

Lucas Sage

Curriculum Vitae

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Academic Positions

Research Fellow

Current

Institute for Advanced Study in Toulouse

Postdoctoral Fellow

2024–2025

Laboratory for Agent-Based Social Simulation, Italian National Research Council

Mentor: Giulia Andrighetto

Max Weber Fellow

2022–2024

Department of Social and Political Sciences, European University Institute

Mentor: Arnout van de Rijt

Research Areas & Methodological Expertise

Core Research Focus

Social inequality, wage and career trajectories, cumulative advantage, scientific activity, climate change, predictability of the life course, school segregation, social networks

Methodological Skills

Quantitative Methods in Sociology:

Multilevel models, panel data methods, causal inference, statistics

Computational Social Science:

Agent-based modeling, computer simulations, social networks, laboratory experiments

Software Proficiency:

R (expert), Stata, NetLogo (expert)

Data Analysis & Management:

Large-scale registry data, panel data, surveys, web data

Education

PhD in Sociology

2022

Sorbonne University & University of Trento

Supervisors: Gianluca Manzo & Stefani Scherer

Committee: Peter Hedström, Flaminio Squazzoni, Paola Tubaro

M.Phil. Sociology – Contemporary Sociology

2016

Publications

Peer-Reviewed Articles

- [1] Gelastopoulos, Alexandros, **Lucas Sage**, and Arnout Van De Rijt. “Reinforcement generates systematic differences without heterogeneity.” *Proceedings of the National Academy of Sciences* 122.23 (2025): e2408163122.
- [2] Manzo, Gianluca, and **Lucas Sage**. “Perspectives on Causality.” *Wiley StatsRef: Statistics Reference Online* (2024): 1–10.
- [3] **Sage, Lucas**. “Les enjeux de la répliquabilité et de la reproductibilité dans la sociologie quantitative.” *L'Année sociologique* 74.2 (2024): 333–356. (in French).
- [4] **Sage, Lucas**, Marco Albertini, and Stefani Scherer. “The Spreading of SARS-CoV-2: Interage Contacts and Networks Degree Distribution.” *PloS One* 16(8):e0256036 (2021).
- [5] **Sage, Lucas**, and Andreas Flache. “Can Ethnic Tolerance Curb Self-Reinforcing School Segregation? A Theoretical Agent Based Model.” *Journal of Artificial Societies and Social Simulation* 24(2) (2021).

Book Chapter

- [6] **Sage, Lucas**. “Formal Models in Raymond Boudon’s Work.” *Boudon Reexamined Nuts and Bolts for Contemporary* (2025). Sorbonne Université Presses.

Accepted/Forthcoming

Annual Review of Sociology

van de Rijt, Arnout, Fabrizio Bernardi, William Folley and **Lucas Sage**. “Luck and Predictability in the Life Course.”

Complex Networks Conference Proceedings

Pial, Tanzir, Flavio Hafner, Dakota Handzlik, Enamul Hassan, **Lucas Sage**, Ana Macanovic, Tom Emery, Arnout van de Rijt and Steven Skiena. “Embeddings of Nation-Level Social Networks.”

Under Review

R&R with minor revisions – Social Forces

Sage, Lucas. “The Nonlinear Nature of Labor Market Sorting: Explaining Wage Inequalities Between and Within Sociodemographic Groups.”

Under Review – American Behavioral Scientist

Sage, Lucas. “Network Structure Is Not Enough: How Referral Behavior Shapes Labor Market Sorting and Between-Group Inequality”

Submitted – EPJ Data Science

Pial, Tanzir, Ana Macanovic, **Lucas Sage**, Flavio Hafner, Enamul Hassan, Tom Emery, Arnout van de Rijt and Steven Skiena. “Fertility Prediction with Foundation Language Models Trained on Population Registry Data.”

Working Papers

Will submit to American Journal of Sociology

Sage, Lucas. “Fading Shocks and Spurious Convergence in Wage Trajectories.”

Research Projects

The ambiguous role of inequality in combating climate change

Team: Giulia Andrighetto, Eva Vriens

Methods: Laboratory experiments

Focus: Collective action and cooperation under economic inequality

Stage: Two pre-registered online experiments. Foreseen dates of data collections: February 2026 (1st experiment) & April 2026 (2nd experiment).

Self-prediction

Team: William Folley, Arnout van de Rijt

Methods: Survey experiments, predictive modeling

Focus: Individual capacity for life outcome prediction

Stage: A pre-registered survey experiment ran in February 2025. Results of participants’ self-predictions vs real-outcomes will be analyzed starting from February 2026 onwards.

Predicting life outcomes with registry data and machine learning

Team: Arnout van de Rijt, Steven Skiena, Tom Emery, Tanzir Islam Pial, Ana Macanovic

Methods: Machine learning, large-scale administrative data analysis

Focus: Predictive modeling of individual life trajectories

Stage: The project has already produced two working papers which have been submitted to journals or conference proceedings, and other papers are in preparation.

The diffusion of innovativeness among scientists

Team: Sylvain Fontaine

Methods: Causal modeling with instrumental variable, Agent-based modeling, Network analysis

Focus: Learning through collaboration

Stage: A working paper is in preparation.

Selected Seminar, Workshop and Conference Talks

2025

Inequality and Social Demography Seminar Series, UNED/University Carlos III Madrid

“Fading Shocks and Spurious Convergence in Wage Trajectories”

CLIC Seminar Series, European University Institute

“Fading Shocks and Spurious Convergence in Wage Trajectories”

RC28 Spring Meeting, University of Milan

“Fading Shocks and Spurious Convergence in Wage Trajectories”

CS2Italy Conference on Computational Social Science, University of Trento

“The diffusion of innovativeness”

2024

Symposium on Empirically Calibrated Agent-Based Models, Institute for Advanced Study in Toulouse

“The diffusion of innovativeness”

Engaging with Boudon: Insights from Contemporary Sociological Science, Sorbonne University

“Statistics, mathematics and computation”

International Network of Analytical Sociologists (INAS), Leipzig University

“Scientific Interactions and their consequences on inequality. A mechanism-based perspective”

2023

Workshop on the Contemporary Opportunities and Challenges in the Use of Empirically Calibrated Agent-Based Models for Realistic Mechanism-Based Research,

“Learning from coauthors”

XX World Congress of Sociology, Melbourne (online)

“Scientific interactions and its consequences on inequality: A mechanism-based perspective”

2022

International Network of Analytical Sociologists (INAS), European University Institute

“Assortative matching explains differences in wage heterogeneity within sociodemographic groups”

2021

European Consortium for Sociological Research (ECSR) Conference, Online

“Explaining between and within demographic group wage differences. On the role of the sorting of workers into organizations and occupations”

IV World Forum of the International Sociological Association, Porto Allegre (online)

“Do social networks contribute to the sorting of workers into firms?”

2020

Social Simulation Conference, European Social Simulation Association, Milan

“Do inter-age contacts explain cross-country differences in Covid-19 diffusion?”

Sunbelt Conference, Sciences Po, Paris

“Do social networks contribute to the sorting of workers into firms?”

2017

International Network of Analytical Sociologists (INAS), Oslo

“Unravelling or promoting ethnic integration in schools? A theoretical analysis of the effects of heterogeneous ethnic preferences on the dynamics of self-organized school segregation”

Funding & Grants

Early Career Researcher Grant – €1,650, European University Institute

Project: “Fading Shocks and Spurious Convergence in Wage Trajectories”

2024

Co-contributor to ESTIMIA project proposal – €300,000

Principal Investigator: Cyril Jayet

One-year doctoral grant, University of Trento 2020–2021

Doctoral allocation for ‘Étudiants Normaliens’ (3-year PhD scholarship) 2017–2020

Two-year salary for ‘Étudiants Normaliens’ 2015–2017

Teaching Experience

University-Level Teaching

Invited Lecturer Fall 2025

University Mohammed VI Polytechnic – Department of Economics and Social Sciences
Computational Social Science (1) (30 hours)

Invited Lecturer (Once a year) 2022–2025

Sorbonne University Abu Dhabi – Bachelor of Records Management and Archival Studies
Introduction to Statistics (40–50 hours annually)

Non-permanent Lecturer (Half-time ATER) 2021–2022

Sorbonne University
Courses: Social Stratification (lecture); Introduction to R (96 hours total)

Teaching Assistant (Contrat doctoral) 2017–2020

Sorbonne University – Bachelor of Sociology
Courses: Statistics 1 & 2; Introduction to American Sociology; Introduction to French Sociology;
Introduction to R (64 hours/year)

Specialized Workshops & Training

Workshop for PhD Students 2023

European University Institute
Title: “Multilevel growth curve models in R” (5 hours)

Lab in PhD seminar on network analysis & agent-based modeling 2022

European University Institute

Training

Winter Workshop on Complex Systems (WWCS), Amsterdam Institute for Advanced Study
Jan.–Feb. 2023

Summer Institute in Computational Social Science (SICSS), Bamberg University (with grant)
Jun.–Jul. 2019

Visiting

I SER, University of Essex (1 month)

2020

Department of Sociology, University of Groningen (9 months)

2016–2017

Professional Services

Editorial & Organizational Activities

- Since 2025 – Member of the Editorial Board of *L'Année Sociologique*.
- Dec. 2024 – Co-organizer, Symposium on Empirically Calibrated Agent-Based Models, IAST, Toulouse
- Since 2023 – Board Member, 'Micro-Macro Modelling' Research Committee (RC45), International Sociological Association
- 2022–2023 – Representative of SPS Max Weber Fellows, European University Institute
- Since 2021 – Co-editor, AGORA Newsletter (Decision-Making, Social Networks and Society section, ASA/ISA)
- Since 2021 – Website Manager, Decision-Making, Social Networks and Society section
<https://sites.google.com/view/decisionmakingsocialnetworks/home>
- 2021–2022 – Co-organizer, GEMASS Internal Seminar

Peer Review Activities

Journals: *Sociological Science*, *Rationality and Society* (2), *PloS One* (2), *Journal of Artificial Societies and Social Simulations*, *Humanities and Social Sciences Communications*, *Genus*, *Frontiers in Psychology*

Media Coverage

Research featured in: wired.it, miragenews.com, eurekalert.org, medicalxpress.com (for COVID-19 contact patterns study)

Languages

French: Native

English: Fluent

Spanish: Intermediate (B2)

Italian: Intermediate (B1)