europass

Giordano De Marzo

ABOUT ME

PhD candidate at Sapienza University and Enrico Fermi Research Center
Junior Research Fellow at Complexity Science Hub Vienna
Research Fellow at Imminent Research Center
PhD Fellow of Sapienza School for Advanced Studies

WORK EXPERIENCE

[31/08/2020 – Current]

Consultant

Translated

Working on language economics. Developing algorithms to determine the best languages for online sales and making forecasts on future market opportunities.

[10/2022 – 12/2022]

Visiting PhD Student

Sony CSL Paris

Study of the effect of recommendation algorithms on social dynamics and novelties exploration.

[06/2022 – 08/2022]

Consultant

United Nations University (UNU-MERIT)

Worked as natural language processing and machine learning expert. Analysis of a large database of online job offers.

[11/2021 – 05/2022]

Data scientist

Complexity Science Hub Vienna

Working on reputation algorithms for collaborative systems and network science.

[19/08/2021 – 14/10/2021]

Consultant

International Labour Organization (ILO)

Worked as natural language processing and machine learning expert.

EDUCATION AND TRAINING

[31/10/2020 – Current]

PhD in Physics

Dipartimento di Fisica, Sapienza Università di Roma

[14/02/2021 – Current]

Postgraduate School

Sapienza School for Advanced Studies

[30/09/2020 – 09/2021]

Postgraduate School in Artificial Intelligence

Institute of Cognitive Sciences and Technologies

[30/09/2018 – 19/07/2020]

Master's Degree in Theoretical Physics

Dipartimento di Fisica, Sapienza Università di Roma

Final grade: 110/110 cum laude

[30/09/2015 – 19/09/2018]

Bachelor Degree in Physics

Dipartimento di Fisica, Sapienza Università di Roma

Final grade: 110/110 cum laude

[10/09/2010 – 09/06/2015] **High School Diploma**

LSS Tullio Levi Civita

Final grade: 100/100 cum laude

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 **READING** C2 **WRITING** C1

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** C1

DIGITAL SKILLS

Microsoft Office

Operating Systems
Linux | Windows

Programming Languages
C | Python | Matlab | LaTeX

Machine Learning and Deep Learning
Tensorflow | Keras | Scikit-Learn

Data Science
Pandas | Numpy | Networkx | Natural Languages Proccessing

PUBLICATIONS

[2022] **Effect of spatial correlations on Hopfield Neural Network and Dense Associative Memories**

Reference: Physica A: Statistical Mechanics and its Applications 612, 128487

[2022] **Filter Bubble effect in the multistate voter model**

Reference: Chaos 32, 043103 (2022)

[2022] **Quantifying the Unexpected: a scientific approach to Black Swans**

Reference: Physical Review Research 4 (3), 033079

[2022] **Modeling innovation in the cryptocurrency ecosystem**

Reference: Scientific Reports 12 (1), 12942

[2022] **The emergence of a concept in shallow neural networks**

Reference: Neural Networks 148, 232-253

[2021] **Dynamical approach to Zipf's law**

Reference: Physical Review Research 3.1 (2021): 013084.

[2021] **Zipf's law for cosmic structures: How large are the greatest structures in the universe?**

Reference: Astronomy & Astrophysics 651 (2021): A114.

[2020] **Tolerance versus synaptic noise in dense associative memories**

Reference: The European Physical Journal Plus 135.11 (2020): 1-22.

[2020] **Emergence of polarization in a voter model with personalized information**

Reference: Physical Review Research 2.4 (2020): 043117.

CONFERENCES AND SEMINARS

[08/11/2022 – 10/11/2022] **Conference on Complex Networks and their Applications** Palermo, Italy

Parallel Talk

Quantifying complexity and similarity of chess openings using online chess communities data

[17/10/2022 – 21/10/2022] **Conference on Complex Systems** Palma de Mallorca, Spain

Parallel Talks

Quantifying the Unexpected: a scientific approach to Black Swans

Filter Bubble effect in opinion dynamics models

[20/06/2022 – 22/06/2022] **II Convegno della Società Italiana di Fisica Statistica** Parma, Italy

Poster

Quantifying the Unexpected: a Scientific Approach to Black Swans

[02/11/2021 – 02/11/2021] **Blockchain and Cryptocurrency Complexity** Centro Ricerche Enrico Fermi, Roma, Italy

Talk

Modelling Innovation in the Cryptocurrency Market

[22/06/2021 – 24/06/2021] **I Convegno della Società Italiana di Fisica Statistica** Online Event

Lightning Talk

Dynamical approach to Zipf's law

[02/02/2021 – 02/02/2021] **Scienza e Impresa Digitale** Centro Ricerche Enrico Fermi, Roma, Italy

Talk

Quantifying the Unexpected: a Scientific Approach to Black Swans

PROJECTS

[Current] **Economic Complexity Analysis of Export Prices- ECOMAXP**

Institution: European Commission

Budget: 100,000€

Role: Junior Researcher

[Current] **Language Economics Research Grant**

Institution: Imminent

Budget: 20,000€

Role: Researcher

Cocktail Network Project

Institution: Complexity Science Hub Vienna

Budget: 2,000€

Role: Principal Investigator

HONOURS AND AWARDS

[2018] **Degree-award Awarding institution:** Laziodisco

Bachelor Degree

[2015] **Italian Physics Olympiad Awarding institution:** AIF

National competition

Mention of honor (Bronze Medal)

[2015] **Italian Natural Science Olympiad Awarding institution:** ANISN

National Competition

Seventh Place

STUDENTS

[2021 – 2022] **Giulio Iannelli**

Master degree thesis

Title: Opinion Polarization in the Multistate Voter Model with recommendation algorithms

Role: External Supervisor

[2021 – 2022] **Francesco Pandolfelli**

Master degree thesis

Title: The Complex Ecosystem of Cryptocurrencies

Role: External Supervisor

[2021 – 2022] **Alessandro Bellina**

Master degree thesis

Title: Ergodicty and Consensus in simple Recommender Models

Role: External Supervisor

REFEREE ACTIVITY

[2023 – Current] **Qeios**

[2022 – Current] **Scientific Reports**

[2021 – Current] **Physica A: Statistical Mechanics and its Applications**

[2021 – Current] **The European Physical Journal B**

SCHOLARSHIPS AND GRANTS

[2020 – Current] **University Scholarship**

Sapienza School for Advanced Studies

Free Acomodation

[2022] **Ermenegildo Zegna Founder's Research Grant**

Fondazione Zegna

5000€

[2016 – 2020] **University Scholarship**

Laziodisu/Laziodisco

8000€

[2017 – 2019] **University Working Scholarship**

Library of the Physics Department, La Sapienza university

2000€

Ai fini della pubblicazione. F.to Giordano De Marzo

Roma, 23/02/2023