

Stefano Balietti

Postdoc Researcher

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Short Summary

I am a *fellow* at the Mannheim Center for European Social Science Research (MZES) and a *postdoc* at the Alfred-Weber Institute of Economics at Heidelberg University. Previously, I was at Microsoft Research Computational Social Science NYC, the Northeastern Network Science Institute, and the Harvard Institute for Quantitative Social Science. My methodology brings together computer simulations and online behavioral experiments. I create virtual environments to study human behavior in large groups; I use bots to trigger specific conditions and artificial intelligence to determine optimal experimental designs (Bayesian methods and advanced machine learning). My research interests encompass:

- incentives schemes for collective intelligence, in particular peer review systems,
- optimal experimental design, Bayesian optimization with Gaussian processes,
- inequality, perception thereof and its consequences,
- noise, efficiency and equality in coordination and public-good games,
- social influence, consensus formation, and polarization,
- philosophy of science, in particular Paul Feyerabend's body of work.

I am also an active *open source developer*. I created a JavaScript platform for conducting real-time online group-behavior experiments called nodeGame (<http://www.nodegame.org>). Previously, I have been project leader of the QScience platform for the QLectives project (<http://www.qllectives.eu>). You can talk to me in 5 languages: Italian, English, Spanish, German and Romanian.

Professional Experience

- 01/07/2019 - current
Fellow at the Department of Sociology of the Mannheim Center for European Social Research (MZES)
Postdoc at the Alfred Weber Institute of Economics at Heidelberg University
- 23/07/2018 - 30-06/2019
Postdoc researcher at Microsoft Research Computational Social Science NYC
- 1/01/2016 - 22/7/2018
Postdoc at the Network Science Institute Northeastern University
Fellow at the Harvard Institute for Quantitative Social Science (IQSS)
- 23/07/2015 - 31/12/2015
Postdoc in the group of Computational Social Science at ETH Zürich

Education

- 20/11/2011 - 22/07/2015
PhD in Computational Social Science ETH Zürich. (advisor Prof. Dirk Helbing)
- *Dissertation Title*: "The Complex Systems of Science: Computer simulations, laboratory and online experiments."
- *Co-examiners*: Prof. Robert L. Goldstone (Indiana University), Prof. Andreas Flache (University of Groningen)

- 17/08/2009 - 20/11/2011
Research Assistant at the Chair of Sociology in particular Modelling and Simulation ETH Zürich
- 01/12/2005 - 04/07/2008
MA Economics and Corporate 1st Class (Final grade: 110/110 cum laude)
- 01/07/2002 - 29/11/2005
Internet Science Degree 1st Class (Final grade: 110/110 cum laude)
- 01/07/1998 - 01/07/2002
Scientific Liceo FM Campana (Final grade: 100/100)

Teaching

- Guest Lecture “Experiments in Computational Social Science: Creativity, Innovation, Feeling of Closeness, and Polarization,” 13 Oct 2020 @ Computational Social Science Seminar, ETH Zurich, Switzerland
- Semester class “Design and Implementation of Online Behavioral Experiments,” Fall semester 2019 @ University of Mannheim, Germany
- Block course “Computer Programming Fundamentals (in JavaScript),” 12-13 Mar 2020 @ University of Luzern, Switzerland
- Block course “Bias, Dignity, and Fairness in Big Data and Social Data,” 11 Mar 2020 @ University of Luzern, Switzerland
- Workshop on “Online Experiments,” Oct 29-Nov 02 2019 @ University of West Bohemia, Pilsen, Czech Republic
- Course “Design and Implementation of Online Behavioral Experiments,” Fall semester 2019 @ University of Mannheim, Germany
- Tutorial on “Online Synchronous Experiments,” 5 Dec 2018 @ Computational Social Science Symposium Köln, Germany
- Tutorial on “Science Meets Industry: Online Behavioral Experiments with nodeGame,” 29 Nov 2016 @ Node.js Interactive North American, Austin, TX, USA
- Block Course on “Programming Synchronic Online Experiments using NodeGame,” 16-17 Nov 2015 @ CESS Nuffield College Oxford, UK
- Block Course on “Modeling and Simulating Social Systems with MATLAB and Other Open Source Tools,” 19 - 23 Oct 2015 @ ETH Singapore Center SEC, Singapore
- Course on “Modeling and Simulating Social Systems with MATLAB,” 2015 Fall Semester @ ETH Zürich, Switzerland
- Tutorial on “Online Experiments with NodeGame,” 5 Dec 2012 @ SocInfo 2012 EPFL Lausanne, Switzerland
- Course on “Modeling and Simulating Social Systems with MATLAB,” 2010-2012 Fall & Spring semester @ ETH Zürich, Switzerland

Software Development

nodeGame - Real-Time Social Experiments in the Browser: <http://www.nodegame.org>

NDDB.JS - Javascript N-Dimensional Database: <http://nodegame.github.io/NDDB>

JSUS - Javascript Utils (JSUS Helps!): <http://nodegame.github.io/JSUS>

SocialBib - Collection of BibTex Files: <https://github.com/shakty/socialbib>

QScience - <http://www.github.com/QScience>

Patterns - <http://drupal.org/project/patterns>

msssm - Modeling and Simulating Social Systems with MATLAB: <http://www.github.com/msssm>

Other Programming Competences

General programming languages: JavaScript, Node.JS, JAVA, PHP, Python.
Statistical programming languages: R, MATLAB, Stata.
Scripting: BASH, AWK, SED.
Markup and Style: Markdown, HTML5, CSS3, Bootstrap, SASS.
Computer-cluster systems: LSF, SLURM.
Database: SQL/MySQL, MongoDB.
Cloud: Heroku, Digital Ocean, Openshift, Google Cloud.

Languages

Italian (mother tongue), English (fluent), Spanish—Castilian (fluent), German (intermediate), Romanian (intermediate), Swedish (basic)


References

Additional information about me and letter of references can be requested from the following referees:

Name	Institution	Relationship	Email
Prof. Dirk Helbing	ETH Zürich	PhD Supervisor	dirk.helbing@ethz.ch
Prof. Robert Goldstone	Indiana University	PhD Co-examiner	rgoldsto@indiana.edu
Prof. Christoph Riedl	Northeastern University	Postdoc Advisor	c.riedl@neu.edu
Prof. David Lazer	Northeastern University	Postdoc Advisor	davelazer@gmail.com
Prof. Duncan Watts	Microsoft Research	Postdoc Advisor	djwatts@seas.upenn.edu

Publications


2020 [S. Baliatti](#)

“The Human Quest for Discovering Mathematical Beauty in the Arts” *Proceedings of the National Academy of Sciences (PNAS)* Volume 117, Issue 44, pp. 27073-27075 


[S. Baliatti](#), B. Klein and C. Riedl

“Optimal Design of Experiments to Identify Latent Behavioral Types” *Experimental Economics* In Press 

2018 H.H. Nax, [S. Baliatti](#), R.O. Murphy, and D. Helbing

“Adding noise to the Institution: An Experimental Welfare Investigation of the Contribution-Based Grouping Mechanism” *Social Choice and Welfare* Volume 50, Issue 2, pp. 213-245 

2017 B. Anderson, T. Bernauer and [S. Baliatti](#)

“Effects of Fairness Principles on Willingness to Pay for Climate Change Mitigation” *Climatic Change* Volume 142, Issue 3-4, pp. 447-461 


[S. Baliatti](#)

“nodeGame: Real-Time, Synchronous, Online Experiments in the Browser” *Behavior Research Methods* Volume 49, Issue 5, pp. 1696–1715 


2016 [S. Baliatti](#), R.L. Goldstone, and D. Helbing

“Peer Review and Competition in the Art Exhibition Game” *Proceedings of the National Academy of Sciences (PNAS)* Volume 113, Number 30 8414-8419 


2015 [S. Baliatti](#), M. Mäs, D. Helbing

“On Disciplinary Fragmentation and Scientific Progress” *PLoS ONE* 10(3): e0118747. 

2012 D. Helbing, [S. Baliatti](#)

“Agent-Based Modeling” in *Social Self-Organization*. Series: Understanding Complex Systems. Helbing, Dirk (Ed.) Springer, 25–70. 

2011 D. Helbing, [S. Baliatti](#), S. Bishop and P. Lukowicz

“Understanding, Creating, and Managing Complex Techno-Socio-Economic Systems: Challenges and Perspectives” *The European Physical Journal - Special Topics*. Volume 195, Number 1, 165–186 

D. Helbing and [S. Baliatti](#)

“From Social Data Mining to Forecasting Socio-Economic Crises” *The European Physical Journal - Special Topics*. Volume 195, Number 1, 3–68. 


D. Helbing and [S. Baliatti](#)

“From Social Simulation to Integrative System Design” *The European Physical Journal - Special Topics*. Volume 195, Number 1, 69–100. 

D. Helbing and [S. Baliatti](#)

“How to Create an Innovation Accelerator” *The European Physical Journal - Special Topics*. Volume 195, Number 1, 101–136. 

2010 D. Helbing and [S. Baliatti](#)

“Fundamental and Real-World Challenges in Economics” *Science and Culture* 76(9-10), 399–417. 

Working Papers

[S. Baliatti](#), D. Watts and Lise Getoor

Understanding Polarization in Attitudes Towards Redistribution

[S. Baliatti](#), R. Freeman and Lise Getoor

Preferences over Income Distributions

[S. Baliatti](#), and the [TextWorld](#) Research Team

Human Evaluation of Text-Based Games Using the TextWorld Platform


S. Ballelli and C. Riedl
Stratified Reward Structures for Creative Production Markets

S. Ballelli
Tournaments for Collective Intelligence: a Survey of the Literature

S. Ballelli, B. Jäeggi and K. Axhausen
Efficiency Gains in Coordination in Information Poor Environments

S. Ballelli
Against Peer Review: A Critical Interpretation of Paul Feyerabend's Philosophy Applied to the Case of Scholarly Peer Review

Book Reviews

S. Ballelli
Models of Science Dynamics: Encounters Between Complexity Theory and Information Sciences (Understanding Complex Systems) Scharnhorst, Andrea, Boerner, Katy and Besselaar, Peter van den (eds.) Springer-Verlag: Berlin, 2012. 

Conferences

- 2019** *European Computational Social Science Symposium* Zurich, Switzerland, 2th - 4th September, 2019
"Shifting Attitudes Towards Wealth Redistribution by the Government: An Experiment of Depolarization"
International Conference on Computational Social Science IC2S2 Amsterdam, The Netherlands, 17th - 20th July, 2019
"Shifting Attitudes Towards Wealth Redistribution: Is It All a Matter of Trust?"
IMEBESS Utrecht, The Netherlands, 2nd - 5th May
"Attitudes Towards Redistribution: An Experimental, Network-based Approach"
- 2018** *International Conference on Computational Social Science IC2S2* Evanston, IL, 12th - 15th Jul
"The Market Structure for Innovation"
World Meeting Economic Science Association Berlin, Germany, 28th June–1st July
"Domain Expertise or Algorithmic Insight? Fast Optimization of Information Gain in Experimental Design"
CompleNet18 Boston, MA, 5th–8th Mar
"Toward the Optimal Design of Social Network Experiments"
CompleNet18 Boston, MA, 5th–8th Mar
"The Market Structure of Innovation"
- 2017** *Code @ MIT 2017*, Cambridge, MA, 27th–28th Oct
"Mood, High Stakes and Dropouts in an Online Innovation Tournament"
Code @ MIT 2017, Cambridge, MA, 27th–28th Oct
"Optimal Design for Online Social Experimentation"
Code @ MIT 2017, Cambridge, MA, 27th–28th Oct
"nodeGame 4.0: Online Real-Time Synchronous Experiments (poster)"
North American Economic Science Association Conference ESA17, Richmond, VA, 19th–21st Oct
"The Market Structure for Innovation"
North American Economic Science Association Conference ESA17, Richmond, VA, 19th–21st Oct
"Adding Noise to the Institution: An Experimental Welfare Investigation of the Contribution-Based Grouping Mechanism"
North American Economic Science Association Conference ESA17, Richmond, VA, 19th–21st Oct
"Efficiency Gains in Coordination in Information Poor Environments"

- 2016** *International Conference on Social Informatics SocInfo-2016*, Bellevue, WA, 15th–17th Nov
 “The Market Structures for Innovation” (Best Lightening Talk Award)
North American Economic Science Association Conference ESA16, Tucson, AZ, Nov 10th–12th
 “The Market Structures for Creativity”
Code @ MIT, Cambridge, MA, Oct 14th–15th
 “The Market Structures for Innovation”
Workshop on the Economic Science with Heterogeneous Interacting Agents (WEHIA) 2016, Castellón de la Plana, Spain, 22nd–24th Jun
 “Efficiency Gains in Coordination in Information Poor Environments”
- 2015** *International Conference on Computational Social Science IC2S2* Helsinki, Jun 8th–11th
 “Competition Promotes Diversity and Innovation, but Undermines Fair Peer Review”
Social Norms and Institutions SNI2015 Monte Verità Ascona, May 10th - 15th, 2015
 “Dissolving the Efficiency-Equality Tradeoff in Public-Good Games”
General Online Research GOR15, Cologne, Mar 18th–20th
 “nodeGame: A Tool for Real-Time On-Line Behavioral Experiments”
- 2014** *European Conference on Complex Systems ECCS-2014*, Lucca, Sep 22st–26th
 “On Fragmentation and Scientific Progress”
Social Simulation Conference SSC-2014, Barcelona, Sep 1st–5th
 “On Fragmentation and Scientific Progress”
- 2013** *15th International Conference on Social Dilemmas*, Zurich, Jul 10th–13th
 “The Art Exhibition Game”
Deutsche Physikalische Gesellschaft Conference DPG-2013, Regensburg, Mar 11th–15th
 “A Model of Adaptive Convergence in Science”
- 2012** *New Developments in Signaling and Game Theory*, Ascona, Oct 14th–19th
 “nodeGame: Social Experiments in the Browser (poster)”
SocInfo 2012, Geneve, Dec 5th–7th
 “Online Social Experiments with Nodegame (tutorial presentation)”

Awards

Special mention in the “Exeter Prize for Research in Experimental Economics, Decision Theory and Behavioral Economics 2017,” paper “Peer Review and Competition in the Art Exhibition Game”
 Best Lightening Talk Award “The Market Structure For Innovation” SocInfo 2016

Workshops

Financial Inclusion, Innovation for Poverty Action, Yale University, New Haven, CT, 14th May 2016
Innovations in Online Experiments, University of Oxford, Nuffield Center for Experimental Social Sciences, Oxford (UK), 13th Mar 2015
Multi-Agent Simulation (MAS) and Global Issues, University of Tokyo, Komaba Campus I, Tokyo (JP), 19th Feb 2015
Lorentz Workshop “Simulating the Social Processes of Science”, Leiden (NL), 7th–11th Apr 2014

European Projects

PEERE: New Frontiers of Peer Review 2014-2015.
FuturICT: Participatory Computing for Our Complex World, 2010-2013.
QLectives: Quality Colletives, 2009-2013.
VISIONEER: Envisioning a Socio-Economic Knowledge Collider, 2009-2010.

Grants

ETH ISTP 2015 Seed Grant “Platform for Experimental and Empirical Research” (PEER): 45.000 CHF

Reviewer for

Journals: Proceedings of the National Academy of Sciences (PNAS), Games, PLoS ONE, JASSS, Frontiers in Psychology – section Theoretical and Philosophical Psychology, Journal of Computational Science, International Studies in the Philosophy of Science, Evolutionary and Institutional Economics Review, EPJ Data Science, Journal of Behavioral and Experimental Economics, Journal of Economic Interaction and Coordination, Information and Software Technology, Data Science, Quality and Quantity, International Journal of Environmental Research and Public Health, Journal of Economics and Management Strategy.

Conferences: ICACI 2012, European Social Simulation Conference (ESSA) 2013, World Congress Social Simulation 2014, Social Simulation Conference (SSC) 2014, SSC 2015, SSC 2016, SSC 2017, SSC 2018, CompleNet 2018, International Conference on Information Systems (ICIS) 2018, PRIMA 2018, KDD 2019, FACTS-IR Workshop @ SIGIR 2019, NetSci-X 2020.

Invited Presentations

Cooperative Relations Seminar (Utrecht University), Utrecht, The Netherlands, 2020-10-21

Talking about Politics: How Informal Communication Shapes Views about Redistribution

Human Nature Lab (Yale University), New Haven, CT, 2019-04-04

Competition and Reward Structures in Creative Production Markets

Centre for European Economic Research (ZEW), Mannheim, Germany, 2018-12-04

Reward Structures for Creative Production Markets

Harvard Political Psychology Graduate Panel, Cambridge (MA) 2017-10-06

Peer Review, Competition and Market Structure

Percepts and Concepts Laboratory Colloquium (IU), Bloomington (IN) 2012-10-05

Imitation and Innovation in Networked Groups, and a New Experimental Framework for Collective Behavior Experiments

International MSc and PhD Programs in Complexity Sciences ISCTE Seminar, Lisbon (PT) 2010-10-30

Scholarly Peer-Review Process (Pros And Cons) and Possible Alternatives for the Selection of Quality in Science

QLectives Winter Workshop on Web Technologies, Fribourg (CH) 2010-10-19

HTML5 Nice to Meet You

Public Writings

Here’s How Competition Makes Peer Review More Unfair, *The Conversation*, and Science Is Suffering Because of Peer Review’s Big Problems *New Republic*. (Aug. 8/9 2016)

Media Coverage

Linux.com Blog. Online Behavioral Experiments Happening With nodeGame and Node.js. (Nov 14, 2016)

Times Higher Education. Peer Review System ‘leads to Good Research Going Unpublished’ (Jul 26, 2016)

Ars Technica. Can we trust peer review? New study highlights some problems. (Jul 20, 2016)

Caccia al Fotone. Quando l’Economia Incontra la Fisica. (Jan 7, 2011)

Tages Anzeiger. Geheimhaltung ist fuer das Wohl einer Gesellschaft entscheidend. (Dec 12, 2010)

News.ch. Wikileaks wirft ethische Grundfragen auf. (Dec 6, 2010)

MIT Technology Review. The 70 Online Databases that Define Our Planet (Dec 3, 2010)