

Siyi Chen, Ph.D.

RESEARCH INTERESTS

My research addresses Mendelian randomization/TWAS, causal inference, structural equation modeling, stochastic modeling, species problem, approximate Bayesian computation, and Bayesian statistics.

EDUCATION

Rice University <i>Doctor of Philosophy, Statistics</i>	Houston, TX <i>Dec 2020</i>
Rice University <i>Master of Science, Statistics</i>	Houston, TX <i>May 2015</i>
Peking University <i>Bachelor of Science, Chemistry</i>	Beijing, China <i>July 2013</i>

POSITIONS AND EMPLOYMENT

Biostatistics & Data Science (BSDS), LSU Health School of Public Health <i>Assistant Professor</i>	2024-present <i>New Orleans, LA</i>
RUSH Alzheimer's Disease Center, Rush University <i>Biostatistician</i>	2023-2024 <i>Chicago, IL</i>
Department of Neurological Sciences, Rush University Medical Center <i>Instructor</i>	2023-2024 <i>Chicago, IL</i>
Division of Biostatistics, School of Public Health, University of Minnesota <i>Post-Doctoral Associate</i>	2021-2023 <i>Minneapolis, MN</i>
Department of Statistics, Rice University <i>Graduate Research Assistant</i>	2016-2020 <i>Houston, TX</i>

RESEARCH EXPERIENCE

Postdoctoral research associate <i>Department of Biostatistics, University of Minnesota</i> <ul style="list-style-type: none">Supervisor: Dr. Wei Pan	2021-2023 <i>Minneapolis, MN</i>
Research Assistant <i>Department of Statistics, Rice University</i> <ul style="list-style-type: none">Supervisor: Dr. Marek KimmelDeveloped a sequential truncated-population approximate Bayesian computation (ABC) algorithm and applied the ABC methods to symmetric Dirichlet-multinomial model and the proposed asymmetric Dirichlet-multinomial model to estimate hematopoietic stem cells count	2017-2020 <i>Houston, TX</i>
Research Assistant <i>Department of Statistics, Rice University</i> <ul style="list-style-type: none">Simulated barcoding experiments and empirical distributions of the estimators of barcodes number in mice blood cell samplesDeveloped a multi-type Markov age-dependent branching process for modeling hematopoietic stem cell expansion	2016-2017 <i>Houston, TX</i>

PUBLICATIONS & MANUSCRIPTS

Siyi Chen MR-SuSiE: a robust Mendelian randomization framework for identifying causal proteins in Alzheimer’s disease with correlated and invalid instruments, *Submitted*

Siyi Chen Two-sample bi-directional causality between two traits with some invalid IVs in both directions using GWAS summary statistics, *Human Genetics and Genomics Advances*, July 10, 2025

Katie A Matatall, Mira Jeong, **Siyi Chen**, Deqiang Sun, Fengju Chen, Qianxing Mo, Marek Kimmel, Katherine King (2016) “Chronic infection depletes hematopoietic stem cells through stress-induced terminal differentiation”, *Cell Reports*, 17, 2584–2595.

Siyi Chen, Zhaotong Lin, Xiaotong Shen, Ling Li, and Wei Pan “Inference of causal metabolite networks in the presence of invalid instrumental variables with GWAS summary data,” *Genetic Epidemiology* (2023)

Siyi Chen “Statistical modeling for species count data with heterogeneity,”
<https://scholarship.rice.edu/handle/1911/109642>

Siyi Chen, Katherine King, Marek Kimmel “Statistical inference from stem cell barcoding data using adaptive approximate Bayesian computation”, *Submitted*.
https://assets.researchsquare.com/files/rs-187743/v1_covered.pdf?c=1631853488

PRESENTATIONS

ENAR 2025 <i>Presentation</i>	New Orleans, LA 2025
STATGEN 2024 <i>Presentation</i>	Pittsburgh, PA 2024
2023 IGES Annual Meeting <i>Presentation</i>	Nashville, TN 2023

TEACHING EXPERIENCE

Teaching Assistant <i>Department of Statistics</i>	Rice University Houston, TX
<ul style="list-style-type: none">• Mathematical Probability I, Fall 2015• Probability, Fall 2015 & Fall 2016• Probability in Bioinformatics and Genetics, Spring 2016	
Instructor <i>School of Public Health</i>	LSU Health New Orleans, LA
<ul style="list-style-type: none">• Introduction to Biostatistics, Fall 2025• Statistical Inference I, Fall 2025• Applied Linear Models, Spring 2025• Nonparametric Statistics, Spring 2025• Introduction to Biostatistics, Fall 2024• Statistical Inference I, Fall 2024	