

# Curriculum Vitae

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## I. EDUCATION

YEAR	NAME OF SCHOOL	MAJOR
2017-2021	National Autonomous University of Mexico, Mexico. ( <a href="https://www.unam.mx/">https://www.unam.mx/</a> )	Ph.D. Applied Geostatistics
2015-2016	National Autonomous University of Mexico, Mexico. ( <a href="https://www.unam.mx/">https://www.unam.mx/</a> )	M.Sc. Applied Geostatistics
2009-2014	University of Pinar del Rio “Hermanos Saíz Montes de Oca”, Cuba. ( <a href="https://www.upr.edu.cu/">https://www.upr.edu.cu/</a> )	B.Sc. Geological Engineering

## II. PUBLICATIONS AND CONFERENCES

1. Papers in preparation: (1) “C-vine parametric copula-based multivariate dependency model for joint petrophysical property simulation conditioned by elastic attributes”, (2) “D-vine quantile regression models for petrophysical property estimation using elastic seismic attributes as secondary variables”, (3) “Kernel copula-based multivariate dependency relationship model for stochastic spatial simulations of petrophysical properties”, (4) “Bernstein copula-based multivariate dependency model for stochastic spatial simulations of petrophysical properties”, (5) “Conditional stochastic simulation of petrophysical properties with elastic attributes using dependency models based on parametric copulas with a Bayesian approach”, and (6) “Joint

- geostatistical seismic inversion based on copula dependence models of petrophysical properties and elastic attributes”.
2. He successfully presented his thesis and published it in the library of the National Autonomous University of Mexico, 2021 ([Thesis link](#)).
  3. He presented the work of “A comparison between convolutional neural networks (Deep Learning method) and Bernstein copula quantile regression (Geostatistical method) for petrophysical property prediction from seismic data” in the Annual Meeting of The Mexican Chapter of Interpore (RACMI 2021) ([cmi.imta.mx/paginas/racmi2021.php](http://cmi.imta.mx/paginas/racmi2021.php)).
  4. The recognition of his work as the **best doctoral work** in the area of Solid Earth presented at the congress of the annual meeting of the Mexican Geophysical Union (RAUGM 2020) (<https://www.raugm.org.mx/?lang=en>).
  5. He presented the work of “Multivariate copula-based model for predicting petrophysical properties using seismic attributes as secondary variables” in the annual meeting of the Mexican geophysical union (2020), Jalisco, Mexico (<https://www.raugm.org.mx/?lang=en>).
  6. He was a co-author of the work "Prediction of petrophysical properties from dependency models based on copulas of seismic attributes in oil fields" of a conference at the Seminar of the Institute of Geology, UNAM, 2020 ([Video conference link](#)).
  7. Van Huong Le, Martín A. Díaz-Viera, Daniel Vázquez-Ramírez, Raúl del Valle-García, Arturo Erdely, and Dario Grana, “Bernstein copula-based spatial cosimulation for petrophysical property prediction conditioned to elastic attributes”. Journal of Petroleum Science and Engineering 193 (2020) 107382. (<https://doi.org/10.1016/j.petrol.2020.107382>)
  8. His work of “A Prediction of the Spatial Distribution of Petrophysical Properties with Bernstein Copula using Seismic Attributes as Secondary Variables” was selected for the presentation poster in 10<sup>th</sup> Annual Meeting and Jubilee Conference of InterPore (2018), Louisiana, USA (<https://events.interpore.org/event/2/contributions/828/contribution.pdf>).
  9. He presented the work of “Multivariate exploratory analysis of dependencies between petrophysical properties and seismic attributes at well-logs scale” in the annual meeting of the Mexican Interpore Chapter (2017), Mexico city, Mexico (<https://www.geologia.unam.mx/en/actividades/reunion-interpore>).
  10. He was coauthor of the work “Modelación estocástica conjunta usando cópulas de la dependencia entre propiedades petrofísicas y atributos sísmicos a escala de registros de pozo” which presented in the annual meeting of the Mexican Geophysical Union (2017), Jalisco, Mexico (<https://www.raugm.org.mx/2017/>).

11. He presented the work of “Mineral Potential Mapping Of Mineral Deposits Of Sedex Type” in the VII Convention of Earth Sciences (2017), Habana, Cuba (<http://www.cubacienciasdelatierra.com/en/general15>).
12. He was presented to 25 research events: Dept. of Mathematics (3), Dept. of Geology (2), Dept. of Language (2), Faculty of forestry and agronomy (3), Provincial, regional, national and international research (8), Research linked to practices (7), and obtained relevant prizes, outstanding prizes and mentions in the University of Pinar del Rio, Cuba (2009-2014).

### **III. TEACHING**

- 2016-Now: He has been a teaching assistant of Geostatistics at the National Autonomous University of Mexico, Mexico (<http://www.esmg-mx.org/activities/courses/geoestadistica>).
- 2021: He is one of the professors who teaches the course "Geostatistics applied to the estimation of mineral resources (GAERM)" in the online learning platform "Nube Minera" (<https://nubeminera.cl/course/gaerm/>).
- 2020: He taught Spanish and Vietnamese languages at the University of Wyoming (<http://www.uwyo.edu/wlcp/index.html>).
- 2009-2011: He was a teaching assistant of General Chemistry, Physics, Mathematics I, Mathematics II, Mathematics III, and Algebra at the University of Pinar del Rio, Cuba (<https://www.upr.edu.cu/>).

### **IV. DISTINCTION**

- He received a 5 and a half year scholarship (2015-2020) from the National Council of Science and Technology (CONACyT) to complete his master's and doctorate degrees at the National Autonomous University of Mexico (UNAM).
- He received a 6-year scholarship (2009-2014) from the Vietnamese and Cuban governments to complete his Bachelor degree in Cuba.
- He was a most outstanding student in the 5 years (2009-2014) in teaching, research and was an excellent foreign student in the University de Pinar del Río, Cuba. For this, the University gave him a scholarship to study in next level of Master or PhD.
- He was elected as International Delegate to the XVIII World Festival of Youth and Students in Quito, Ecuador (2013).
- He completed more than 21 award exams, in which he obtained 17 in first place and 4 in second place.

- He finished his studies with an average of 5.0 points (in scale of 5.0 points), a condition that he obtained the category in the Gold Title option.
- He obtained diplomas as a most integral outstanding student in the 5 years in teaching and research. He is also chosen as a integral foreigner at levels of brigade level, faculty level, university level and province level at the University of Pinar del Río “Hermanos Saíz Montes de Oca” in Cuba.
- He obtained the 3<sup>rd</sup> place in the National Student Mathematics Olympiad which was held in Nha Trang, Vietnam. He had the highest score of his generation in his department at Hanoi University of Geology and Mining. Therefore, he was awarded a scholarship in Cuba by his high qualification.

## **V. VISITING POSITIONS:**

*2019-Now:* Visiting scholar with Dr. Dario Grana on the topic "conducting research on Bayesian and geostatistical inversion", Department of Geology and Geophysics, the University of Wyoming.

## **VI. EXPERIENCE**

- Theoretically and practically managed with basic and advanced geostatistical tools and techniques.
- Spatio-temporal data analysis.
- Familiar with machine learning, deep learning and their applications.
- Work frequently on uncertainty quantification analysis.

## **VII. CURRENT RESEARCH INTERESTS:**

- Geostatistical (spatial stochastic) simulation based on copulas and global optimization methods (simulated annealing, differential evolution).
- Integration methodology of different quantitative and qualitative information based on advanced geostatistical methods for reservoir characterization.
- Inversion theory and optimization.
- Bayesian and geostatistical inversion.
- Machine learning with a deep understanding of geostatistical analysis.
- Petrophysical seismic inversion based on advanced geostatistical methods.
- Rock physics.

- Cópulas.
- Data analysis.
- Machine learning.
- Big data.
- Data science.
- Uncertainty Quantification.

## VIII. LANGUAGES

- Vietnamese (native language)
- Spanish: Reading, Writing, Listening, and Speaking.
- English: Reading, Writing, Listening, and Speaking.
- Portuguese: Reading and Listening.

## IX. COMPUTER SKILLS

- Linux and Windows operating system, Word, Excel, PowerPoint, Outlook, Latex, Python, R, MATLAB, Octave, SGEMS, GS+, Gslib, ArcGIS, Qgis, Surfer, Grapher, Petrel, OpendTect.

## X. MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES:

- He is a member and moderator of the *Earth-Science Modeling Group* (ESMG) (<http://www.esmg-mx.org/>).
- He is a member of the *International Society for Porous Media* (INTERPORE) (<https://www.interpore.org/>).
- He is a member of the *Society for Industrial and Applied Mathematics* (SIAM): SIAG on Uncertainty Quantification Membership and SIAM Activity Group on Data Science (<https://www.siam.org/>).
- He is a member of the *Mexican Association of Exploration Geophysicists* (AMGE).
- He was a member of the *Society of Exploration Geophysicists* (SEG) (<https://seg.org/>).
- He was a member of the Cuban Society of Geology and his researchs is linked to the Center of Studies of Environment and Natural Resources and the Geology and the company EMINCAR about “Investigation Project for the search of the basic and values deposits in the west of Pinar del Rio”.

## **XI. COURSES RECEIVED DURING GRADUATE STUDY TIME**

- Geostatistics; processing of geophysical data; theory of geophysical inversion; electromagnetic methods; structural geology; tectonic plates; field geology; sedimentary environments and processes; Rock Physics. (one semester courses)
- Fundamentals of rock physics for the interpretation of properties from 3D seismic. (short course)
- The Fourth Edition of Guanajuato Uncertainty Quantification: Workshop on Inference and Quantification of Uncertainty in Science and Engineering problems (GUQ2019). (short course)

## **XII. REFERENCES:**

- Dr. Martín A. Díaz Viera  
Mexican Petroleum Institute, Mexico  
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