

MATHEMATICIAN · DATA SCIENTIST

Portuguese nationality, born 04/07/1996

□ (+351) 918371697 | ■ antonio.leitao@centai.eu | 🏕 antonio-leitao.netlify.com | 🖸 Antonio-Leitao

EDUCATION _

M.Sc. in Data Science and Advanced Analytics

Lisbon, Portugal

NOVA University Lisbon (Information Management School)

Sep. 2018 - Dec 2021

- Thesis: Topological Expressiveness of Neural Networks. Grade: 20/20
- · Supervisor: Dr. Giovanni Petri

Erasmus Studies Program

Göttingen, Germany

GEORG-AUGUST UNIVERSITÄT

Mar. 2017 - Jul. 2017

Full scholarship awarded for a 6-months study period at Göttingen University

B.Sc. in Mathematics

Lisbon, Portugal

NOVA University Lisbon

Sep. 2014 - Aug. 2018

International Baccalaureate Diploma Programme

Lisbon, Portugal

Colégio Planalto

Sep. 2011 - May. 2014

Publications ____

Giovanni Petri and António Leitão, "On the Topological Expressive Power of

Online

2020 Neural Networks" In: NeurIPS 2020 Workshop on Topological Data Analysis and

Beyond, https://openreview.net/forum?id=I44kJPuvqPD

António Leitão and Giovanni Petri, "On the Topological Complexity of Decision Boundaries" In: *50th Scientific Meeting of the Italian Statistical Society*, pp. 588-594

Pisa, Italy

REVIEW WORK

2020

PROCEEDINGS OF THE ROYAL SOCIETY A: MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES Junior Reviewer

TEACHING ____

Masters' of Data Science and Advanced Analytics

Lisbon, Portugal

NOVA University of Lisbon (Information Management School)

Sep. 2019 - Feb. 2020

 Invited teaching assistant of Data Visualization. The expected student outcome was the creation of online interactive dashboards for efficient visualization of high volumes of data.

EXPERIENCE _____

CENTAI Turin, Italy

JUNIOR RESEARCHER

Jun. 2022 -

- Collaborator at the CETI project, global research initiative alongside Harvard, MIT, Oxford, Imperial, to decipher, through information theory, sperm-whale speech in particular and alien communication in general.
- Continued work in Topological Data Analysis and Neural Networks.

ISI Foundation Turin, Italy

JUNIOR RESEARCHER

Oct. 2021 - Jun. 2022

- Collaborator at the CETI project, global research initiative alongside Harvard, MIT, Oxford, Imperial, to decipher, through information theory, sperm-whale speech in particular and alien communication in general.
- Continued work in Topological Data Analysis and Neural Networks.

Feedzai Lisbon, Portugal

RESEARCH INTERN

Jun. 2021 - Oct. 2021

 Responsible for the research project "EMO": creating machine learning methods for detecting money laundering entities in transaction datasets. **ISI Foundation** Turin, Italy

RESEARCH INTERN Feb. 2020 - Jun. 2020

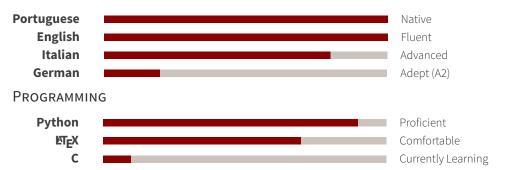
• Full scholarship awarded to intern at the research group of Topological Data Analysis. (collective initiatives halted due

· Responsible for the research project "Topology of Learning": initiative to understand Neural Networks through Algebraic Topology, under the supervision of Dr. Giovanni Petri, since Feb. 2019.

HONORS & AWARDS

2021	5th Place , ICLR Computational Geometry & Topology Challenge 2021	Online
2020	2nd Place , Nokathon 2020: Nokia's international machine learning competition	Online
2019	1st Place , Nokathon 2019: Nokia's international machine learning competition	Lisbon, Portugal
2019	Scholarship , Erasmus scholarship to pursue an internship in ISI Foundation and	Turin, Italy
	the University of Turin	
2018	Scholarship , Winner of a fully funded scholarship to participate in a 10-day	Delft, Netherlands
	workshop on Geographical Information Systems (GIS) in Delft University.	
2016	Scholarship , Merit scholarship to fund a 6 months erasmus study period at	Göttingen, Germany
	Georg-August Universität in Göttingen, Germany.	

LANGUAGES.



O DBSampler: Library to sample decision boundaries.

- · Library containing a method to sample decision boundaries of classification problems (binary and multiclass).
- Points are uniformly sampled from the edges of the Condensed Voronoi Diagram.
- · Is theoretically exact (proof of convergence) and fast even in high dimensions. Also available in PyPI.

O UDiPH: Uniform Distributed Persistent Homology.

PYTHON

- Python package to create homeomorphism invariant simplicial filtrations.
- · Also available in PyPI.

EXTRACURRICULAR ACTIVITY_

SPORTS

Volleyball Lisbon, Portugal 20014 - 2019 **AEFT**

- Played volleyball for the university team AEFCT in the national university championship.
- Awarded best player of the university in the first year. In charge of player scouting for the subsequent years.

SPORT LISBOA E BENFICA (S.L.B.)

2006 - 2014

- · Played volleyball for Sport Lisboa e Benfica, winning most regional championships and consistently achieving good ranking in the national championship.
- Briefly participated in the Portuguese National Volleyball team (under-18).

Music

STUDENT

Conservatory of Lisbon

Lisbon, Portugal

2008 - 2014

· Studied piano, musical theory and jazz. Achieved grade 5 on piano.

OTHER PROJECTS Ongoing

- Self-taught in guitar and bass guitar. Currently learning the drums.Still involved in multiple amateur rock bands, some of which haven't failed yet.