Taehyeon Koo

Department of Statistics, Rutgers University
557 Hill Center 110 Frelinghuysen Road Piscataway, NJ 08854
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EDUCATION

Doctor of Philosophy, Statistics — 2020 - Present
Advisors: Prof. Zijian Guo and Prof. Nicole E. Pashley
Thesis: Causal Inference with Model- and Design-based Perspectives
Rutgers University, New Brunswick, NJ

Master of Science, Statistics — 2020
Advisor: Prof. Johan Lim
Thesis: An Invariant Test for Equality of Two Large Scale Covariance Matrices
Seoul National University, South Korea

Bachelor of Science, Mathematical Science — 2018
Seoul National University, South Korea

RESEARCH INTERESTS

Causal Inference in Experiments and Observational Studies, Synthetic Control, Incomplete Block Designs, Instrumental Variables Methods.

HONORS AND AWARDS

Best Ph.D. Qualifying Exam Performance — 2021
Department of Statistics, Rutgers University

PUBLICATIONS

Koo, T., Lee, Y., Small, D.S., & Guo, Z. (2023). RobustIV and controlfunctionIV: Causal Inference for Linear and Nonlinear Models with Invalid Instrumental Variables. Observational Studies 9(4), 97-120. `https://doi.org/10.1353/obs.2023.a906625`.

PREPRINTS

Koo, T., & Pashley, N.E. (2024). Design-based Causal Inference for Balanced Incomplete Block Designs. *arXiv preprint arXiv:2405.19312*.

Koo, T., Cho, S., & Lim, J. (2019). An Invariant Test for Equality of Two Large Scale Covariance Matrices. *arXiv preprint arXiv:1911.06006*.

SOFTWARE

R Packages
`RobustIV`: A package for the inference with a possibly invalid instrumental variable in the linear model. `https://CRAN.R-project.org/package=RobustIV`
`controlfunctionIV`: A package for the inference using the control function method in the nonlinear model. `https://CRAN.R-project.org/package=controlfunctionIV`

TEACHING EXPERIENCE

Instructor at Rutgers University
Review of STAT 593 and 594 for Ph.D. Qualifying Exam — Summer 2022

Teaching Assistant at Rutgers University
STAT 490: Introduction to Experimental Design — Spring 2024
STAT 467: Applied Multivariate Analysis — Spring 2023
STAT 594: Advance Modern Statistical Inference II — Spring 2022
STAT 593: Theory of Statistics — Fall 2021

Teaching Assistant at Seoul National University
326.311: Mathematical Statistics I — Summer 2019
033.019: Introduction to Statistics — Fall 2018

APPLIED EXPERIENCE

Statistical Consultant — Fall 2019
Statistical Research Institute, Seoul National University

HKUST-SNU Summer Research Program in Industrial and Applied Mathematics (SPIA) — Summer 2017
- Financial Market Forecasting with Text Mining

Engineer, Sergeant — May 2013 - Feb 2015
Republic of Korea Army

PRESENTATION

Poster Presentation at Conference on Recent Advances in Statistics and Data Science at Rutgers University, May 11, 2023, on "Analysis of Incomplete Block Designs with the Potential Outcomes Framework".