

# DAOYUAN LAI

Email: [dylai@connect.hku.hk](mailto:dylai@connect.hku.hk) ◇ Web: [daoyuan-lai.github.io](https://daoyuan-lai.github.io) ◇ Last updated: April 18, 2024

## EDUCATION

### The University of Hong Kong

Ph.D. candidate in Statistics

Advisors: Dr. Yan Dora Zhang & Prof. Pak Chung Sham

Sep. 2020–Jan. 2025 (Expected)

### Columbia University

Visiting student at the Department of Biostatistics, Mailman School of Public Health

Advisor: Dr. Tian Gu

May. 2024–Oct. 2024

### Southern University of Science and Technology, China

B.S. in Statistics (*with distinction*)

Sep. 2016–Jun. 2020

## RESEARCH INTERESTS

Data Integration, Statistical genetics, High-dimensional statistics, Bayesian statistics, Clinical trial

## PUBLICATIONS

### Articles (as the first author)

- **Lai, D.**, Wu, S., Gu, T. & Zhang, Y. D. (2024+). TransTWAS: A Multi-tissue Transcriptome-wide Association Studies with High-dimensional Transfer Learning. *In Preparation*.
  - Applied a transfer learning algorithm to efficiently incorporate multi-site gene expression data for training gene expression prediction models in the target human tissue.
  - The transfer learning algorithm uses observations from the target model and external samples from different but possibly related regression models. Informative auxiliary samples are transferred to improve the learning performance of the target problem.
- **Lai, D.**, Lu, J., Lim, D., Wang, H., Huang, T. & Zhang, Y. D. (2024). Risk of myocarditis after three doses of COVID-19 mRNA vaccines in the US, 2020–2022: a self-controlled case series study. *Journal of Evidence-Based Medicine*. (IF: 7.3, JCR percentile: Q1).
- **Lai, D.**, Zhang, Y. D., & Lu, J. (2022). Venous thromboembolism following two doses of COVID-19 mRNA vaccines in the US population, 2020–2022. *Vaccines* 10(8), 1317. (IF: 7.8, JCR percentile: Q1).
  - Collaborated with clinicians and wrote two papers. Used a modified self-controlled case series model to study the association between the onset of two adverse events and COVID-19 mRNA vaccination based a US health care database.
- **Lai, D.**, Cai, Y., Chan, T., Gan, D., Hurson, A., & Zhang, Y. D. (2022). How to organise travel restrictions in the new future: lessons from the COVID-19 response in Hong Kong and Singapore. *BMJ Global Health* 7(2), e006975. (IF: 8.1, JCR percentile: Q1)
  - Extracted information from massive government press releases, evaluated the effectiveness of Hong Kong COVID-19 restrictions and provided actionable policy recommendations for Hong Kong government.

### Articles (as a middle author)

- Wang, H., Wang, X., Li, T., **Lai, D.**, & Zhang, Y. D. (2022). Adverse effect signature extraction and prediction for drugs treating COVID-19. *Frontiers in Genetics*, 13, 1019940. (IF: 3.7, JCR percentile: Q2)
- Zhang, K., Xiong, C., Zhang, W., Liu, H., **Lai, D.**, Rong, Y., & Fu, C. (2019). Environmental features recognition for lower limb prostheses toward predictive walking. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 27(3), 465-476. (IF: 4.9, JCR percentile: Q1)
- Zhang, Y. D., Gan, D., **Lai, D.**, Chan, T., & Fu, E. Lessons learnt from Hong Kong's successful strategy in combatting two outbreak waves of COVID-19 pandemic: a retrospective cohort study. *Technical Report*.

## WORK EXPERIENCE

### BeiGene Ltd.

Research Intern

Jul. 2023 – Dec. 2023

Shanghai, China

- Designed an R Shiny app that integrates multiple Bayesian methods to control covariate imbalance when borrowing information from historical clinical trials, accommodating various types of response variables such as binomial, survival, and continuous.

- The pipeline facilitates the borrowing of historical information, even in situations where only summary-level historical data is available.

## AWARDS AND HONORS

Hung Hing Ying Scholarship, <i>HKU</i>	2023–2024
Hong Kong Government Scholarship Fund, <i>HKU</i>	2023
Excellent Research Award, <i>Dept. of Stat. &amp; Act. Sci., HKU</i>	2021–2022
Outstanding Graduate Award, <i>Dept. of Stat. &amp; Data Sci., SUSTech</i>	2020
Outstanding Undergraduate Thesis Award, <i>Dept. of Stat. &amp; Data Sci., SUSTech</i>	2020
Outstanding Undergraduate Scholarship, <i>SUSTech</i>	2017–2019

## TALKS AND POSTERS

BeiGene Intern Tech Talk, <i>Shanghai, China</i>	Nov. 2023
American Society of Human Genetics (ASHG) Annual Meeting, <i>Washington DC, USA</i>	Oct. 2023
12th International Chinese Statistical Association (ICSA) International Conference, <i>Hong Kong, China</i>	Jul. 2023

## TEACHING ASSISTANT

STAT4610/6011 Computational Statistics/Bayesian Learning (graduate level), <i>HKU</i>	2023–2024
STAT3902 Statistical Models, <i>HKU</i>	2023–2024
STAT3600 Linear Statistical Analysis, <i>HKU</i>	2020–2023

## COMPUTATION SKILLS

R, Python, Linux, C++