Héctor Ramírez

Data Scientist | PhD in Physics

Brief résumé: I recently earned my PhD in Physics where I specialized in experimental data analysis and mathematical modeling. I led several short and long-term projects in collaboration with colleagues from several institutions in different countries. The results of which I have presented as a speaker in multiple international seminars and conferences. Moreover, I keep continuously extending my computer skills with numerous courses on **Data Engineering**, **Data Science** and **Machine Learning**. To mention some skills: Supervised and Unsupervised Learning with scikit-learn; Deep Learning with Keras, TensorFlow and PyTorch; NLP with NLTK and spaCy; SQL; PySpark, AWS; Tableau; etc.

Contact	📱 (+34)693012381 ✉ vanhramirez@gmail.com 🏠 DS portfolio 🔗 harr 🔗 hectoramirez
Current residence	Valencia, Spain. [Willing to relocate worldwide]
Birth and Nationality	May 20th, 1990 — Mexican. [With Spanish work permit]

Education

PhD in Physics 2015-2019	**University of Valencia**, Spain. Dissertation: *'Noncanonical Approaches to Inflation'*
MA in Advanced Physics 2013-2014	**University of Valencia**, Spain. Dissertation: *'The Hu-Sawicki Model of Modified Gravity'*
BA in Physics 2008-2013	**University of Veracruz**, Mexico. Dissertation: *'Quantum Chaos in the Dicke Model'*
2012	**University of Valencia** (Academic exchange semester), Spain.

Additional training

I have been continuously learning **Data Engineering**, **Data Science** and **Machine Learning** techniques following the course plan by DataCamp, where I have completed more than 50 courses, some of which make up the following main tracks:

Data Scientist 2019	**DataCamp** – Certificate 100-hour track on statistical and machine learning techniques to analyze and interpret complex data.
Data Analyst 2019	**DataCamp** – Certificate 60-hour track on data visualization and manipulation techniques to uncover insights and help organizations make better decisions.
Machine Learning Fundamentals 2019	**DataCamp** – Certificate 20-hour track on the fundamental concepts in Machine Learning.

Skills

Computer

Languages	Python, SQL, R, Mathematica.
Data Engineering	Scrapy, Beautiful Soup, Apache Airflow, Amazon Web Services (EC2, S3, Boto3).
Data Analysis	PostgreSQL, Spreadsheets, Tableau, NumPy, pandas.
Machine Learning	scikit-learn, PySpark, Keras, TensorFlow, PyTorch, XGBoost, NLTK, spaCy.
Visualization	Matplotlib, Seaborn, Bokeh, Plotly.
Web	Streamlit, HTML, CSS.
Other	Git, Jupyter Notebook, Docker, LaTeX.

Soft skills

Communication	Public speaking, persuasion, writing skills.
Leadership	Project management, supervising, mentoring.
Critical Thinking	Creativity, logical thinking, problem solving, research, organization.
Teamwork	Collaboration, interpersonal skills, networking, social skills, team building.

Languages

Spanish: Native; **English**: Fluent; **French**: B2 level. I have also taken **German** and **Italian** courses.

Professional Experience

New Work SE XING Sep 2020 -	**Junior Big Data Analyst**
Acracy Jan 2020 -	**Technology Consultant** • Creation of SQL and NoSQL databases from scratch using AWS. • Main software developement using Python.
IFIC CSIC / U. of Valencia Jan 2015 - May 2019	**Researcher** • Fundamental research on primordial Cosmology. • Data analyses, statistical and mathematical modeling using `Python` and `Mathematica`. • Short- and long-term projects with international collaborators.

International projects

I have done research placements in the UK, Japan, Italy and in the Fermilab National Laboratory (USA), where I led short- and long-term collaborative projects and presented results as international speaker.

Apr - Jun, 2018	**Institute of Cosmology and Gravitation (ICG), University of Portsmouth** Portsmouth, UK.
Jan - Mar, 2018	**Kavli Institute for the Physics and Mathematics of the Universe (IPMU), The University of Tokyo**
May - Aug, 2017	**Fermi National Accelerator Laboratory (Fermilab)** & **Kavli Institute for Cosmological Physics – The University of Chicago**
Apr - Jun, 2015	**Abdus Salam International Center for Theoretical Physics (ICTP)** Trieste, Italy.

Teaching

I have taught undergraduate courses managed by the Department of Theoretical Physics at the University of Valencia during four academic years—about 45 hours in the classroom (groups of around 15 students) + class preparation, per academic year.

Classical Mechanics	**Teaching Assistant** (2017-2019): Resolution of problems, examinations, evaluation of teaching contents and elaboration of teaching material.
Introductory Physics	**Teaching Assistant** (2015-2018): Resolution of problems, occasional lectures, examinations and grading.

Journal referee

I have refereed scientific articles for the journals **Physical Review Letters** and **Physical Review D**, both from the American Physical Society (USA).

Awards and Fellowships

2015 - 2019	**FPI Research fellow** by the *Ministry of Economy, Industry and Competitiveness* (MINECO), Spanish Government.
Jul - Sep, 2014	**Research scholarship** granted by the University of Valencia
Jan - Jul, 2012	**Grant for an abroad academic exchange semester** by the University of Veracruz Carried out at the Faculty of Physics, *University of Valencia*.
2009 - 2011	**Faculty award (x2)** due to academic excellence *University of Veracruz*

Publications

Data Science

• *"Language localization: an end-to-end project on data science and FIFA 20"*, Towards Data Science; Jul, 2020.

• *"Twitter JSON data processing"*, Towards Data Science; Jul, 2020.

• *"Your live Covid-19 tracker with Airflow and GitHub Pages"*, Towards Data Science; Apr, 2020.

A total of **8** research articles published either in **Physical Review D** (Astronomy & Astrophysics – Scie.; Physics, Particles & Fields — Scie.) [Impact factor: 4.568] (x5); **Journal of Cosmology and Astroparticle Physics** (Astronomy & Astrophysics – Scie.; Physics, Particles & Fields – Scie.) [Impact factor: 4.734] (x2); **Physics of the Dark Universe** (Astronomy & Astrophysics – Scie.) [Impact factor: 5.4c25] (x1).

My full list of publications can be found in my Inspire page: `http://inspirehep.net/author/profile/H.Ramirez.1`

Talks

Conference talks	**5** talks in Valencia, Paris, Teruel (Spain), Kyoto (Japan) and Portsmouth (UK).
Seminar talks	**13** talks in Valencia (x2), Paris (x2), Tokyo, London, Portsmouth (UK), New York, Chicago, UC Berkeley (USA), Schladming (Austria) and Veracruz (Mexico).

Details about my talks can be found in `https://hectoramirez.github.io/Files/CV/Talks.pdf` .

Academic References

Dr. Olga Mena Requejo
Consejo Superior de Investigaciones Científicas (CSIC/IFIC)
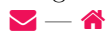✉ — 🏠

Prof. David Wands
University of Portsmouth
✉ — 🏠

Prof. Nick E. Mavromatos
King's College London
✉ — 🏠

Prof. Shinji Tsujikawa
Tokyo University of Science
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