António Leitão

Mathematician · Data Scientist

Portuguese nationality, born 04/07/1996

 (+351) 918371697 | aleitao@novaims.unl.pt | antonio-leitao.netlify.com

Education

M.Sc. in Data Science and Advanced Analytics
Lisbon, Portugal

NOVA University Lisbon (Information Management School)
Sep. 2018 - Ongoing

- Thesis: Topological Expressiveness of Neural Networks
- 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

2020	**Giovanni Petri and António Leitão**, "On the Topological Expressive Power of Neural Networks" In: *NeurIPS 2020 Workshop on Topological Data Analysis and Beyond*, `https://openreview.net/forum?id=I44kJPuvqPD`	*Online*
2020	**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*

Teaching

Masters' of Data Science and Advanced Analytics
Lisbon, Portugal

NOVA University of Lisbon (Information Management School)
Sep. 2019 - Feb. 2020

- Taught practical classes of Data Visualization. The expected student outcome was the creation of online interactive dashboards for efficient visualization of high volumes of data.

Experience

ISI Foundation
Turin, Italy

Research In Topological Data Analysis
Feb. 2020 - Ongoing

- Full scholarship awarded (by Nova University) to intern at the research group of Topological Data Analysis. (collective initiatives halted due to Covid-19.)
- Research on "Topology of Learning": initiative to understand Neural Networks through Algebraic Topology, under the supervision of Dr. Giovanni Petri, since Feb. 2019.

Ageas Seguros
Lisbon, Portugal

Pricing Intern
Feb. 2017 - Mar. 2017

- Internship working on an actuarial group for non-life insurance pricing.

Honors & Awards

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 the University of Turin	*Turin, Italy*
2018	**Scholarship**, Winner of a fully funded scholarship to participate in a 10-day workshop on Geographical Information Systems (GIS) in Delft University.	*Delft, Netherlands*
2016	**Scholarship**, Merit scholarship to fund a 6 months erasmus study period at Georg-August Universität in Göttingen, Germany.	*Göttingen, Germany*

LANGUAGES

Portuguese	████████████████████	Native
English	████████████████████	Fluent
Italian	████████████████░░░░	Advanced
German	████░░░░░░░░░░░░░░░░	Adept (A2)

PROGRAMMING

Python	██████████████████░░	Proficient
LaTeX	██████████████░░░░░░	Comfortable
C	███░░░░░░░░░░░░░░░░░	Currently Learning

⌗ DBSampler: Library to sample decision boundaries.

PYTHON

- 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.

EXTRACURRICULAR ACTIVITY

SPORTS

Volleyball
Lisbon, Portugal

AEFT
20014 - 2019

- 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

Conservatory of Lisbon
Lisbon, Portugal

STUDENT
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.

VOLUNTEERING

João Paulo II center for the disabled.
Fátima, Portugal

VOLUNTEER

- Volunteer work in the center for disabled in Fátima, Portugal for several weeks over a period of 3 years

Santa Casa da Misericórdia.
Azores, Portugal

VOLUNTEER
July 2015

- Volunteer work on a geriatric center in Azores, Portugal for several weeks.