

MIGUEL ÁNGEL GONZÁLEZ CASADO

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ACADEMIC BACKGROUND

PhD Program in Mathematical Engineering

September 2022 – In development

Universidad Carlos III de Madrid - GISC (Cross-Disciplinary Complex Systems Group)

Madrid, España

- **PhD Supervisor:** Anxo Sánchez
- **Title:** Structure and Dynamics of Personal Relationship Networks
- Partially funded within the Project "Strategic Action in Behavior and Social Complexity" (UC3M)

Master's Degree in Physics of Complex Systems

October 2021 – June 2022

IFISC (Institute for Cross-Disciplinary Physics and Complex Systems), UIB - CSIC

Palma de Mallorca, España

- Recipient of the fellowship awarded by the IFISC (from the María de Maeztu Unit of Excellence, Spanish Research Agency) to pursue the Master's Degree
- 4 Distinctions / Average Mark: 9.52
- **Fields of Specialization:** Network Theory, Stochastic Calculus and Stochastic Simulation Methods, Statistical Physics, Social and Sociotechnical Systems and Econophysics

Bachelor's degree in Physics, Theoretical Physics Specialty

2016 – 2021

Universidad Autónoma de Madrid

Madrid, España – Barcelona, España

- 2 Distinctions / Average Mark: 8.43
- SICUE (Exchange program between Spanish universities) in the Universitat Autònoma de Barcelona
- **Specialty Courses:** High Energy Physics, General Relativity and Cosmology, Quantum Field Theory, Advanced Mathematics and Fluid Dynamics

Scientific High School: Honorific Mention / Excellence Grant given by the Autonomous Community of Madrid

RESEARCH PROJECTS

PhD Thesis: Structure and Dynamics of Personal Relationship Networks

In development

Supervisor: Anxo Sánchez (GISC-UC3M)

- Both from a modeling perspective (by means of using agent-based models and simulations) and from an experimental perspective (combining experiments with real humans and data analysis), the purpose is to understand the basic mechanisms leading to the formation and the temporal evolution of our basic social structure

Master's Thesis: Coevolution in Coordination Games

2022

Supervisors: Maxi San Miguel (IFISC-UIB)/Anxo Sánchez (GISC-UC3M)

- Within the framework of Evolutionary Game Theory, study of the conditions involving the formation of groups of coordinated individuals and the emergence of segregation in time evolving social networks


Network Analysis Project: The American Corporate Elite

2022


- Analysis of the structure and dynamics of the network constituted by the directors of the 625 largest US corporations

Fellowship: The socioeconomic status in the UK from linguistic variation in Twitter  2021
Supervisors: David Sánchez/José J. Ramasco (IFISC)

- Fellowship award under the SURF research program (IFISC): Big data analysis of geolocated tweets to study correlations between language usage's geographic distribution and the socioeconomic status of speakers

Experimental Thesis: Statistical Analysis of the W Boson (ATLAS experiment)  2020 - 2021
Supervisors: Claudia Glasman/Juan Terrón (ATLAS experiment in the LHC/CERN)

- Statistical analysis of $W \rightarrow e\nu$ decays and measurement of the properties of the W Boson using ATLAS data

Theoretical Thesis: General Relativity and non-linear Gravity Theories  2020 - 2021
Supervisors: Tomás Ortín/Ángel Murcia (IFT (UAM - CSIC))

COMPLEMENTARY SKILLS

Python/C++ for Computational Physics

- Monte Carlo Methods
- Many-Body and Agent-Based Simulations
- Intensive Computing

Analytical and Numerical Mathematical Skills

- Stochastic and Deterministic ODEs/PDEs
- Algebra and Network Theory
- Tensor Calculus and Group Theory

Pandas for large scale data analysis

L^AT_EX for document edition


Scientific Presentation and Data Visualization (Specialty course within the Master's Degree)

ENGLISH C1 - Certificate in Advanced English, certified by Cambridge Assessment English

JOB EXPERIENCE


Clarity AI

Trainee at Product Research and Innovation Team, ESG Risk Module

 May 2022 - August 2022

- Revision, correction and improvement of the company's methodology
- **Main tasks:** Python and Pandas support to the team to conduct assessments and simulations, analyze data and visualize results and propose corrections and improvements to the methodology

CONFERENCES AND SEMINARS

Contributed talk: Coevolution of network and actions in coordination games  October 2022
Conference on Complex Systems 2022 (organized by the Complex Systems Society)