

EMMA FRAXANET



Computational Social Sciences, Physics and AI
PhD Candidate at the AI&ML Group @ DTIC UPF (Barcelona)

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EDUCATION

PhD in Information and Communication Technologies

Pompeu Fabra University

 Set 2021 – Ongoing  Barcelona, Spain

- Topic: *Structural Analysis and Applications of Antagonistic Interactions in Online Social Networks*
- Supervisors: Vicenç Gómez (UPF) and David Garcia (Tu Graz, Konstanz University)
- Awarded the PhD DTIC Fellowship with teaching duties
- Teacher Assistant for *Fundamentals of Machine Learning*
- AI Doctoral Academy student

PhD Research Stay


Complexity Science Hub | TU Graz

 Set 2021 – May 2022  Vienna, Austria

- Doctoral researcher at David Garcia's Computational Social Science Lab, as he is the co-supervisor of my PhD Thesis

MSc Intelligent Interactive Systems

Pompeu Fabra University

 Set 2020 – Set 2021  Barcelona, Spain

- Average Grade 9.1/10. Honors in *Machine Learning, Autonomous Systems and Data Driven Social Analytics*
- Master Thesis | *Learning non-linear payoff transformations in multi-agent systems*

Erasmus+ Programme:

Universiteit van Amsterdam & Vrije Universiteit

 Set 2019 – Feb 2020  Amsterdam, The Netherlands

- Modules taken from the Advanced Matter and Energy Physics MSc

BSc Fundamental Physics

University of Barcelona

 Set 2016 – Jun 2020  Barcelona, Spain

- Honors in *Informatics and Electrodynamics*
- Bachelor Thesis | *Few-Body study of the two-component Bose-Hubbard model*

PROJECTS

Check out my website!

emmafrax.github.io

RESEARCH INTERESTS



Computational Social Sciences

Focus on antagonistic interactions, polarization and gender in online social systems



Network Science

Signed networks, temporal analysis and community detection



Multi-Agent Reinforcement Learning

PROGRAMMING SKILLS

Python

Fortran

LaTeX

MatLab

R

Social media Data Retrieval (Twitter API, Reddit API, ...)

NLP tools (SpaCy, NLTK, Mallet..) for methodologies such as Topic Modelling

Network manipulation and Visualization (Graph Tools, Networkx, iGraph, GEPHI...)

Interactive survey experiment set up with Otree (Python based) and Prolific

LANGUAGES

Spanish



Catalan



English



TOEFL IBt (112/120) (2020)

EXPERIENCE: INTERNSHIPS, WORKSHOPS AND SUMMER SCHOOLS

Winter Workshop in Complex Systems

UvA, Institute of Advanced Studies

📅 January 2023

📍 Amsterdam, The Netherlands

Complexity-GAINs International Summer School

Complexity Science Hub & Santa Fe Institute

📅 July 2022

📍 Vienna, Austria

Workshop: The Great Resignation

Complexity Science Hub

📅 March 2022

📍 Vienna, Austria

Top Secret Rosies: AI course

IDEAI - UPC

📅 June 2021

📍 Barcelona, Spain

Erasmus+ Programme: Diversity in the Cultures of Physics

University of Manchester, University of Sheffield, Universitat de Barcelona, Universitat Autònoma de Barcelona

📅 2019

📍 Manchester, Sheffield, Barcelona

- Multi location one month Summer School. Workshops and lectures about Physics research environments and Diversity in STEM fields

Summerschool: Modern Physics at All Scales

Leiden Universiteit

📅 2018

📍 Leiden, The Netherlands

- Workshops and lectures in the fields of fundamental physics, biophysics and condensed matter.

Internship: Smart Nano-Bio-Devices Group

Max Planck Institute for Intelligent Systems

📅 2017

📍 Stuttgart, Germany

- Projects | *Nanocomposite based micro-swimmers for degradation and removal of herbicides and microjet and Bacteria propelled microtubes*

CONFERENCES

WebSci 2022 Barcelona (Local organizer & Poster)

SunBelt 2022 (remote) (Accepted talk)

IC2S2 2022 Chicago (Accepted talk)

NetSci 2022 (remote) (Accepted talk)

OUTREACH PROJECTS & MEDIA COVERAGE

Young IT Girls Volunteer

Multimedia and Activities Team

📅 2021 - Ongoing

Organization and editing of the @UnCafèAmbYITG podcast

Opinion articles for MetaData (catalan newspaper)

Author

📅 2022-2023

Contributions

Holiday Papers CSS Lab

Yearly contributions

📅 2022-2023

Live interview for scientific outreach catalan channel @Delbuitaltot

Interview

📅 March 2022

JornadaSTEM: Visibilitzem l'Enginyeria

Organizer

📅 February 2022

Congress organized as an overview of the work of Engineering female researchers in Catalonia.

Pintem la Facultat

Coordinator

📅 2018 - 2019

Organized project in the Physics and Chemistry Faculty of University of Barcelona. Defined as an engaging set of activities for the students and faculty.