Minjae Park

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Auburn, AL 36849

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INTEREST

Interconnections among random geometries arising from probability theory, statistical physics, quantum gravity, Riemannian geometry, and combinatorics
Topics: Liouville quantum gravity, Yang-Mills theory, Schramm-Loewner evolutions, Brownian loops

EMPLOYMENT

Assistant Professor, Auburn University 2025-Present
L. E. Dickson Instructor, University of Chicago 2022-2025
Research specialist, Massachusetts Institute of Technology 2022

EDUCATION

Massachusetts Institute of Technology, United States 2016-2022
Ph.D., Mathematics, Advisor: Scott Sheffield defended in May 2022
Thesis: Random surface interpretations of 2D Liouville quantum gravity and Yang-Mills theory

Korea Advanced Institute of Science and Technology, Republic of Korea 2011-2016
B.S., Mathematical Sciences
Temporarily left school for 21 months due to mandatory military service (Oct 2011-Jul 2013)

Korea Science Academy of KAIST, Busan, Republic of Korea 2008-2011

RESEARCH

Wilson loop expectations as sums over surfaces on the plane, *Minjae Park, Joshua Pfeffer, Scott Sheffield, Pu Yu*, Prob. Math. Phys., 2026.

Random surfaces and lattice Yang-Mills, *Sky Cao, Minjae Park, Scott Sheffield*, Comm. Amer. Math. Soc., 2025.

Brownian loops on non-smooth surfaces and the Polyakov-Alvarez formula, *Minjae Park, Joshua Pfeffer, Scott Sheffield*, J. Funct. Anal., 2024.

On the geometry of uniform meandric systems, *Jacopo Borga, Ewain Gwynne, Minjae Park*, Comm. Math. Phys., 2023.

Loewner evolution driven by complex Brownian motion, *Ewain Gwynne, Minjae Park, Joshua Pfeffer*, Ann. Probab., 2023.

Brownian loops and the central charge of a Liouville random surface, *Morris Ang, Minjae Park, Joshua Pfeffer, Scott Sheffield*, Ann. Probab., 2022.

Large deviations of radial SLE_∞, *Morris Ang, Minjae Park, Yilin Wang*, Electron. J. Probab., 2020

Almost Globally Stable Property of Kuramoto Model on Random Graphs, *Minjae Park*, Advisor: Prof. Sang-il Oum, KAIST Undergraduate Research Program (B.S. Thesis), 2015.

Adaptive Switching Median Filter for Impulse Noise Removal Based on Support Vector Machines, *Daegeun Lee, Minjae Park, et al.*, Communications of the Korean Statistical Society, 2011 18(6), 871-886.

Wavelet Based Non-Local Means Filtering for Speckle Noise Reduction of SAR Images, *Daegeun Lee, Minjae Park, et al.*, The Korean Journal of Applied Statistics, 2010 23(3), 595-607.

HONORS

Ph.D. Study-Abroad Scholarship, Korea Foundation for Advanced Studies	2016-2021
Korea Presidential Science Scholarship, Korea Student Aid Foundation	2011-2016
KAIST Presidential Fellowship	2011-2016
Samsung Humantech Research Paper Award, *Bronze Prize*	2010

INVITED TALKS

Auburn Graduate Student Seminar	11/19/2025
KAIST SAARC Seminar	10/21/2025
KIAS Analysis Seminar	10/02/2025
Auburn Seminars on Analysis and Stochastic Analysis	03/19/2025
KIAS Analysis Seminar	11/27/2024
Two-Dimensional Random Geometry at IMSI in Chicago	07/10/2024
Workshop on Probabilistic Field Theories in Helsinki	06/17/2024
Northwestern Probability Seminar	04/02/2024
KPZ meets KPZ workshop at the Fields institute	03/07/2024
Cornell Probability Seminar	02/19/2024
Yonsei Discrete Analysis Seminar	01/25/2024
Probability Workshop in Korea	01/22/2024
UW-Madison Probability Seminar	12/07/2023
Chinese Academy of Science Probability Seminar	09/15/2023
KAIST Probability Seminar	06/19/2023
KIAS Analysis Seminar	06/11/2023
Random Conformal Geometry and Related Fields in Jeju	06/06/2023
University of Chicago Probability and Statistical Physics Seminar	02/11/2022
KIAS Analysis Seminar	01/12/2022
University of Pennsylvania/Temple Probability Seminar	09/28/2021
Cambridge Probability Seminar	06/15/2021
MIT Probability Seminar	05/17/2021
KAIST Probability Seminar	07/07/2018

TEACHING EXPERIENCE

Instructor, MATH7820 (Applied Stochastic Processes I), Auburn University	Fall 2026
Instructor, MATH2660 (Topics in Linear Algebra), Auburn University	Spring 2026
Instructor, MATH23500 (Markov Chains, Martingales, Brownian Motions), UChicago	Spring 2025
Instructor, MATH27300 (Basic Theory of Ordinary Differential Equations), UChicago	Winter 2025
Instructor, MATH18300 (Mathematical Methods in the Physical Sciences I), UChicago	Fall 2024
Instructor, MATH27000 (Basic Complex Variables), UChicago	Fall, Winter 2023
Instructor, MATH16300 (Honors Calculus III), UChicago	Spring 2023
Instructor, MATH20300 (Analysis in $\mathbb{R}^n$ I), UChicago	Spring 2024, Winter 2023
Recitation leader, 18.03 (Differential Equations), MIT	Fall 2020

T.A., 18.095 (Mathematics Lecture Series), MIT — IAP 2020
Recitation leader, 18.600 (Probability and Random Variables), MIT — Spring 2020, Fall 2019
T.A., 18.100A (Introduction to Analysis), MIT — Fall 2018, Fall 2017
T.A., MAS275 (Discrete Mathematics), KAIST — Spring 2015
T.A., MAS102 (Calculus II), KAIST — Fall 2013
Volunteer Tutoring, MAS101/102 (Calculus I/II), KAIST — 2013
Head T.A., Tournament of the Towns Summer Program, UNIST — 2012-2014
T.A., Korean Mathematical Olympiad Summer Program, KAIST — 2011

MENTORING EXPERIENCE

Measure theoretic probability, *Minghao Li*, University of Chicago DRP — 2025
Random planar maps, *Minh-Anh Nguyen-Dang*, University of Chicago DRP — 2025
Analytic number theory, *Jack Hu*, University of Chicago DRP — 2024
Percolation on Voronoi cells, *Aaron Ho*, University of Chicago REU — 2024
Markov chains and Brownian motion, *Akash Piya*, University of Chicago DRP — 2024
Percolation and SLE_6, *Yuyuan Chen and Jen Tang*, University of Chicago DRP — 2024
High dimensional probability, *Colin Yao et al.*, University of Chicago DRP / reading seminar — 2023
Black-Scholes equation, *Jiahong Cai*, University of Chicago DRP — 2023
Measure theoretic probability, *M. Petersen, R. Soni*, University of Chicago REU — 2023
Brownian motion, *Sarah Mostow*, University of Chicago DRP — 2022
Markov chains and mixing times, *Max Yu*, MIT DRP — 2020
Local limit of infinite triangulations with dual spanning tree in high genus, *C. Hong, R. Koirala, A. Saatashvili*, MIT UROP — 2019
High dimensional probability, *Elizabeth Han*, MIT Directed Reading Program (DRP) — 2018
A Correlated Approach to the Hamburger-Cheeseburger Theorem, *Stephen Yearwood*, MIT Undergraduate Research Opportunities Program (UROP) — 2017

ORGANIZATIONAL / EDITORIAL ACTIVITIES

UChicago Probability and Statistical Physics Seminar: Organizer — 2022-2025
MIT Integration Bee: Organizer and Examiner — 2017-2019
Seungsan Publisher: Editor and Translator — 2014-2016
- Korean translation of *The Princeton Companion to Applied Mathematics*
- Korean translation of *The Princeton Companion to Mathematics*

KAIST Undergraduate Math Colloquium: Organizer — 2014-2015
KAIST Guerilla Seminar: Organizer — 2014-2015
Notices of the KAIST College of Natural Sciences: Editor — 2013-2015

OUTREACH ACTIVITIES

Alabama State Science Olympiad: Event Supervisor — 2026

WORK EXPERIENCE

Tournament of the Towns Summer Program: Organizer — 2013-2014
Republic of Korea Army: Discharged as sergeant — 2011-2013