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Personal Information:

Date of Birth: May 14, 1997
Sex: Male

Undergraduate Studies:

Jilin University, 2015-2019
B.S., Mathematics, School of Mathematics, June 2019

Masters Level Work:

Renmin University of China, 2019-2022
M.A. in Economics, School of Economics, June 2022

Graduate Studies:

Singapore Management University**,** 2022-2027
Thesis Title: Essays on Inference for High-Dimensional Linear Regressions
Expected Completion Date: June 2027

Thesis Committee and References:

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Teaching and Research Fields:

Primary fields: Econometrics

Secondary fields: High-Dimensional Statistics; Statistical Machine Learning; Causal Inference

Teaching Experience:

2024-2026 TA for ECON611 Econometrics I (Ph.D.)
2025-2026 TA for STAT102 Introduction to Statistical Theory (Undergraduate)
2024-2025 TA for ECON6006 Financial Econometrics (Master's)
2023-2024 TA for ECON601 Microeconomics I (Ph.D.)
2023-2024 TA for ECON111 Microeconomics I (Undergraduate)
Responsibilities: grading assignments and examinations; student consultations.

Research Experience:

2025-2026 RA for Prof. Yichong Zhang

Professional Activities: NA

Conference and Seminar Presentations:

20th International Symposium on Econometric Theory and Applications (SETA), 2026
Presented: An Improved Inference for IV Regressions
10th Meeting of Young Econometricians in Asian-Pacific (YEAP) Region, 2025
Presented: Cluster-Robust Inference for Quadratic Forms
19th International Symposium on Econometric Theory and Applications (SETA), 2025
Presented: Leave-Out Regression with Many Instruments and Controls
Econometric Research Workshop, Singapore Management University, 2022-2026

Honors, Scholarships, and Fellowships:

2025-2026 Presidential Doctoral Fellowship, Singapore Management University
2022-2023 Best First-year PhD Student, School of Economics, Singapore Management University
2021-2022 The Second Prize Academic Scholarship, Renmin University of China
2020-2021 The Second Prize Academic Scholarship, Renmin University of China
2019-2020 The Second Prize Academic Scholarship, Renmin University of China

Publications and Working Papers:

"Uniform Inference for Variance Components" (with Liyu Dou, Wenjie Wang, and Yichong Zhang). *Work in progress.*

"Honest Inference for High-Dimensional Linear Models" (with Dennis Lim, Jonathan H. W. Tan, and Jiezheng Wei) *Working paper*. [arXiv]

"Cluster-Robust Inference for Quadratic Forms" (with Michal Kolesár, Wenjie Wang, and Yichong Zhang) *Working Paper*. [arXiv]

"An Improved Inference for IV Regressions" (with Liyu Dou, Wenjie Wang, and Yichong Zhang) *Submitted to Quantitative Economics*. (Job Market Paper) [arXiv]

Research Papers:

An Improved Inference for IV Regressions (Job Market Paper)

with Liyu Dou, Wenjie Wang, and Yichong Zhang [arXiv]

Abstract: Empirical applications of instrumental variables (IV) regressions often involve both low-dimensional and high-dimensional sets of instruments. In Angrist and Krueger (1991), the quarter-of-birth instruments generate a much larger set that includes many interaction-based technical instruments; in shift-share designs considered in Goldsmith-Pinkham et al. (2020), a single IV aggregates many underlying base instruments. To improve inference in such settings, this paper proposes a combination test that integrates low- and high-dimensional IV specifications. The test linearly combines a cluster-robust Wald statistic based on low-dimensional IVs with leave-cluster-out Lagrange multiplier (LM) and Anderson-Rubin (AR) statistics constructed from the many IVs. We establish the joint asymptotic normality of these statistics and show that the proposed test is asymptotically optimal within a broad class of tests. The procedure yields costless efficiency improvements, automatically adapts to weak identification of the many instruments, and provides a practical rule of thumb for assessing these gains.

Keywords: Many Weak Instruments, Shift-Share Instruments, Combination Test.

Cluster-Robust Inference for Quadratic Forms

with Michal Kolesár, Wenjie Wang, and Yichong Zhang [arXiv]

Abstract: We study inference for quadratic forms of regression coefficients with many covariates. We develop a unifying framework that allows for clustering with diverging cluster sizes, and covers design-based inference on treatment effects, model-based inference on variance components, testing many linear restrictions, and instrumental variables models with many instruments and controls. We show that, in the presence of many controls, existing methods do not yield valid inference in the design-based setting. We develop a novel jackknife variance estimator that yields valid, but conservative inference, and a leave-three-cluster-out (L3CO) estimator that is more computationally involved but is asymptotically exact, up to a nonnegative heterogeneity term that cannot be avoided. For the model-based applications, we propose a different jackknife variance estimator that leads to conservative inference in general, but is asymptotically exact if the number of controls grows more slowly than the sample size. An L3CO variance estimator is asymptotically exact. We illustrate our methods in several applications.

Keywords: Many instruments, many covariates, clustered data, cross-fit, judge design, two-way fixed effects.

Honest Inference for High-Dimensional Linear Models

with Dennis Lim, Jonathan H. W. Tan, and Jiezheng Wei — Working paper [arXiv]

Abstract: We propose a heteroskedasticity-robust and dimension-adaptive test for multiple linear restrictions in sparse high-dimensional linear regression models. It combines desparsified LASSO estimation with a ridge-regularized quadratic form statistic and critical values that adapt to the restriction dimension. Under stated regularity conditions, our approach is asymptotically valid under a fixed or diverging number of restrictions without specifying the asymptotic regime in advance. Our random-design theory allows independent non-identically distributed covariate rows with marginal sub-Weibull tails and heteroskedastic errors satisfying finite polynomial moments. Monte Carlo simulations demonstrate improved finite-sample size control relative to conventional Wald tests, particularly as the number of restrictions increases.

Keywords: High-Dimensional Inference, Multiple Linear Restrictions, Desparsified LASSO, Strong Approximation, Heteroskedasticity, Heavy-Tailed Distributions.

Computer Skills:

Python, MATLAB, Stata, LaTeX

Languages:

Chinese (Native), English (Fluent)