Academic Portfolio

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 Orcid Profile

Summary and conventions

I consider myself an **astrophysicist** and a **data specialist**. The former because I have a strong background in basic research on topics related to heliophysics. The latter due to the experience I have acquired in the technology industry, specifically in data-driven projects. This current professional status was achieved by a series of formation steps, which are summarized in this document into five different sections. Let me describe each of them.

❋ *Education*. Information about my formal education. Descriptions of my research experiences can be found, together with some relevant keywords.

❋ *Publications*. List of articles published on indexed scientific journals or tech magazines.

❋ *Certifications*. List of certifications related to the technology industry. They certified particular skills. You may verify the information given by accesing the highlighted URL.

❋ *Courses*. List of courses taken or taught that have leveraged my career. Only the most relevant courses are included.

❋ *Academic Events*. List of academic events where I had an active participation, either with a short talk or with a poster. Formation schools focused on specialized topics and enterprise events (i.e. non-academic) are also included.

Education

Aug 2015 Sep 2018	**Master in Sciences - Astronomy** *Universidad Nacional de Colombia. Bogotá, Colombia.* Research thesis: *"The Impulsivity of Solar Flares: Concepts and Applications"* Advisor: Benjamín Calvo Mozo. Observatorio Astronómico Nacional, Universidad Nacional de Colombia. Co-advisor: Juan Carlos Martínez Oliveros. Space Sciences Laboratory, UC Berkeley. In my research I proposed an approach to study the kinematics of electrons trapped inside coronal loops after a solar flare occurred. For this I used data from *Reuven Ramaty High Energy Spectroscopic Imager (RHESSI)* and *Nobeyama Radio Polarimeters (NoRP),* which measure HXR and microwaves emissions, respectively. The main result derived from this work was a methodology to detect precipitating or trapped populations of electrons within coronal loops, by developing a combined analyses of both emissions, i.e. HXR and microwaves. (Heliophysics) (Solar Flares) (Satellital Data) (Automatic Pipelines) (IDL-SSW) (HXR) (Microwaves)
Jun 2014 Sep 2014	**Undergraduate Research Experience** *Purdue University. Indiana, United States.* Research project: *"Blazars Spectra: Theoretical and Numerical Modelling"* Advisor: Dimitrios Giannios. Purdue University. Simulate spectra of blazars under the assumption that their main components are generated by two related physical processes. First, relativistic electrons produce synchrotron emission by moving around magnetic field lines. Then, the emitted syncrotron photons are scattered via inverse Compton effect. The expected contributions from both processes are modeled in Python. (AGN) (Blazars) (Numerical Modeling) (High Energy Astrophysics) (Python)
Feb 2009 Mar 2015	**Bachelor in Sciences - Physics** *Universidad Nacional de Colombia. Bogotá, Colombia.* Thesis: *"Definition of an Impulsivity Parameter for Solar Flares: Theoretical and Observational Study"* Advisor: Benjamín Calvo Mozo. Observatorio Astronómico Nacional, Universidad Nacional de Colombia. Co-advisor: Juan Carlos Martínez Oliveros. Space Sciences Laboratory, UC Berkeley. Formal education about the theoretical and experimental foundations of our understanding of the physical world. Since 2011, I joined a research group working on heliophysics called *Group of Solar Astrophysics (GoSA).* In my thesis, I defined a new classification system for solar flares based on how fast these events release their energy. Such concept is what I called *impulsivity of solar flares.* (Theoretical Physics) (Experimental Physics) (Numerical Skills) (Research) (Critical Thinking)
Jan 2003 Dec 2008	**High School** *Colegio Distrital Marsella, Bogotá, Colombia.* I was proudly part of the public education system of my city. Never forget where you come from.

Publications

Jan 2016	*Impulsivity Parameter for Solar Flares.* W.G. Fajardo-Mendieta, J.C. Marínez-Oliveros, J.D. Alvarado-Gómez, and B. Calvo-Mozo. *The Astrophysical Journal,* 818, 56. DOI.
Aug 2012	*Introducción del Índice Temporal de Fulguraciones en Rayos-X Suaves.* W.G. Fajardo-Mendieta, J.D. Alvarado-Gómez and B. Calvo-Mozo. *Memories of ENID 2012.* ISBN (Colombia) 978-958-761-308-7.

CERTIFICATIONS

Jun 2022	*Hadoop Foundations - Level 2.* Composed by the courses Hadoop Programming, Data Access, and Administration. Issued by IBM. Verify HF.
May 2022	*Big Data Foundations - Level 2.* Composed by the courses Hadoop Foundations, Big Data Foundations, and Spark Level 1. Issued by IBM. Verify BDF.
Apr 2022	DP-100. *Azure Data Scientist.* Issued by Microsoft. Verify DP-100.
Feb 2022	*Databricks Developer Foundations.* Issued by Databricks Academy. Databricks Partner Training. Verify DDF.
Jan 2022	AZ-900. *Microsoft Azure Fundamentals.* Issued by Microsoft. Verify AZ-900.
Sep 2021	DS4A. *Data Science for All - Colombia.* Fifth cohort. Graduated with honors. Issued by Correlation One and MinTIC. Verify DS4A.

COURSES

Convention: course as student [AS] or taught course [TC].

Jun 2022	[AS] *Professional course of Git and GitHub.*
Dec 2021	[AS] *Introduction to cloud computing with Azure.*
Dec 2021	[AS] *Administration of Linux servers.*
Dec 2021	[AS] *Introduction to the terminal and command line interface (CLI).*
Dec 2021	[AS] *Foundations of software engineering.* Offered by Platzi.
Apr 2022 May 2022	[AS] *Cloud Hero Challenges - Google Cloud Platform.* Organized by Google Chile. Verify CHC.
Sep 2020	[TC] Training program *Skills to become a Machine Learning Data Scientist.* Organized by Faculty of Sciences, Universidad Nacional de Colombia.
Apr 2020 Jun 2021	[TC] *Workshops about Microsoft Azure.* Organized by IDATA SAS and Microsoft.
Jul 2019	[TC] *Clubs of Science.* Topic: Renewable Energies. Organized by SENA and Colciencias.
Feb 2017 May 2017	[TC] *Astrophysical Objects.* Optative course offered by OAN, Universidad Nacional de Colombia.

Academic Events

Oct 2019 [ST]	COCOA: VI Colombian Congress of Astronomy and Astrophysics. Planetario de Medellín. Medellín, Colombia.
Feb 2018 [NA]	Mobile World Congress 2018. Organized by Global System for Mobile Communications (**GSMA**). Fira Gran Vía, Barcelona, España. Participation as tech provider of the event with MOCA Platform.
Oct 2017 [ST]	COCOA: V Colombian Congress of Astronomy and Astrophysics. Universidad Tecnológica de Pereira. Pereira, Colombia.
Oct 2016 [ST]	IAUS 327. Symposium of the International Astronomical Union (**IAU**): Fine Structure and Dynamics of the Solar Atmosphere. Universidad de Cartagena. Cartagena, Colombia.
Oct 2016 [ST]	LARIM: XV Latin American Regional IAU Meeting. Centro de Convenciones. Cartagena, Colombia.
Jul 2016 [SC, ST]	HSS: X Heliophysics Summer School. Organized by **UCAR** and **NCAR**. Associated to the *Living With a Star* Program of NASA. High Altitude Observatory. Boulder, CO, USA.
Dec 2015 [PP]	American Geophysical Union (AGU) Fall Meeting. Organized by **AGU**. San Francisco, CA, USA.
Sep 2015 [ST]	Series of talks due to the International Year of Light. Organized by Planetario de Bogotá. Bogotá, Colombia.
Jan 2014 [SC, ST]	ESAOBELA: School of Observational Astronomy for Latin American Students. Organized by **INAOE** and **UNAM**. Observatorio Astronómico Nacional. Tonantzintla, Puebla, México.
Nov 2012 [PP]	COCOA: III Colombian Congress of Astronomy and Astrophysics. Universidad Industrial de Santander. Bucaramanga, Colombia.
Aug 2012 [ST]	ENID: National Meeting of Research and Development. Universidad Nacional de Colombia. Bogotá, Colombia.
Jul 2012 [SC, ST]	Summer School: Solar Astrophysics - Modern Trends and Techniques. Organized by Universidad Nacional de Colombia and **SSL, UC Berkeley**. Universidad Nacional de Colombia. Bogotá, Colombia.