HKU
2017–2018	Committee Representative of Department of Biostatistics, School of Public Health, Johns Hopkins Postdoctoral Association
2013–2014	Student Seminar Representative, Department of Statistics, NCSU
2013–2014	Executive of STATCOM - NCSU Chapter, a student-run volunteer organization supported by ASA

Editorial Activities

2023–	<i>Journal of Heart and Lung Transplantation</i> (Editor)
2020–2020	<i>PLOS Computational Biology</i> (Guest Editor)

Journal Referee

American Journal of Human Genetics; Bayesian Analysis; BMJ Global Health; Cancer Epidemiology, Biomarkers & Prevention; Cell Genomics; Communications in Statistics – Theory and Methods; Computational Statistics; Electronic Journal of Statistics; HGC Advances; Human Genetics and Genomics Advances; Human Heredity; International Journal of Biostatistics; Journal of Heart and Lung Transplantation; Journal of the American Statistical Association; Journal of the Royal Statistical Society: Series B; Nature Communications; Nature Genetics; Scientific Reports; Statistics in Medicine