

# ELISENDA ORTIZ

## Data Scientist

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[github.com/elisendaortiz](https://github.com/elisendaortiz)

[in](#) Elisenda Ortiz



## WORK EXPERIENCE

### Data Scientist/ Mathematical Modeller

**VesselsValue Ltd**

Jan 2023 – Present, UK

VesselsValue Ltd is a leading supplier of financial and technical data to the maritime and aviation industries. As a Mathematical Modeller, I use statistics and machine learning to conduct research and development of new valuation models. I work closely with commercial staff, software developers and data analysts to design data products that meet the needs of a sophisticated client base. My main responsibilities include:

- Conduct feasibility analysis considering data requirements
- Model design and performance evaluation
- Prototype deliverable products
- Project planning and team alignment
- Maintain internal technical documentation

### Data Science Fellow

**S2DS - Pivigo**

July 2022 – Aug 2022, UK (remote)

In this role, I worked within a small team on developing a data-driven classification algorithm for vessels stoppages for our UK-based client VesselsValue Ltd. Tasks included:

- Creating a data cleaning ML pipeline in a collaborative fashion through the use of git.
- Carrying out exploratory data analysis and feature engineering while growing domain knowledge.
- Developing a Neural network classifier and conducting performance bench-marking.
- Setting actionable goals and adjusting priorities fast to deliver a viable product in 5 weeks.

## MOST PROUD OF



### Awards

Highest grade of Excellent *Cum Laude* for PhD thesis. Won two pre-doctoral scholarships for two separate PhDs.



### Collaboration

Managed successful collaborations with international teams overcoming challenging time-zone differences and boosting remote work culture.



### Project management

Exceptional time administration and communication skills. Enjoy owning the full life-cycle of a project, removing obstacles and meeting objectives.



### Publications: Google scholar

3/6 first author.

## EDUCATION

PhD in Physics of Complex Networks  
**University of Barcelona, Spain, 2022**

PhD in Computer Science\*

**Victoria University, New Zealand, 2017**

\*Voluntary withdrawal

MSc in Advanced Physics  
**University of Barcelona, 2016**

## Course designer - Physics

### Gauss online

May 2021 – July 2022, Philippines (remote)

Gauss online is a virtual academy offering bachelor students of STEM disciplines support in mathematics and physics via video-tutoring. In this role, I lead the design, documentation and content creation of a freshly started Physics division. I became proficient at communicating complex ideas and processes adjusting to a range of levels. I also supervised the accuracy of knowledge transfer at different stages from raw lessons until the final video-product.

## Assistant teacher - Computational Physics

### University of Barcelona

Sep 2018 – June 2019, Barcelona

Provided critical guidance to undergraduate students with zero prior coding experience on how to approach and solve practical coding assignments in Fortran. Also developed a private semi-automated system for faster marking.

## TECHNICAL SKILLS

### Programming languages

- Python (advanced)
- Fortran (advanced)
- C++ (basic)
- Bash (basic)
- SQL (ongoing)

### Data handling

Pandas, Numpy, Scikit-learn, Scipy, Networkx, Sympy, Matplotlib, Seaborn, Jupyter.

### Machine learning

EDA, data visualization, regression, classification (logistic, random forest, SVM, Naive Bayes), clustering, neural networks, social networks, embedding, topic modeling, Agent Based simulations.

### Mathematics

statistical analysis, probability, stochastic processes, non-linear dynamics, graph theory.

### Software & tools

Git, ssh, virtual environments, cluster computing, Linux.

## STRENGTHS

Resourceful   Creative   Hard-working  
Eye for detail   Proactive   Confident

## LANGUAGES

English ● ● ● ● ●

Spanish ● ● ● ● ●

Catalan ● ● ● ● ●

Japanese ● ● ● ● ●

Tagalog ● ● ● ● ●

## HOBBIES

Tropical plants   Aviation   Kitesurfing  
Sailing   Motorcycle roadtrips   Sunsets  
Traveling

# Elisenda Ortiz

PHD IN PHYSICS · COMPLEX NETWORKS

University of Barcelona, Department of Condensed Matter Physics & UBICS

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## Education

### PhD in Physics

UNIVERSITY OF BARCELONA

Spain

May 2017 - Jan 2022

Thesis: *Mapping complexity through network geometry: from structure to dynamics of real-world networks*

Advisor: Prof. M.Ángeles Serrano

Grade: Excellent Cum Laude

### PhD in Computer Science\*

VICTORIA UNIVERSITY OF WELLINGTON

New Zealand

2016 - 2017

Thesis: *The emergence of barter: a complex systems study*

Advisors: Dr. Marcus Frean and Prof. Stephen Marsland

\*Voluntary withdrawal

### Master in Advanced Physics

UNIVERSITY OF BARCELONA

Spain

2014 - 2016

Specialization in computational methods and statistical physics.

Thesis: *Navigability of the Internet as a time-varying complex network*

Advisor: Prof. M.Ángeles Serrano

Grade: 8.7/10

### Bachelor of Physics

UNIVERSITY OF BARCELONA

Spain

2009 - 2014

Thesis: *Disorder-induced critical phenomena in the 2D random-field Ising model*

Advisor: Prof. Carmen Miguel

Grade: 10/10

## Professional Experience

- 2023 -Now **Data Scientist/ Mathematical modeller**, VesselsValue Ltd., UK
- 2022-2022 **Data Scientist**, S2SD - Pivigo, UK (remote)
- 2021-2022 **Course Designer: Physics**, Gauss Online, Philippines (remote)
- 2018-2019 **Graduate Teaching assistant**, University of Barcelona, Spain
- 2018-2019 **Research Collaboration: Complexity72h**, Scuola IMT Alti Studi Lucca, Italy
- 2016-2018 **Research Collaboration: Topic modeling**, Victoria University of Wellington, New Zealand
- 2016-2016 **Research assistant**, Dept. of Fundamental Physics, University of Barcelona, Spain
- 2014-2016 **Secretary & outreach coordinator**, Institute of Cosmos Sciences, University of Barcelona, Spain

## Awards, Fellowships, & Grants

- 2022 **PhD Thesis Excellent Cum Laude**, University of Barcelona
- 2020 **Tuition scholarship\***, SCSS, Santa Fe Institute USA, \*Unrealized due to COVID19
- 2020 **Mobility grant**, *Ajuts de mobilitat al personal investigador UB*, University of Barcelona
- 2019 **PhD Scholarship**., APIF, University of Barcelona
- 2018 **Project grant**, *Mapping Big Data Systems* (Predoctoral co-investigator), Fundación BBVA
- 2016 **PhD Scholarship**, Te Pūnaha Matatini Reserach Center, New Zealand
- 2014 **Honors - Graduate thesis**, University of Barcelona

## Teaching Experience

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2021 - 2022	<b>Mechanics: Advanced</b> , Curriculum designer	Gauss Online
2021 - 2022	<b>Mechanics: Fundamentals</b> , Curriculum designer	Gauss Online
2018 - 2019	<b>Computational Physics</b> , Teaching Assistant	University of Barcelona

## Committees & Panels

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2018-2022	<b>PhD candidates committee</b> , University of Barcelona Institute of Complex Systems (UBICS)	Spain
2017	<b>Organizing committee Macfang conference</b> , University of Barcelona	Spain
2016-2017	<b>Te Pūnaha Matatini Whānau committee</b> , Victoria University of Wellington	New Zealand

## Publications

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### PUBLISHED

- E. Ortiz**, M.Á. Serrano, *Multiscale voter model on real networks*, Chaos, Solitons & Fractals, 165, 112847s (2021).
- E. Ortiz**, G. García-Pérez, M.Á. Serrano, *Geometric detection of hierarchical backbones in real networks*, Physical Review Research, 2, 033519 (2020).
- M. Starnini, **E. Ortiz**, M.Á. Serrano *Geometric randomization of real networks with prescribed degree sequence*, New Journal of Physics, 21, 053039 (2019).
- B. Curran, K. Higham, **E. Ortiz**, D. Vasques, *Look who's talking: bipartite networks as representations of a topic model of New Zealand parliamentary speeches*, PLOS ONE, doi.10.1371 (2018).
- E. Ortiz**, M. Starnini, M.Á. Serrano, *Navigability of temporal networks in hyperbolic space*, Scientific Reports, 7, 15054 (2017).

### PREPRINTS

- S. Chakraborty, X.R. Hoffmann, M.G. Leguía, F. Nolet, **E. Ortiz**, O. Prunas, L. Zavojanni, E. Valdano, C. Poletto, *Dynamics of new strain emergence on a temporal network*, arXiv:1805.04343 [physics.soc-ph] (2018).

## Courses & Schools

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- Feb 2021. *Minicurs d'Introducció a la intel·ligència artificial*, UBICS (online), Barcelona.
- Dec 2019. *Tutorial: Wikimedia public (Research) Resources*, Lisbon, Portugal.
- Jan 2019. *Fractals and Scaling*, Santa Fe Institute (online) USA.
- Oct 2018. *Entrepreneurship course*, Institute for professional development (ICE), Barcelona.
- May 2018. *Workshop: Complexity72h*, Lucca, Italy.
- April 2018. *Workshop: Membrane Computing*, University of Barcelona, Barcelona.
- Dec 2016. *Workshop: Computation skills with Python*, Te Punaha Matatini Hui, Wellington, New Zealand.
- Aug 2016. *Te Punaha Matatini Boot-Camp*, Leigh, New Zealand.

## Talks & Conferences

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- Dec 2021. Complex Networks 2021, (online), Madrid.  
**Talk:** Multiscale opinion dynamics on real networks.
- Oct 2021. SICC Talks on Complexity, 16th SICC International Tutorial Workshop: Topics in nonlinear dynamics (online), Italy.
- Jun 2021. Opinion Dynamics on Sheaves, BGSMath Colloquium (online), Barcelona.
- Dec 2019. Complex Networks and their Applications, Lisbon, Portugal  
**Talk:** Geometric randomization of real-world networks.

Sep 2019. Physics Challenges for Machine Learning and Network Science, Queen Mary University of London, UK.

**Poster.**

Mar 2019. CompleNet 2019, Tarragona, Spain.

**Talk:** Geometric randomization of real networks with prescribed degree sequence.

Jun 2018. UBICS day, Barcelona, Spain.

Jun 2018. NetSci 2018, Paris, France.

**Talk:** The navigability of temporal networks in hyperbolic space.

May 2018. Jornades Complexitat, Barcelona, Spain.

**Poster**

Nov 2017. Macfang: Mapping Complexity Foundations and Applications of Network Geometry, Barcelona, Spain.

**Talk:** Navigating temporal networks in hyperbolic space.

Jun 2017. UBICS Founding Symposium, Barcelona, Spain.

**Poster**

May 2017. Jornades Complexitat, Castelldefels, Spain.

**Poster**

Dec 2016. Te Punaha Matatini Hui, Wellington, New Zealand.

**Talk:** Decentralised bilateral exchange in economic complex networks.

Nov 2016. Complex Economic & Social Systems Theme meeting, Auckland, New Zealand.