

Dhruv Sharma

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Education

PhD Statistical Physics & Macroeconomics , <i>Ecole Normale Supérieure, Paris</i>	2017-2020
✦ Advisors: Dr. Francesco Zamponi & Dr. Jean-Philippe Bouchaud.	
Master's in Theoretical Physics- ICFP , <i>Ecole Normale Supérieure (ENS), Paris</i>	2016-2017
Ingénieur Polytechnicien , <i>Ecole Polytechnique, Paris</i>	2013-2017
✦ Major in theoretical physics.	
✦ Outstanding Investment Award (investment and contribution to the life of the institution).	
✦ 100% scholarship, Bourse de la Fondation de l'X.	
Bachelor of Science (Honors) Physics , <i>St. Stephen's College, Delhi</i>	2010-2013
✦ INSPIRE scholarship, Department of Science and Technology, Government of India.	

Research Experience

Macroeconomic Agent-Based Models: A Statistical Physics Perspective	Sep 2017-Nov 2020
<i>Laboratoire de Physique, Ecole Normale Supérieure, Paris</i>	
✦ Built macroeconomic models using tools from Statistical Physics and Optimization.	
○ To understand the importance of debt for macroeconomic stability.	
○ To evaluate the economic impact of Covid-induced lockdowns and mitigation policies.	
✦ Analyzed foundational machine-learning models such as the perceptron and SVM.	
✦ Reviewer for Physical Review E.	
Superfluid Light in Atomic Vapor	Mar 2016- Sep 2016
<i>Laboratoire Kastler Brossel (LKB), UPMC, Paris</i>	
✦ Experimental characterization of superfluid flow of light in Rubidium vapor.	
✦ First demonstration of light's superfluid character at room temperature.	
✦ Received " <i>Félicitations de Jury</i> " for this work.	
Software architect and developer, X-CubeSat	Aug 2014- Aug 2017
<i>Ecole Polytechnique, Palaiseau</i>	
✦ X-CubeSat: one of fifty nanosatellites under the QB50 initiative of the Von Karman Institute.	
✦ Software architect and developer of the Attitude Control and Determination System.	
✦ Satellite launched in May 2017 from the International Space Station (ISS).	
Deep Learning methods for Sentiment Analysis	June 2015-Sep 2015
<i>Keyrus Capital Markets, Paris</i>	
✦ Development and implementation of a deep learning model for performing sentiment analysis using Twitter data as a useful early indicator of market movement.	

Student Activities

Scientific outreach specialist , <i>Cite des Sciences et de l'Industrie, Paris</i>	Nov 2017-Aug 2020
Graduate student representative , <i>Administrative council, ENS Paris</i>	Dec 2017-Dec 2019
Founding member, Nobel'X , <i>Ecole Polytechnique</i>	2014-2016
✦ Student association promoting interactions between students and scientists through lab visits.	
Treasurer , <i>Artifix, Ecole Polytechnique</i>	2015-2016
✦ Licensed pyrotechnician at the Pyrotechnics club.	

Publications

- ✦ [Dhruv Sharma](#), Jean-Philippe Bouchaud, Stanislao Gualdi, Marco Tarzia, Francesco Zamponi
"V -, U -, L - or W-shaped recovery after COVID? Insights from an Agent Based Model", [Covid Economics \(Issue 40\)](#), [SSRN](#), [arxiv](#)
- ✦ [Dhruv Sharma](#), Jean-Philippe Bouchaud, Marco Tarzia, Francesco Zamponi
"A constraint-satisfaction agent-based model for the macroeconomy", [SSRN](#), [arxiv](#)
- ✦ [Dhruv Sharma](#), Jean-Philippe Bouchaud, Marco Tarzia, Francesco Zamponi
"Self-planting: digging holes in rough landscapes", *Journal of Statistical Mechanics: Theory and Experiment*, 1-17, 2019. [DOI](#), [arxiv](#)

Oral Presentations

- ✦ NAEC-Ecole Polytechnique Workshop: Policy Implications of Econophysics, **OECD, France**, 2020
- ✦ Summer School on Model Guided Data Science, Como, **Italy**, 2019
- ✦ Summer School on Advances in Complex Systems, Como, **Italy**, 2019
- ✦ Invited speaker- Macroeconomics Seminar, Paris School of Economics, **France**, 2019
- ✦ Beg Rohu Summer School on Statistical Physics, **France**, 2018
- ✦ International School on Computational Social Sciences and Complex Systems, Varenna, **Italy**, 2018
- ✦ Rencontres des Jeunes Physiciens, Collège de France, Paris, **France**, 2017

Languages

With humans		With computers	
English	Native	General	Python, C++, Java, Swift.
French	Fluent	Numerical	Mathematica, NumPy, SciPy, Pandas.