DAOYUAN LAI

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EDUCATION

Ph.D. in Statistics Sep. 2020–Jun. 2024 (Expected)
Department of Statistics and Actuarial Science
The University of Hong Kong (HKU), Hong Kong, China
Advisors: Dr. Yan Dora Zhang & Prof. Pak Chung Sham

B.S. in Statistics (*with distinction*) Sep. 2016–Jun. 2020
Southern University of Science and Technology (SUSTech), Shenzhen, China

RESEARCH INTERESTS

Statistical genetics, Data integration, High-dimensional methods, Bayesian methods, Survival analysis.

PUBLICATIONS

Articles (as the first author)

· **Lai, D.**, Wang, H., Wu, S., Gu, T. & Zhang, Y. D. (2023+). 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.**, 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*)

- Collarborated with government, 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.

· **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*)

· **Lai, D.**, Lu, J., Lim, D., Wang, H., Huang, T. & Zhang, Y. D. (2023+). Risk of myocarditis after three doses of COVID-19 mRNA vaccines in the US, 2020–2022: a self-controlled case series study. *Under Review.*

- Collarborated 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.

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*)

WORK EXPERIENCE

BeiGene Ltd. Jul. 2023 – Dec. 2023
Research Intern *Shanghai, China*

· Designed an R Shiny app that integrates multiple 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, *HKU* 2023–2024
Reaching Out Award, *HK Gov. Sch. Fund* 2023
Excellent Research Award, *Dept. of Stat. & Act. Sci., HKU* 2021–2022
Outstanding Graduate Award, *Dept. of Stat. & Data Sci., SUSTech* 2020
Outstanding Undergraduate Thesis Award, *Dept. of Stat. & Data Sci., SUSTech* 2020
Outstanding Undergraduate Scholarship, *SUSTech* 2017–2019

TALKS AND POSTERS

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

TEACHING ASSISTANT

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

COMPUTATION SKILLS

R, Python, Linux, C++