



# Favio André Vázquez Prieto

## Curriculum Vitae

### Personal Information

Nationality *Venezuelan*  
Place of Birth *Maracaibo, Zulia, Venezuela*  
Date of Birth *July 11<sup>th</sup>, 1990*

### Academic Formation

- 2015-2017 **M.Sc. in Physics**, *Universidad Nacional Autónoma de México*, Mexico City-Mexico, Supervisor: Dr. Jorge Cervantes-Cota.  
Thesis: Modular Cosmological Parameter Estimation with CosmoSIS.
- 2010-2015 **B.S. Degree in Computational Engineering**, *Universidad Rafael Urdaneta*, Zulia-Venezuela, Supervisor: M.Sc. Jubert Perez.  
Undergraduate thesis: Development of an Algorithm that Implements the Finite Differences Method to Solve the Einstein Equations using the 3 + 1 Formalism of Numerical Relativity. Case study: Initial data for boosted Bowen-York trumpet black holes, with a description of rotating Bowen-York trumpet black holes and binary Bowen-York trumpet black holes.
- 2010-2014 **B.S. Degree in Physics**, *Universidad del Zulia*, Zulia-Venezuela, Supervisor: Dr. José Ramirez.  
Undergraduate Thesis: Determination of the Baryonic Density Parameter  $\Omega_b^{\text{WHIM}}$  in the Warm-Hot Intergalactic Medium of the Cosmic Web Sculptor Wall from a High Resolution X-Ray Spectroscopic Analysis

### Languages

Spanish Native *Excellent speaking and writing*  
English Fluent *Reading: Excellent/Writing: Excellent/Oral Communication: Excellent/Certification: Berlitz Corporation*  
English TOEFL iBT *Writing: 24/30 / Speaking : 24/30 / Reading: 25/30 / Listening: 29/30 / Score:102/120*

Mexico City, Mexico.

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✉ favio.vazquez@correo.nucleares.unam.mx • ✉ favio.vazquezp@gmail.com

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## Professional Experience. 6 years of experience. (2011-2017)

Jul 2017 – Present **Data Scientist**, *BBVA Data & Analytics*, Mexico City, Mexico.

**Working on:**

- Data science and Machine Learning with Apache Spark.
- Code development for several financial projects for the Bank following a Scrum Methodology.
- Data Analysis with Python and R.
- Productionize models with Apache Spark (pyspark, and Scala API).
- Data Engineering for feature extraction and selection.

May 2017 – Present **Chief Data Scientist (CDS)**, *Iron Mussa*, Mexico City, Mexico.

**Working on:**

- Manage Data Science teams and projects.
- Expand Data as Service collaboration with partners in Mexico and other international markets.
- Apply deep learning algorithms to improve understanding of user behavior and content.
- Leverage experience with consulting to define business problems, work with and manipulate data, develop data science and analytical algorithms and solutions, and execute analytical models into production.
- Conduct research and case studies on leading edge technologies to make determinations on the probability of implementation.

Jul 2015 – Jul 2017 **Associate Student & Investigator**, *Nuclear Sciences Institute - UNAM*, Mexico City, Mexico.

- Big Data analytics for Scientific Computation.
- Cosmological Simulations.
- Modified Gravity.
- Parallel Computing with Apache Spark.
- Data mining with R, Python and Apache Spark.
- Data visualisation with Python (Matplotlib), R (RCharts), JavaScript (D3, Charts).
- Theoretical Physics.
- Conformal Cyclic Cosmology.
- Scientific Computing with Julia.

Jul 2015 – Jul 2017 **Master Thesis & Investigator in Data Science for Cosmology**, *Instituto Nacional de Investigaciones Nucleares*, Mexico State, Mexico.

- Cosmological Parameter Inference with CosmoSIS.
- Scientific computation with Python, Julia and C++.
- Big Data Analysis with Apache Spark (Pyspark and Scala).
- Parallel computation with C++ (MPI).
- Bayesian Statistics for Cosmology.
- Develop Machine Learning Algorithms and contribute to Spark MLlib.
- Data Science for Cosmology Evangelist.
- Research in Cosmology, General Relativity, Modified Gravity and Cosmological Simulations.
- Validated Numerics in Julia.

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- Jan. 2015 – Jul. 2015 **Senior Data Scientist - Backend Programmer**, *Mood Agency*, Maracaibo-Venezuela, Leader of Big Data Department.
- Activities:**
- Big Data Analyst and data miner with Apache Spark and Hadoop.
  - Visualization and exploratory data analysis with R and Python.
  - Developer of machine learning algorithms.
  - Big Data consultant for Retail Companies.
  - Team leader for data science projects with Apache Spark.
  - Interns trainer for Apache Spark, Apache Mesos and Cloudera Environment.
  - Management and configuration of computers clusters and distributed computation.
- 2014 – 2015 **Professional in Training**, *Instituto Venezolano de Investigaciones Científicas (IVIC)*, Miranda-Venezuela, Supervisor: Dr. José Ramirez.
- Activities:**
- Investigation in High Energy Astrophysics, Numerical Relativity and Intergalactic Medium Physics.
  - Develop code to analyze and study the spectra of X-Ray sources in Active Galactic Nuclei.
  - Data reduction with CIAO.
  - Model creation and analysis with XSpec.
  - Develop code in Python and C++ to study the results of various models, fit astronomy spectral data and plot Growth Curves.
- 2013 – 2014 **Undergraduate Research Fellow**, *Instituto Venezolano de Investigaciones Científicas (IVIC)*, Miranda-Venezuela, Supervisor: Dr. José Ramirez.
- Activities:**
- Investigation in Active Galactic Nuclei, Missing Baryons, X-Ray Spectroscopy, Computational Physics.
  - Determination of the Baryonic Density Parameter in the Warm-Hot Intergalactic Medium of the Cosmic Web Sculptor Wall from a High Resolution X-Ray Spectroscopic Analysis (Undergraduate Thesis).
  - Data reduction and analysis from Chandra X-Ray Observatory (NASA) raw data.
  - Study and develop code in CIAO and XSpec.
- 2012 – 2013 **Visiting Student**, *Instituto Venezolano de Investigaciones Científicas (IVIC)*, Miranda-Venezuela, Supervisor: Dr. Clara Rojas.
- Activities:**
- Investigation in General Relativity, Inflationary Cosmology, Second Order Cosmological Perturbations.
  - Create weekly reports in LaTeX about the main topics of investigation.
  - Obtain the Einstein's Field Equations in the second order of Cosmological Perturbations.
  - Develop final report with detailed analysis of the topics of investigation and some insights about my learning.
- 2011 – 2012 **Research's Director**, *IEEE-URU*, Zulia-Venezuela.
- 2011 – 2012 **Organizer of Seminars**, *Astronomy and Theoretical Physics Laboratory*, Universidad del Zulia, Maracaibo-Venezuela.
- Activities:**
- Seminar organizer for the Astrophysical department.
  - Moderator of the Lab's web page, and content creator.
  - Study and develop simple codes in C++, Python, Java.
  - Data analysis with R and Matlab.
  - Scientific computation with C++.
  - Symbolic mathematic with Mathematica.

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- 2010 – 2013 **Undergraduate research Assistant**, *Astronomy and Theoretical Physics Laboratory (LAFT)*. *Universidad del Zulia*, Zulia-Venezuela.
- 2010 – 2012 **Undergraduate research Assistant**, *Scientific Modeling Center (CMC)*. *Universidad del Zulia*, Zulia-Venezuela.

## Computational Skills

<b>Big Data Tools</b>	Scala, Java, R and Python APIs of Apache Spark with Apache Hadoop, YARN, Apache Mesos and Cloudera. Apache Kafka, HDFS, Cassandra DB	<b>Machine Learning Tools</b>	R Programming (Packages: Caret, data.table, rCharts, ggplot2, shiny, Rbase). Python Programming (Packages: Scikit-learn). Apache Spark MLlib, Pipelines with Apache Spark ML
<b>Office Suites</b>	Microsoft Office and Libre-office	<b>Operating Systems</b>	Unix/Linux (Debian, Fedora, CentOS) and Windows suites
<b>Text and Image Composition</b>	Latex, Bibtex, Adobe Photoshop	<b>Programming Languages</b>	Scala, Julia, Python, R, C++11, Java, Java EE, Pascal, shell-scripting, Javascript/HTML/CSS, SQL
<b>Numerical and Symbolic Computing</b>	Mathematica, Maple	<b>Statistical and Data Visualization</b>	Matplotlib, Tableau, Gnuplot, rCharts, Plotly, Ggplot2, Rbase- Plot and Lattice Plot
<b>Git Clients</b>	SourceTree, SmartGit	<b>Presentation and Slides tools</b>	Slidify (RStudio), RPresenter (RStudio), Prezi, Beamer (LaTeX), Reveal JS
<b>Statistical Software</b>	Statistica Enterprise, SPSS		

## Attendance to Scientific Events

- May. 2017 **Seminar on high performance and parallel computation for astrophysics**, *Astronomy Institute - UNAM*, Mexico City, México, **Speaker**.
- Apr. 2017 **Workshop on Numerical and Statistical Methods in Cosmology**, *CINVESTAV*, Mexico City, México, **Speaker**.
- Oct. 2016 **Mexican Numerical Simulations School**, *Universidad Nacional Autónoma de México*, Mexico City, México.
- Aug. 2016 **First Mexican School of Cosmological Perturbations**, *Universidad Nacional Autónoma de México - Cuernavaca*, Morelos, México.
- Aug. 2016 **IV Workshop of Gravitation and Cosmology**, *Universidad Nacional Autónoma de México - Cuernavaca*, Morelos, México.
- Apr. 2016 **First Mexican AstroCosmoStatistics School**, *Universidad de Guanajuato*, León, México.
- Mar. 2016 **Seminar: The philosophy of the topology of Jacques Lacan**, *Dr. Alfredo Eidelsztejn*, Tecnológico de Monterrey, Mexico City.

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- Nov. 2015 **Workshop on Field Theory, Gravitation and Cosmology**, *Instituto de Física- Benemérita Universidad Autónoma de Puebla*, Puebla-México.
- Oct. 2014 **Cosmology in the 21<sup>st</sup> Century**, *Scientific Forum: Science Facts*, Editorial Nuevo Día Auditorium, **Speaker**, Falcón-Venezuela.
- Jul. 2014 **Introduction to lacanian psicoanalytic theory: the unconscious**, *Universidad del Zulia*, **Speaker**.
- Feb. 2013 **Introduction to psicoanalytic theory**, *Universidad del Zulia*, **Helper**.
- May 2012 **Third Seminar of Quantum Computation and Information**, *Universidad Rafael Urdaneta*, Zulia-Venezuela, **Speaker**.
- Mar. 2012 **Second Seminar of Quantum Computation and Information**, *Universidad Rafael Urdaneta*, Zulia-Venezuela, **Speaker**.
- Mar. 2012 **Wavelet Transform and Applications to Spectral Analysis in Time Series**, *Universidad del Zulia*, Zulia-Venezuela.
- Apr. 2012 **Seminar: Introduction to Differential Geometry**, *Universidad del Zulia*, Zulia-Venezuela, **Speaker**.
- Feb. 2012 **First Seminar of Quantum Computation and Information**, *Universidad Rafael Urdaneta*, Zulia-Venezuela, **Speaker**.
- Jun. 2011 **I Nanoworkshop IVIC-CMC**, *Facultad Experimental de Ciencias. Universidad del Zulia*, Zulia-Venezuela.

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### Merits, Prizes and Acknowledgments(order by relevancy)

- Jul. 2015 - Jul. 2017 **Master's Scholarship (\$13769.33)**, *Consejo Nacional de Ciencia y Tecnología (CONACYT)*, Mexico City - Mexico.
- Jun. 2014 **Prize Summa Cum Laude**, *For having obtained a score over 18.5 in Physics at the Experimental Faculty of Sciences in Undergraduate Studies*, Maracaibo-Venezuela.
- Feb. 2014 **Prize VAD (Viceretorado Académico)**, *For having obtained the highest score at the Experimental Faculty of Sciences in 2012*, Universidad del Zulia.
- 2010 - 2015 **Student Honor Roll**, *Universidad Rafael Urdaneta*, For Having obtained a score over 18 in all semesters.
- 2010 - 2014 **Student Honor Roll**, *Universidad del Zulia*, For Having obtained a score over 18 in all semesters.

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### Massive Online Open Courses (MOOCs)

- Using Python for Research **Harvard University**, *Platform: edX*, Verified certificate of approval, December, 2016.
- Distributed Machine Learning with Apache Spark **University of California, Berkeley**, *Platform: edX*, Verified certificate of approval, August, 2016.
- Introduction to Apache Spark **University of California, Berkeley**, *Platform: edX*, Verified certificate of approval, July, 2016.
- Scalable Machine Learning **University of California, Berkeley**, *Platform: edX*, Approved with distinction, August, 2015.

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Introduction to Big Data with Apache Spark	<b>University of California, Berkeley</b> , <i>Platform: edX</i> , Approved with distinction, July, 2015.
Python for Genomic Data Science	<b>John Hopkings University</b> , <i>Platform: Coursera</i> , Approved with distinction, August, 2015.
Introduction to Genomic Technologies	<b>John Hopkings University</b> , <i>Platform: Coursera</i> , Approved with distinction, August, 2015.
R Programming	<b>John Hopkings University</b> , <i>Platform: Coursera</i> , Approved with distinction, March, 2015.
Getting and Cleaning Data	<b>John Hopkings University</b> , <i>Platform: Coursera</i> , Approved with distinction, March, 2015.
Exploratory Data Analysis	<b>John Hopkings University</b> , <i>Platform: Coursera</i> , Approved with distinction, March, 2015.
The Data Scientist's Toolbox	<b>John Hopkings University</b> , <i>Platform: Coursera</i> , Approved with distinction, March, 2015.
Big Data for Better Performance	<b>Open University</b> , <i>Platform: Open2Study</i> , Approved, February, 2015.
Søren Kierkegaard - Subjectivity, Irony and The Crisis of Modernity	<b>University of Copenhagen</b> , <i>Platform: Coursera</i> , Approved with distinction, December, 2014.
Galaxies and Cosmology	<b>Californian Institute of Technology</b> , <i>Platform: Coursera</i> , Approved, March, 2013.

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## Open source codes and contributions

Platform: GitHub **User: FavioVazquez**, <https://github.com/FavioVazquez>.

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## Personal References

Dr. Jorge Cervantes	jorge.cervantes@inin.gob.mx	ININ	Estado de México, México +52 55 1320 9046
MSc. Jeanette Stock	jeanetestock@yahoo.es	LUZ	Zulia, Venezuela +58 414 260 8647
Dr. José Ramírez	josem.ramirez@gmail.com	IVIC	Miranda, Venezuela
Dr. Williams Pitter	wpitter@gmail.com	LUZ	Zulia, Venezuela +58 416 503 3203

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