Taehyeon Koo

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CONTACT INFORMATION

Mailman School of Public Health
Columbia University

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PROFESSIONAL EXPERIENCE

Postdoctoral Researcher — Jun 2025 - Present
Columbia University Mailman School of Public Health
Mentors: Elizabeth Stuart, Kara Rudolph, and Caleb Miles

EDUCATION

Doctor of Philosophy, Statistics — 2025
Rutgers University
Advisors: Zijian Guo and Nicole Pashley

Master of Science, Statistics — 2020
Seoul National University, South Korea

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

RESEARCH INTERESTS

Causal inference; Uncertainty quantification; Distributional robustness; Randomization-based inference; Sensitivity analysis; Generalizability and Transportability; Semi-parametric efficiency.

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*.

HONORS AND AWARDS

Early Career Travel Award — Aug 2025
Joint Statistical Meeting (JSM) 2025

Student Travel Award — Jun 2025
ASA/IMS Spring Research Conference (SRC) 2025

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

SOFTWARE

R Packages
`IBDInfer`: A package for design-based inference for incomplete block designs. `https://CRAN.R-project.org/package=IBDInfer`
`RobustIV`: A package for inference with a possibly invalid instrumental variable in the linear model. `https://CRAN.R-project.org/package=RobustIV`
`controlfunctionIV`: A package for 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

TALKS AND PRESENTATIONS

JSM 2025, *"Distributionally Robust Synthetic Control: Ensuring Robustness Against Highly Correlated Controls and Distribution Shifts"*, Aug 2025

ASA/IMS SRC 2025, *"Design-based Causal Inference for Incomplete Block Designs"*, Jun 2025

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

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

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

MISCELLANEOUS

Engineer, Sergeant — May 2013 - Feb 2015
Republic of Korea Army (Mandatory military service)