

TAEGYU KANG

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EMPLOYMENT

Postdoctoral Fellow Jan. 2026 – Present

H. Milton Stewart School of Industrial and Systems Engineering

Georgia Institute of Technology, Atlanta, GA, U.S.

Mentor: Prof. Souvik Dhara

Visiting Assistant Professor Aug. 2025 – Dec. 2025

Department of Statistics,

Purdue University, West Lafayette, IN, U.S.

EDUCATION

Ph.D. in Statistics Jan. 2021 – Aug. 2025

Purdue University, West Lafayette, IN, U.S.

Advisor: Prof. Takashi Owada

Master of Arts in Statistics Mar. 2018 – Feb. 2020

Yonsei University, Seoul, South Korea

Advisor: Prof. Jongho Im

Bachelor of Arts in Economics Mar. 2012 – Feb. 2018

Bachelor of Science in Mathematics

Minor in Statistics

Yonsei University, Seoul, South Korea

(Leave of absence: Military service – Republic of Korea Air Force) Jul. 2013 – Jul. 2015

RESEARCH INTEREST

Random Graphs

- Random geometric graphs
- Large deviations for random graphs/geometric graphs
- Graph limit theory
- Percolation theory

Random Topology

- Random simplicial complexes and their homology
- Extension of graph limit theory to random simplicial complexes

Network Analysis

- Spatial (geometric) networks
- Higher-order interactions on networks
- Higher-order extensions of epidemics and opinion dynamics

Topological Data Analysis

- Probabilistic and statistical foundations of topological data analysis
- Privacy-aware method of topological data analysis

AWARDS & HONORS

William J. Studden Publication Award, Purdue University	2025
INFORMS APS Student Travel Grant	2025
Department of Statistics Student Travel Grant, Purdue University	2025
Recognition Award for High-Profile Research, Purdue University	2024
Andrews Fellowship, Purdue University	2021 - 2022
Integrated Undergraduate-Graduate Program Scholarship, Yonsei University	2018 - 2019
Honors, Yonsei University	Fall 2017
Honors, Yonsei University	Fall 2016
Highest Honors, Yonsei University	Spring 2016

UPCOMING PREPRINTS

- [1]. Taegyung Kang and Souvik Dhara, Connectivity transitions in large-scale simplicial complexes via local limit. *In preparation*.

PREPRINTS

- [1]. Taegyung Kang and Takashi Owada, Layered Hill estimator for extreme data in clusters. Submitted to *the Annals of Applied Probability* (under revision), arXiv:2411.05808.

REFEREED PUBLICATIONS

- [1]. Taegyung Kang, Sehwan Kim, Jinwon Sohn, and Jordan Awan, Differentially private topological data analysis. *Journal of Machine Learning Research*, 25(189):1-42, 2024.
- [2]. Christian Hirsch, Taegyung Kang, and Takashi Owada, Large deviations for the volume of k -nearest neighbor balls. *Electronic Journal of Probability*, 28(73):1-27, 2023.
- [3]. Uiyong Han, Taegyung Kang, Jongho Im, and Jinkee Hong, A small-data-driven model for predicting adsorption properties in polymeric thin films, *Chemical Communications*, 58:10953-10956, 2022.
- [4]. Taegyung Kang, Young Min Kim, and Jongho Im, A note on stationary bootstrap variance estimator under long-range dependence. *Statistics and Probability Letters*, 169:108971, 2021

RESEARCH PRESENTATIONS

- Frontiers in Stochastic Analysis, West Lafayette, IN, U.S.** Aug. 2025
- Connectivity transitions in large-scale simplicial complexes via local limits
- INFORMS APS (Applied Probability Society) Conference 2025, Atlanta, GA, U.S.** Jul. 2025
- Connectivity transitions in large-scale simplicial complexes via local limits
- Statistics Seminar, Ewha Womans University, Seoul, South Korea** May 2025
- Layered Hill estimator for extreme data in clusters
- Purdue Probability Seminar, Purdue University, West Lafayette, IN, U.S.** Feb. 2025
- Layered Hill estimator for extreme data in clusters
- Fall 2024 Statistics Students Workshop, Purdue University, West Lafayette, IN, U.S.** Nov. 2024
- Layered Hill estimator for extreme data in clusters
- Purdue Statistics Student Seminar, Purdue University, West Lafayette, IN, U.S.** Mar. 2024
- Estimating the tail index of a heavy-tailed distribution via a layered structure of the point cloud of extreme data points.
- Purdue Statistics Student Seminar, Purdue University, West Lafayette, IN, U.S.** Nov. 2023
- Differentially private topological data analysis
- Topolodays, Purdue University, West Lafayette, IN, U.S.** Nov. 2023
- Differentially private topological data analysis
- JSM (Joint Statistical Meeting) 2023, Toronto, Ontario, Canada,** Aug. 2023
- Differentially private topological data analysis
- AMS (American Mathematical Society) 2023 Spring Central Sectional Meeting, Cincinnati, OH, U.S.** Apr. 2023
- Large deviations for the volume of k -nearest neighbor balls
- Purdue Probability Seminar, Purdue University, West Lafayette, IN, U.S.** Feb. 2023
- Large deviations for the volume of k -nearest neighbor balls

POSTERS

- INFORMS APS (Applied Probability Society) Conference 2025 Poster Session, Atlanta, GA, U.S.** Jul. 2025
- Connectivity transitions in large-scale simplicial complexes via local limits
- 6th Cincinnati Symposium on Probability, Cincinnati University, Cincinnati, OH, U.S.** May 2024
- Large deviations for the volume of k -nearest neighbor balls
- AFOSR (Air Force Office of Scientific Research) Poster Session 2023, Purdue University, West Lafayette, IN, U.S.** Sep. 2023
- Large deviations for the volume of k -nearest neighbor balls
- Korean Statistical Society 2019 Autumn Conference, Seoul, South Korea** Nov. 2019
- Asymptotic properties of the stationary bootstrap sample mean under long-range dependence

TEACHING

Invited Lectures

Topic: Homological connectivity for random simplicial complexes Apr. 2025
Venue: Modern methods for network data (IE690) – special topic course at Purdue University

Instructor at Purdue

Elementary Statistical Methods (STAT301) Fall 2025

Teaching Assistant at Purdue

Elementary Statistical Methods (STAT301) Summer 2025
Elements of Stochastic Processes (MA/STAT532) Spring 2025
Elements of Stochastic Processes (MA/STAT532) Fall 2024
Introduction to Statistics (STAT350) Summer 2024
Elements of Stochastic Processes (MA/STAT532) Fall 2023
Probability and Statistics for Business (STAT303) Summer 2023
Elementary Statistical Methods (STAT301) Fall 2022

Teaching Assistant at Yonsei

Data Science I (STA4116) Fall 2019
Linear Algebra (STA2102) Fall 2019
Mathematical Statistics II (STA3109) Spring 2019
Mathematical Statistics II (STA3109) Spring 2018

Tutoring at Yonsei

Analysis I (MAT3104) Fall 2017
(Eagle Tutoring Program at Yonsei University)

SKILLS / OTHER INFO.

Languages: Korean (native), English (fluent), Japanese (intermediate)

Computer skills: R, Python, LaTeX

Nationality: Republic of Korea

REFERENCES

Takashi Owada

Associate Professor
Department of Statistics,
Purdue University
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Jordan Awan

Assistant Professor

Department of Statistics,
University of Pittsburgh
Jaa557@pitt.edu

Souvik Dhara

Tennenbaum Early Career Assistant Professor
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