

# Stefano Balietti

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Postdoc Researcher

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🌐 [stefanobalietti.com](http://stefanobalietti.com)  
🌐 [nodegame.org](http://nodegame.org)  
🐦 [@balietti](https://twitter.com/balietti)

## Short Summary

I am a *postdoc researcher* at Microsoft Research NYC Computational Social Science. My methodology of investigation brings together computer simulations, laboratory 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,
- consensus formation and social influence, in particular in epistemic communities,
- 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

- 23/07/2018 - current  
Postdoc researcher at Microsoft Research Computational Social Science NYC.
- 1/01/2016 - 22/7/2018  
Postdoc researcher at the Network Science Institute Northeastern University and Fellow at the Harvard Institute for Quantitative Social Science IQSS
- 23/07/2015 - 31/12/2015  
Postdoc researcher 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

*Forthcoming*—Tutorial on “Online Synchronous Experiments” 5 Dec 2018 @ Computational Social Science Symposium Köln  
 Tutorial on “Science Meets Industry: Online Behavioral Experiments with nodeGame” 29 Nov 2016 @ Node.js Interactive North American, Austin, TX, USA  
 Block Course: Programming Synchronic Online Experiments using NodeGame, 16-17 Nov 2015 @ CESS Nuffield College Oxford  
 Block Course: Modeling and Simulating Social Systems with MATLAB and Other Open Source Tools, 19 - 23 Oct 2015 @ ETH Singapore Center SEC  
 Modeling and Simulating Social Systems with MATLAB, 2015 Fall Semester  
 Tutorial on “Online Experiments with NodeGame” 5 Dec 2012 @ SocInfo 2012 EPFL Lausanne  
 Modeling and Simulating Social Systems with MATLAB, 2010-2012 Fall & Spring Semester

## 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:

<b>Name</b>	<b>Institution</b>	<b>Relationship</b>	<b>Email</b>
Prof. Dirk Helbing	ETH Zürich	PhD Supervisor	<a href="mailto:dirk.helbing@ethz.ch">dirk.helbing@ethz.ch</a>
Prof. Robert Goldstone	Indiana University	PhD Co-examiner	<a href="mailto:rgoldsto@indiana.edu">rgoldsto@indiana.edu</a>
Prof. Christoph Riedl	Northeastern University	Postdoc Advisor	<a href="mailto:c.riedl@neu.edu">c.riedl@neu.edu</a>
Prof. David Lazer	Northeastern University	Postdoc Advisor	<a href="mailto:davelazer@gmail.com">davelazer@gmail.com</a>
Prof. Duncan Watts	Microsoft Research	Postdoc Advisor	<a href="mailto:duncan@microsoft.com">duncan@microsoft.com</a>

## Publications

- 2018 H.H. Nax, [S. Ballelli](#), 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. Ballelli](#)  
“Effects of Fairness Principles on Willingness to Pay for Climate Change Mitigation” *Climatic Change* Volume 142, Issue 3-4, pp. 447-461   
[S. Ballelli](#)  
“nodeGame: Real-Time, Synchronous, Online Experiments in the Browser” *Behavior Research Methods* Volume 49, Issue 5, pp. 1696–1715 
- 2016 [S. Ballelli](#), 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. Ballelli](#), M. Mäs, D. Helbing  
“On Disciplinary Fragmentation and Scientific Progress” *PLoS ONE* 10(3): e0118747. 
- 2012 D. Helbing, [S. Ballelli](#)  
“Agent-Based Modeling” in *Social Self-Organization*. Series: Understanding Complex Systems. Helbing, Dirk (Ed.) Springer, 25–70. 
- 2011 D. Helbing, [S. Ballelli](#), 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. Ballelli](#)  
“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. Ballelli](#)  
“From Social Simulation to Integrative System Design” *The European Physical Journal - Special Topics*. Volume 195, Number 1, 69–100.   
D. Helbing and [S. Ballelli](#)  
“How to Create an Innovation Accelerator” *The European Physical Journal - Special Topics*. Volume 195, Number 1, 101–136. 
- 2010 D. Helbing and [S. Ballelli](#)  
“Fundamental and Real-World Challenges in Economics” *Science and Culture* 76(9-10), 399–417. 

## Working Papers

- [S. Ballelli](#) and C. Riedl  
Stratified Reward Structures for Creative Production Markets
- [S. Ballelli](#), B. Klein and C. Riedl  
Fast Model Selection through Adaptive Design of Experiments Maximizing Information Gain
- [S. Ballelli](#), C. Chabris  
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

- 2018** *International Conference on Computational Social Science IC2S2* Evanston, IL, 12th - 15th Jul, 2018  
“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 Lightning 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:** 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 Economic Interaction and Coordination, Information and Software Technology, Data Science, International Journal of Environmental Research and Public Health.

**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

## Invited Presentations

*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)

[Il Blog di 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)