

I am a sociologist focusing on social inequality, social networks, and family demography. I apply and develop quantitative and computational methods to analyze how individuals' dynamic selection into and interactions within various social and natural environments influence social stratification. In this program, I examine how friendship, family, political, and climate dynamics shape individual life chances and aggregate patterns of inequality. Methodologically, I specialize in modeling complex dependencies in longitudinal, multilevel, spatial, and network data.

Employment

- Aug 2024 – **Office of Population Research at Princeton University (USA)**
Postdoctoral Research Associate
- 2022 **OECD - Organization for Economic Cooperation and Development (France)**
Data Scientist

Publications

An, W., Beauville, R., **Rosche, B.** (2022). Causal Network Analysis. *Annual Review of Sociology*, 48. (IF: 10.5)
The authors are listed alphabetically and contributed equally to the article.

Revise and Resubmit

Rosche, B. (2024). Socioeconomic segregation in adolescent friendship networks. A network analysis of social closure in US high schools. *R&R at American Sociological Review (IF: 14.3) [Diss. Ch. 1]*

Rosche, B., Bons, H., Hox, Joop, de Leeuw, E. (2024). The survey attitude scale as an indicator of survey climate and a predictor of nonresponse and attrition. *R&R at Survey Research Methods (IF: 4.8)*

Working papers

- Rosche, B.** (2024). Treatment effects on within-group and between-group inequality. A causal decomposition approach. *Will soon submit to Sociological Methods & Research (IF: 6.5) [Diss. Ch. 2]*
- Rosche, B.** (2024). A multilevel model for coalition governments: Uncovering dependencies within and across governments due to parties. *Will soon submit to Political Analysis (IF: 8.9) [Diss. Ch. 3]*

Ongoing research

- with Mark Wittek (Network Science, Central European University) and Till Hovestadt (Sociology, Oxford University): *Varieties of Network Segregation. Institutional Determinants in the US, Germany, and Sweden.*
- with Michael Macy (Information Science, Cornell University): *A Longitudinal Perspective on Network Segregation. The Integrative Power of Cross-Group Friendships.*
- with Eleonora Patacchini (Economics, Cornell University): *Consequences of Network Segregation: Long-Term Impacts on Disadvantaged Youth.*
- with Kim Weeden (Sociology, Cornell University) *Network Segregation in College Course Enrollment.*

Areas of interest

- Computational Social Science
- Quantitative Methods
- Stratification/Inequality
- Social Networks
- 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, graduated in the 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, graduated in the top five percent of my class

Skills

- **Statistical skills:**
Machine learning and natural language processing, causal inference, Bayesian statistics, longitudinal, multilevel, spatial, network, and decomposition methods
- **Programming skills:**
✓ Highly proficient in R, Python, Stata, and BUGS/JAGS/Stan.

- with Filiz Garip (Sociology, Princeton University):
Climate change, migration networks, and global economic inequality.
- with Alison Schultz (Tax Justice Network), Yufang Sun (Finance, Mannheim University), Marti Medina-Hernández (Network Science, Central European University)
The precious networks of the rich. How the ultra-wealthy prevent progressive tax reforms.

Grants

- 2021-2024 **National Science Foundation** (\$240,000)
Friendship Networks and Socioeconomic Outcomes
Role: Principal Investigator, #2049207

Fellowships and Awards

- 2023, 2024 Best paper award for “*Socioeconomic segregation in adolescent friendship networks. A network analysis of social closure in US high schools.*” 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)

Teaching and Mentoring

- 2024 Summer School on Data Science and Wealth
I led a interdisciplinary research project with PhD students from sociology, economics, and network science.
- 2024 Mentored Malavika Krishnamachari (undergraduate student in Information Science) on her honors thesis:
The effect of cross-SES ties on educational aspirations of low-SES youth.
- 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
- 2011-2014 Teaching Assistant for *Introduction to Sociology*
Mannheim University, undergraduate level

- ✓ Highly experienced with large datasets and parallel computing.
- ✓ Experienced in web programming: HTML, CSS, JavaScript, PHP, and MySQL.

Languages

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

Personal

In my free time, I enjoy reading, running, racket sports, and improv theater. 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.

Service and Volunteering

- 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 students admissions 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 American Journal of Sociology (1), Sociological Methods and Research (2), Research in Social Stratification and Mobility (3), Social Science Research (1), Sociological Perspectives (1)

Software

- R library **ineqx**. <https://benrosche.github.io/ineqx/>
- R library **rmm**. <https://benrosche.github.io/rmm/>

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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