Taehyeon Koo

Department of Statistics, Rutgers University
557 Hill Center 110 Frelinghuysen Road Piscataway, NJ 08854
Email: tk587@stat.rutgers.edu
https://taehyeonkoo.github.io/

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; Design and analysis of randomized experiments; Distributional robustness; Nonstandard inference; Generalizability.

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 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*.

TALKS AND PRESENTATIONS

Poster presentation, 2024 IMS International Conference on Statistics and Data Science, Nice, France, *"Design-based Causal Inference for Incomplete Block Designs"*, Dec 2024 (Upcoming)

Center for Causal Inference Seminar, University of Pennsylvania, *"Adversarially Robust Synthetic Control: Ensuring Robustness Against Highly Correlated Controls and Distribution Shifts"*, Nov 2024

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

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 486: Applied Statistical Learning	Fall 2024
STAT 490: Introduction to Experimental Design	Spring 2024
STAT 467: Applied Multivariate Analysis	Spring 2023
STAT 594: Advanced 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

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

REFERENCES

Zijian Guo
Department of Statistics
Rutgers University
110 Frelinghuysen Road
Piscataway, NJ 08854
zijguo@stat.rutgers.edu

Nicole E. Pashley
Department of Statistics
Rutgers University
110 Frelinghuysen Road
Piscataway, NJ 08854
np755@stat.rutgers.edu

Dylan Small
Department of Statistics
The Wharton School, University of Pennsylvania
Philadelphia, PA 19104
dsmall@wharton.upenn.edu