

I am a computational sociologist focusing on social networks, social inequality, and family demography. In my research, I apply and develop quantitative and computational methods to study fundamental sociological questions in new ways and gain insights across a variety of research fields. My work examines how friendship, family, and political dynamics shape individual life chances and broader patterns of inequality. I am particularly interested in how individuals' selection into and interactions within these environments generate emergent dynamics of social stratification. Methodologically, my expertise spans machine learning, causal inference, relational dynamics, multilevel modeling, survey statistics, and the analysis of group heterogeneity.

Employment

- 2025 – **New York University Abu Dhabi (UAE)**
Assistant Professor of Computational Social Science
- 2024-2025 **Princeton University (USA)**
Postdoctoral Researcher
- 2022 **Organization for Economic Cooperation and Development (FRA)**
Data Scientist

Publications

Rosche, B. (2026). A Multilevel Model for Coalition Governments: Uncovering Party-Level Dependencies Within and Between Governments. *Political Analysis*.

Rosche, B., Bons, H., Hox, J., de Leeuw, E. (2025). The Survey Attitude Scale as an Indicator of Survey Attitude and a Predictor of Nonresponse and Panel Dropout. *Survey Research Methods*, 19(3), 279-293.

An, W., Beauville, R., **Rosche, B.** (2022). Causal Network Analysis. *Annual Review of Sociology*, 48.

The authors are listed alphabetically and contributed equally to the article.

Under Review

Rosche, B. (2026). Social Closure in U.S. High Schools? Patterns and Determinants of Socioeconomic Segregation in Adolescent Friendship Networks. *Under review*.

Rosche, B. (2026). Treatment Effects on Within-Group and Between-Group Inequality. A Causal Decomposition Approach. *Under review*.

Krishnamachari, M., **Rosche, B.** (2026). Bridging the Divide: How Cross-Socioeconomic Friendships Shape Educational Aspirations. *Under review*.

Working Papers

- The Precious Networks of the Rich: How the Ultra-Wealthy Prevent Progressive Tax Reforms
with Alison Schultz (Tax Justice Network), Yufang Sun (Mannheim University), and Marti Medina-Hernández (Central European University).
- Social Networks and Intergenerational Mobility in the Netherlands
with Samuel Plach (Bocconi University), Javier Bernardo-Garcia (Utrecht University), and Zachary Parolin (Oxford University).
- When Friends-of-Friends Divide Us: Triadic Closure and the Making of Segregated Networks.
with Cassie McMillan (Northeastern University), Talal Rahwan (NYUAD), and Yasir Zaki (NYUAD).
- The Automation of Responsibility: AI, Cooperation, and Exploitation in Shared Supply Chains
with Hanan Salam (NYUAD)

Areas of interest

- Computational Social Science
- Social Networks
- Stratification/Inequality
- Family Demography
- Educational Sociology
- Political Sociology

Education

Cornell University (USA) 2024

- Ph.D. in Sociology and Computer Science (minor)

Committee:

Michael Macy (Cornell Soc./Information Science)

Filiz Garip (Princeton Sociology/Public Policy)

Eleonora Patacchini (Cornell Economics)

Felix Elwert (UW-Madison Sociology/Statistics)

Lillian Lee (Cornell Computer Science)

Utrecht University (NL) 2017

- M.Sc. in Methods and Statistics
GPA: 3.97, top five percent of my class
- M.Sc. in Sociology and Social Research
GPA: 4.00, valedictorian

Mannheim University (DE) 2014

- B.A. in Sociology and Economics (minor)
GPA: 3.90, top five percent of my class

Skills

Statistical skills:

Machine Learning, Causal Inference, Bayesian Statistics, Longitudinal, Multilevel, Spatial, Network, and Decomposition Methods, Survey Stats

Programming skills:

✓ Highly proficient in R, Python, Stata, and BUGS / JAGS / Stan.

✓ Highly experienced with big data and parallel computing.

✓ Experienced in web programming: HTML, CSS, JavaScript, PHP, and MySQL.

- Graphical Neural Networks for Causal Network Analysis
with Ruiqi Yu (Princeton), Yuchen Wu (Cornell), and Matias Cattaneo (Princeton)
- Not All Bridges Are Equal: Weak Ties, Social Boundaries, and Early Career Outcomes
with Mario Molina (NYUAD) and Manu Muñoz (NYUAD).

Grants

2021-2024 **National Science Foundation** (\$250,000)
Friendship Networks and Socioeconomic Outcomes
Role: Principal Investigator, Award #2049207

Fellowships and Awards

2023, 2024 Best paper award for “*Social Closure in U.S. High Schools? Patterns and Determinants of Socioeconomic Segregation in Adolescent Friendship Networks.*” from the

- ASA section Mathematical Sociology
- ASA section Decision-making, Social Networks, and Society
- Department of Sociology at Cornell University (Robin M. Williams Jr. Best Paper Award)

2020 Best paper award for “*A multilevel model for coalition governments: Uncovering dependencies within and across governments due to parties.*” from the

- Department of Sociology at Cornell University (Robert B. McGinnis Best Paper Award)

2018, 2023 Cornell Sage Fellowship (\$140,000)

2012-2017 Fellowship from the *Studienstiftung des Deutschen Volkes* (German National Merit Foundation) (\$75,000)

Invited Talks

2026 Harvard University, Opportunity Insights Lab (Raj Chetty)
 2025 Meta Research, Computational Social Science Group
 2024 Complexity Science Hub, Network Inequality Lab (Fariba Karimi)

Teaching and Mentoring

2026 Developed and taught a semester-long undergraduate course, *Modern Data Analysis for the Social and Behavioral Sciences*, covering exploratory data analysis and statistical inference using simulation-based, frequentist, and Bayesian methods.

2026 Developed and taught an undergraduate course on *Social Network Analysis*, bridging social science and computer science approaches to the study of networks.

2024 Summer School on Data Science and Wealth
I led an interdisciplinary research project with PhD students from sociology, economics, and network science.

2024 Mentored Malavika Krishnamachari (Information Science undergraduate) on an honors thesis examining the effects of cross-SES ties on low-SES youths’ educational aspirations.

2020-2023 Lab manager of Michael Macy’s Social Dynamics Lab
I assisted students with their research projects.

2019 Teaching Assistant for *Controversies about Inequality*
Cornell University, undergraduate level

2015-2016 Teaching Assistant for *Introduction to Statistics*
Utrecht University, undergraduate level

Languages

English (fluent), German (native), Dutch (fluent), Spanish (basic)

Personal

In my free time, I enjoy running, doing racket sports, and dancing Salsa and Bachata. I served as president of the Cornell Recreational Squash Club (2018-2020), organizing training and tournaments for 60 members, and led the Cornell Graduate Student Improv Theater Club (2020-2024), hosting weekly improv sessions for 20 graduate students.

2011-2014 Teaching Assistant for *Introduction to Sociology*
Mannheim University, undergraduate level

Service and Volunteering

2026 Serve as the Social Science *AI liaison* on a university-wide committee evaluating the impact of AI on research, teaching, and administration. Contribute to the development of a new AI major and lead AI integration initiatives across the Social Sciences, including the creation of an AI-powered Socratic tutor for programming instruction, AI-assisted grading tools for student assignments, and interactive applications to improve student learning and engagement.

2023-2024 Big Brothers Big Sisters: Big Brother to a 10-year-old boy with weekly meetings over two years.
Recipient of the James J. Byrnes Awards for outstanding volunteer service to the community

2023 Served on the graduate student admission committee in the Department of Sociology at Cornell

2020-2024 Founding President of Cornell Graduate Student Improv Theater Club

2018-2020 President of the Recreational Squash Club at Cornell

2018-2019 Organized the Cornell Sociology Graduate Seminar

2011-2014 Big Brothers Big Sisters: Big brother to a 10-year-old boy, with weekly meetings over three years.

Refereeing Nature Communications, Journal of the Royal Society Interface, American Journal of Sociology, European Sociological Review, Social Forces, Socius, Sociological Methods and Research, Sociological Methodology, Journal of Mathematical Sociology, Research in Social Stratification and Mobility, Social Science Research, Sociological Perspectives, American Behavioral Scientist, American Educational Research Journal.

Software

– R library **ineqx**. <https://benrosche.github.io/ineqx/>
– R library **bml**. <https://benrosche.github.io/bml/>

Conferences

Population of America Association Conference (2018, 2021, 2022, 2023), American Sociological Association Conference (2020, 2023), International Network for Social Network Analysis Conference (2018, 2021, 2023, 2024), Network Science Society Conference (2021, 2023), International Network of Analytical Sociology conference (2022, 2023), RC28 Conference on Social Stratification (2022, 2023), American Political Science Association Conference (2019), International Multilevel Conference (2017), International Conference on Survey Nonresponse (2016)

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