Curriculum Vitae of Giordano De Marzo

Personal email:	giordano.demarzo@gmail.com
Professional email:	giordano.demarzo@cref.it
ORCID:	0000-0002-3127-5336
Nationality:	Italian

Education and training

11/2020-Ongoing	**PhD in Physics**
Principal subjects	Social and Economic Complexity
Supervisor	Vittorio Loreto, Luciano Pietronero
Institution	Sapienza University and Enrico Fermi Research Center
09/2018-07/2020	**Master's Degree in Theoretical Physics (110/110 with honors)**
Principal subjects	Statistical Mechanics, Complex Systems
Supervisor	Luciano Pietronero
Institution	Sapienza University
09/2015-09/2018	**Bachelor Degree in Physics (110/110 with honors)**
Principal subjects	Broad topics in Physics
Supervisor	Luciano Pietronero
Institution	Sapienza University

Work and other experiences

08/2020-Ongoing	**Translated**
Occupation or position held	External consultant
Main activities and responsibilities	Language economics. Development of algorithms to determine the best languages for online sales and forecasts on future market opportunities.
08/2023-11/2023	**Konstanz University**
Occupation or position held	Visitng PhD Student
Main activities and responsibilities	Social simulations using Large Language Models.
08/2023-10/2023	**International Labour Organization**
Occupation or position held	External consultant
Main activities and responsibilities	Natural Language Processing. Analysis and classification of a large dataset of online job vacancies in Russian Language
10/2022-12/2022	**Sony CSL Paris**
Occupation or position held	Visitng PhD Student
Main activities and responsibilities	Analysis of how recommendation algorithms affect polarization and novelties discovery in groups of agents.
06/2022-08/2022	**United Nations University**
Occupation or position held	External consultant
Main activities and responsibilities	Natural Language Processing. Identification of skill demand in online job posts on Naukri.com
11/2021-05/2022	**Complexity Science Hub Vienna**
Occupation or position held	Junior Data Scientist
Main activities and responsibilities	Development of reputation algorithms for collaborative systems. Analysis of cryptocurrencies and chess openings.
08/2021-10/2021	**International Labour Organization**
Occupation or position held	External consultant
Main activities and responsibilities	Natural Language Processing. Analysis and classification of a large dataset of online job vacancies posted on Naukri.com
10/2020-03/2021	**Advanced School in AI**
Occupation or position held	Student

Main activities and responsibilities	Postgraduate school in Artificial Intelligence organized by The Institute for Cognitive Sciences and Technologies (ISTC) of CNR.

Publications

[P1] Bellina, Alessandro, Claudio Castellano, Paul Pineau, Giulio Iannelli and Giordano De Marzo. "The effect of Collaborative-Filtering based Recommendation Algorithms on Opinion Polarization." Accepted on Physical Review E (2023).

[P2] Labini, Francesco Sylos, Giordano De Marzo, Matteo Straccamore, and Sébastien Comerón. "The Tully-Fisher relation and the Bosma effect." Accepted on Monthly Notices of the Royal Astronomical Society.

[P3] Sylos Labini, Francesco, Matteo Straccamore, Giordano De Marzo, and Sébastien Comerón. "Mapping non-axisymmetric velocity fields of external galaxies." Monthly Notices of the Royal Astronomical Society 524, no. 1 (2023): 1560-1600.

[P4] De Marzo, Giordano, and Vito DP Servedio. "Quantifying the complexity and similarity of chess openings using online chess community data." Scientific Reports 13.1 (2023): 1-12.

[P5] De Marzo, Giordano, Federico Attili, and Luciano Pietronero. "Growing inequality in systems showing Zipf's law." Journal of Physics: Complexity 4.1 (2023): 015014.

[P6] De Marzo, Giordano, and Giulio Iannelli. "Effect of spatial correlations on Hopfield Neural Network and Dense Associative Memories." Physica A: Statistical Mechanics and its Applications 612 (2023): 128487.

[P7] De Marzo, Giordano, Francesco Pandolfelli, and Vito DP Servedio. "Modeling innovation in the cryptocurrency ecosystem." Scientific Reports 12.1 (2022): 12942.

[P8] Agliari, Elena, et al. "The emergence of a concept in shallow neural networks." Neural Networks 148 (2022): 232-253.

[P9] Iannelli, Giulio, Giordano De Marzo, and Claudio Castellano. "Filter bubble effect in the multistate voter model." Chaos: An Interdisciplinary Journal of Nonlinear Science 32.4 (2022): 043103.

[P10] De Marzo, Giordano, et al. "Quantifying the unexpected: A scientific approach to Black Swans." Physical Review Research 4.3 (2022): 033079.

[P11] De Marzo, Giordano, Francesco Sylos Labini, and Luciano Pietronero. "Zipf's law for cosmic structures: How large are the greatest structures in the universe?." Astronomy and Astrophysics 651 (2021): A114.

[P12] De Marzo, Giordano, et al. "Dynamical approach to Zipf's law." Physical Review Research 3.1 (2021): 013084.

[P13] Agliari, Elena, and Giordano De Marzo. "Tolerance versus synaptic noise in dense associative memories." The European Physical Journal Plus 135.11 (2020): 1-22.

[P14] De Marzo, Giordano, Andrea Zaccaria, and Claudio Castellano. "Emergence of polarization in a voter model with personalized information." Physical Review Research 2.4 (2020): 043117.

Talks

Conferences

10/07/2023	International Conference on Network Science (Vienna, Austria)
08/11/2022	Complex Networks and their Applications 2022 (Palermo, Italy)
17/10/2022	Conference of Complex Systems 2022 (Palma de Mallorca, Spain)
20/06/2022	II Conference of the Italian Society of Statistical Physics (Parma, Italy)
22/06/2021	I Conference of the Italian Society of Statistical Physics (Parma, Italy)

Workshops

15/09/2022	Algorithmic Biases in Google Scholar (Zurich, Switzerland)
10/07/2022	Complex networks (Lipari, Italy)
02/11/2021	Blockchain and Cryptocurrency Complexity (Roma, Italy)
02/02/2021	Scienza e Impresa Digitale (Roma, Italy)

Scientific appointments

01/2023-Ongoing	**Junior Research Fellow** at Complexity Science Hub Vienna.
03/2022-Ongoing	**Research Fellow** at Imminent Research Center.
02/2021-Ongoing	**PhD Fellow** at Sapienza School for Advanced Studies.

Referee Activity

I have been peer reviewer for the following journals: *Physica A, EPJ B, Scientific Reports, Urban Affairs Review, Monthly Notices of the Royal Astronomical Society, Probability in the Engineering and Informational Sciences, Journal of Informetrics.*

Scholarships, Grants and Awards

2020-Ongoing	**Scholarship**, Sapienza School for Advanced Studies (accomodation)
2023	**Research Grant**, DAAD (4000€)
2022	**Research Grant**, Fondazione Zegna (5000€)
2022	**Research Grant**, Imminent (20000€)
2016-2020	**Scholarship**, Sapienza University (8000€)
2017-2019	**Working Scholarship**, Sapienza University (2000€)
2018	**Degree-award**, Sapienza University(1200€)
2015	**Seventh Place**, Italian Natural Science Olympiad (1200€)
2015	**Bronze Medal**, Italian Physics Olympiad (400€)

Students

2022	**Alessandro Bellina**
Title	Ergodicty and Consensus in simple Recommender Models
Supervisor	Vittorio Loreto, Luciano Pietronero
External Supervisor	Giordano De Marzo, Andrea Tacchella
Institution	Sapienza University of Rome
2021	**Francesco Pandolfelli**
Title	The Complex Ecosystem of Cryptocurrencies
Supervisor	Vittorio Loreto
External Supervisor	Giordano De Marzo
Institution	Sapienza University of Rome
2021	**Giulio Iannelli**
Title	Opinion Polarization in the Multistate Voter Model with recommendation algorithms
Supervisor	Claudio Castellano
External Supervisor	Giordano De Marzo
Institution	Sapienza University of Rome

Skills

Languages	Italian (mother tongue), English (advanced)
OSes	Windows, Ubuntu
Programming languages	Python, C, Matlab, LaTeX
Other Skills	Machine Learning, Natural Language Processing, Deep Learning

References

Prof. Luciano Pietronero[1], luciano.pietronero@roma1.infn.it
Prof. Vittorio Loreto[2], vittorio.loreto@uniroma1.it
Dr. Claudio Castellano[3], claudio.castellano@roma1.infn.it
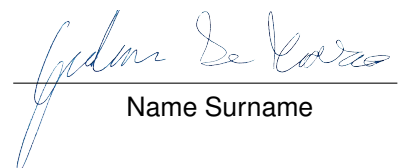Dr. Vito Servedio[4], servedio@csh.ac.at

[1]Enrico Fermi Research Center [2]Sapienza University of Rome [3]Institute of Complex Systems
[4]Complexity Science Hub Vienna

Roma, April 5, 2024

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Place and date   Name Surname