Federico Lamagna

fedelamagna.github.io

Buenos Aires, Argentina
PhD
UBA & Instituto Balseiro

fedelamagna@gmail.com
federico.lamagna@ib.edu.ar
linkedin.com/in/federico-lamagna

Education

•Universidad de Buenos Aires *2011-2016*
Physics (Licentiate Degree)

•Instituto Balseiro *2017-2022*
PhD in Physics Field of Study: Particle Physics - Beyond the Standard Model

•ICAS, Universidad de San Martín *2019-2020*
Academic Stay Field of Study: Particle Physics - Applied Machine Learning

Experience

•Universidad de Buenos Aires Physics Department *2016*
Undergraduate Teaching Assistant

- Quantum Mechanics (1st Semester)
- Statistical Mechanics (2nd Semester)

•IArxiv: Intelligent Arxiv *2019-2020*
Data Scientist - Machine Learning Engineer iarxiv.org

- Together with ICAS fellows, creating website for scientific article recommendation system.
- Trained topic models with arxiv.org preprint database. Work involved NLP libraries in Python, SQL for web backend.

•Georeferencing and Predicting COVID-19 Outbreaks *2020-2021*
Data Scientist - Machine Learning Engineer Buenos Aires

- Contractor for provincial and municipal governments, worked with a team of ICAS fellows in modelling covid-19 outbreaks from calls to health lines, creating real time maps that allowed for monitoring of pandemic.
- Work involved georeferencing street names with google maps API, different Machine Learning tools taken into consideration for modelling, map making tools, Uber's Hexagonal Hierarchical Index (H3) Library. Most of the work done in Python, along with bash scripting inside servers.

•Population Studies for Government Agencies *2021*
Data Scientist - Machine Learning Engineer Buenos Aires

- Contractor for provincial governments, doing statistical modelling involving population parameters in Buenos Aires.
- Work involved Bayesian models of populations, along with choropleth map visualizations.

•Artificial Intelligence for Executive Leaders *2021*
Teaching Assistant JPMorgan Latin America

- Training course for JPMorgan executives, given by members of ICAS-UNSAM.
- Courses aimed at showcasing the main algorithms in Machine Learning without relying heavily on math or coding. Ideas and concepts were presented instead, along with different playgrounds for examples of use.

•Artificial Intelligence for Executive Leaders *2022*
Teaching Assistant Argentina

- Course modelled after the JPM one, adapted for workers of different Argentine government agencies.

Technical Skills and Interests

- **Programming Languages**:
  Python (Advanced)
  C/C++ (Intermediate)
  SQL (Beginner)
- **Other Software and Tools**:
  LaTeX
  Wolfram Mathematica
- **Languages**:
  Spanish (Native)
  English (Proficient)
  Italian (Elementary)
- **Areas of Interest**:
  Data Science
  Machine Learning, Natural Language Processing, Geovisualization, Image Recognition
  Probabilistic Modelling

Scientific Work

•Publications *2016-2022*

A list of articles in journals

- E. Calzetta, F.L., "A Functional renormalization method for wave propagation in random media", *arxiv.org/abs/1612.03845*, Journal of Physics A: Mathematical and Theoretical, Volume 50, Number 31.
- L. Da Rold, F.L., "Composite Higgs and leptoquarks from a simple group", *arxiv.org/abs/1812.08678*, Journal of High Energy Physics
- L. Da Rold, F.L., "A vector leptoquark for the B-physics anomalies from a composite GUT", *arxiv.org/abs/1906.11666*, Journal of High Energy Physics
- E. Alvarez, F.L., M. Szewc, "Topic Model for four-top at the LHC", *arxiv.org/abs/1911.09699*, Journal of High Energy Physics
- E. Alvarez, F.L., C. Miquel, M. Szewc, "Intelligent Arxiv: Sort daily papers by learning users topics preference", *arxiv.org/abs/2002.02460*
- E. Alvarez, F.L., M. Szewc, "A Machine Learning alternative to placebo-controlled clinical trials upon new diseases: A primer", *arxiv.org/abs/2003.12454*
- E. Alvarez, L. Da Rold, F.L., M. Szewc, "Containing COVID-19 outbreaks using a Firewall" *arxiv.org/abs/2008.12636*
- E. Alvarez, B. Dillon, D. Faroughy, J. Kamenik, F.L., M. Szewc, "Bayesian Probabilistic Modelling for Four-Tops at the LHC", *arxiv.org/abs/2107.00668* , Physical Review D
- L. Da Rold, F.L., "A model for the Singlet-Triplet Leptoquarks", *arxiv.org/abs/2011.10061*, Physical Review D
- L. Da Rold, F.L., "A composite Froggatt-Nielsen model of flavor", *arxiv.org/abs/2112.14600*, Physical Review D

•Participation in Scientific Workshops *2016-2022*

A list of schools, workshops and talks

- "Escuela Balseiro 2017", *October 2017, Bariloche*
- "It From Qubit 2018", *January 2018, Bariloche*
- "First Joint ICTP-Trieste/ICTP-SAIFR School on Particle Physics", *June 18-29, 2018, São Paulo, Brazil*
- "PH-Institute II", *October 22 - 26, 2018, ICAS, Buenos Aires*,
  Talk: "Composite Higgs and Leptoquarks" - *indico.cern.ch/event/748823/*
- "CLASHEP 2019", *March 13-26, 2019, Villa General Belgrano*
- "ICTP Summer School on Particle Physics", *June 10-21 2019, Trieste, Italy*
- "PH-Institute III", *October 14-18, 2019, ICAS, Buenos Aires*,
  Talk: "4-tops at the LHC" - *indico.cern.ch/event/854460/*
- "Río de la Plata Ph-Exp Institute", *March 10-11, 2020, IFLP, La Plata*,
  Talk: "An overview of the B-anomalies and of their solutions with Leptoquarks" - *indico.cern.ch/event/890816/*