Lin Gui

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EDUCATION

- Ph. D. in Statistics, The University of Chicago, Chicago, USA 2020- Present
- M.S. in Statistics, The University of Chicago, Chicago, USA 2018-2020
- B.S. in Statistics, University of Science and Technology of China, Hefei, China 2014- 2018

RESEARCH INTERESTS

Multiple Testing; Text-To-Image Models; Causal Inference and Machine Learning; Biostatistics

PUBLICATIONS

- **Concept Algebra for Text-Controlled Vision Models**
  Zihao Wang, Lin Gui, Jeffrey Negrea, Victor Veitch
  ArXiv:2302.03693
- **Causal Estimation for Text Data with (Apparent) Overlap Violations**
  Lin Gui, Victor Veitch
  Accepted at ICLR 2023
- **Detecting Multiple Replicating Signals using Adaptive Filtering Procedures**
  Jingshu Wang, Lin Gui, Weijie J. Su, Chiara Sabatti, Art B. Owen
  The Annals of Statistics 50 (4), 1890-1909

RESEARCH

- **A General Transformation Based Method For Global Test With Correlated Hypotheses**
  - Conducted empirical and theoretical studies and provided insights into the state-of-the-art Cauchy combination test and its generalization method for the global test with correlated hypotheses.
  - Generalized the generalized global testing method to a multiple testing procedure that can control the family-wise error rate (FWER) and proposed a shortcut for this closed testing procedure.
  - Applied the method to genetic data to solve real-world problems.
- **Gene Transcription Mechanism in 3D Genome**
  - Developing a statistical tool to find gene pairs which are highly likely to co-transcribe due to sharing the same enhancers (close to each other). The main issue is that chromosomes have 3d dynamic structures. Spatial information about a gene pair must be analyzed by 3d genome data, e.g. hic data.
  - Develop an algorithm to find sub compartments of chromosomes. This needs an algorithm to find top k eigenvalues and corresponding eigen vectors of a huge matrix.

TALKS

- **2021 Joint Statistical Meetings, Speaker** Aug. 2021
  - Detecting Multiple Replicating Signals Using Adaptive Filtering Procedures

CODING SKILLS

R, Python, Matlab, SQL; Parallel computing on computing clusters; Pytorch