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**Richard Anselmi Perez Roa**  
Geophysical Engineer, MSc in Geophysics,  
PhD(c) in Physics and  
Master's Student in Theoretical and  
Applied Mechanics



## SUMMARY

Expert reservoir geophysicist with more than 10 years of experience in conventional reservoirs applying integration of Rock Physics and seismic data for reservoir characterization, currently a professor in the Department of Geophysics at the Faculty of Engineering at the Central University of Venezuela. In my PhD studies I am investigating methods to integrate Rock Physics models and Full Wave Inversion (FWI) for the estimation of petrophysical parameters from raw seismic data. Competent to implement and design optimized workflows for high-quality seismic interpretation and reservoir characterization by integrating seismic attributes, seismic inversion and rock physics. Highly analytical and proven ability to manage multiple projects and meet critical deadlines.

## OUTSTANDING SKILLS

- Rock Physics Analysis.
- Knowledge of different physical models of rocks.
- Reservoir characterization by integrating seismic attributes, seismic inversion and rock physics.
- Calculation of petrophysical parameters.
- AVO and spectral decomposition.
- P-wave and converted wave seismic inversion.
- Structural and stratigraphic seismic interpretation.
- Analysis and visualization of seismic attributes.
- Conditioning of P-wave and converted wave gathers.
- Qualitative and quantitative evaluation of hydrocarbon deposits and identification of prospects.
- Proposal of wells for exploration and production.
- Geological mapping.
- Expert in programming in Python and Matlab languages.
- Expert in application of numerical methods applied to geophysics.
- Intermediate to advanced user in software such as Petrel, Techlog, Interactive Petrophysics, The Kingdom Suite, HRS Suite, Decision Space Suite.

## EDUCATION

**2000- 2007**  
***Caracas - Venezuela***

**Geophysical Engineer**  
Simón Bolívar University

**2009- 2015**  
***Caracas - Venezuela***

**Magister Scientiarum in Geophysics**  
Central University of Venezuela

**2019 - Actual**  
***Caracas - Venezuela***

**Candidate for Doctor of Science in Physics**  
Central University of Venezuela

**2019 - Actual**  
***Caracas - Venezuela***

**Master's Student in Theoretical and Applied Mechanics**  
Central University of Venezuela

## WORK EXPERIENCE

➤ **Yachay Tech University - Full time professor in the School of Earth Sciences, Energy and Environment**

Nov 2021 – actually  
Contract for professional services

Main functions: Teaching of Geophysics and Applied Geophysics for students of Geology.

➤ **Central University of Venezuela - Conventional time professor in the Department of Geophysics of the Faculty of Engineering**

Oct 2020 – Nov 2021  
Contract for professional services

Main functions: Teaching of Geomathematics I, Geostatistics and Fields and Waves for Geophysical Engineering students.

➤ **Carchi State Polytechnic University - Full time professor**

Oct 2018 – Jul 2019  
Full Time Contract

Main functions: Teaching Physics and Mathematics courses for Engineering students.

➤ **Petróleos de Venezuela S.A (PDVSA) – Reservoir Geophysicist**

Abr 2008 - Oct 2017  
Full Time Contract

Main functions: Reservoir Geophysicist in the Geology department of the Superintendency of Reservoirs of the Petrodelta subsidiary of PDVSA, where he carried out the following activities:

- Interpretation of 2D and 3D seismic data from the El Salto, Temblador, Tucupita, Uracoa, Bombal and Isleño fields and updating of the velocity models for the elaboration of geostatistical models.
- Integration of rock physics and petrophysics for the characterization of the reservoirs of the Temblador, El Salto and Uracoa fields.
- Application of seismic inversion and rock physics for the characterization of the reservoirs of the Temblador, El Salto and Uracoa fields.
- Application of analysis of special seismic attributes and multi-attribute studies to characterize the reservoirs of the Uracoa, Temblador and El Salto fields.
- Planning in conjunction with Geologists and Reservoir Engineers in the location of new wells to be drilled.
- Quality control for the reprocessing of 2D and 3D Seismic Data from the El Salto, Temblador and Tucupita fields
- Preparation of sequential stratigraphy studies for the characterization of the reservoirs

assigned to the Petrodelta joint venture.

- Participation in the preliminary studies and in the design of the 3D seismic surveys for the El Salto field and the Isleño field.
- Operational monitoring of geological activity during the drilling of new wells.
- Participation in the reserve update projects before the Ministry of Energy and Petroleum for the El Salto, Temblador and Isleño fields

➤ **Harvest Vinccler S.C.A - Geophysicist**

Ene 2008 – Abr 2008

Full Time Contract

**Main functions:**

- Geophysicist Interpreter in the Geophysics department of the Subsoil Superintendency, where I work in the following areas:
- Interpretation of 2D and 3D seismic data from the Temblador and Tucupita fields and updating of the velocity models for the elaboration of geostatistical models.
- Joint planning with Geologists and Reservoir Engineers in the location of new wells to be drilled in the Uracoa field.
- Operational monitoring of geological activity during the drilling of new wells.

➤ **CNPC-Daqing of Venezuela – Seismic Processing Engineer**

Jun 2007 – Sept 2007

Full Time Contract

**Main functions:** Assistant engineer in quality control and processing of seismic data acquired during the Morichal 06G3D and J20 06G3D seismic surveys.

➤ **Simón Bolívar University –Department of Earth Sciences - Teaching Assistant**

Ene 2007 – Mar 2007

Part Time Contract

**Main functions:** In charge of the practice classes for Geophysical Engineering students who took the course "Gravimetric and Magnetic Methods" in the January-March 2007 quarter.

➤ **Next Exploration Technology – Assistant Geophysicist**

Nov 2006 – Dic 2006

Full Time Contract

**Main functions:** Geophysicist Assistant in the acquisition and processing of data from potential methods such as Electromagnetism, Refraction and Gravimetry.

➤ **TRX Consulting – Intern Geophysicist**

Jun 2006 – Oct 2006

Full Time Contract

**Main functions:** Learning in data acquisition and processing of potential methods such as GPR, SEV, Induced Polarization, Electromagnetism.

## SOFTWARE SKILLS

### **General Use Software:**

Microsoft Office, windows and linux operating systems

### **Specialized Software:**

#### **1. Seismic Interpretation:**

**Kingdom Suite by IHS, PETREL by Schlumberger, Seisworks and Decision Space Desktop by LANDMARK**

#### **2. AVO and Seismic Inversion:**

**Hampson & Russell Software from CGG VERITAS, EPOS Suite from PARADIGM, I have also developed codes in MATLAB and OCTAVE to carry out Seismic and Petrophysical Inversion.**

#### **3. Petrophysics:**

**Schlumberger Techlog and Interactive Petrophysics**

#### **4. Programming Languages:**

**MATLAB, OCTAVE, and Python.**

## LANGUAGE

**Spanish:** Native

**English:** B2 Level

## PUBLICATION OF TECHNICAL ARTICLES:

- USE OF GEOPHYSICAL TECHNIQUES FOR THE OPTIMIZATION OF LAND USE IN AGRICULTURAL ACTIVITIES, will be published in the magazine "Tierra Infinita" in December 2020, ISSN 2602-8131, <https://doi.org/10.32645/issn.2602-8131>
- THE USE OF SEISMIC ATTRIBUTES AND SPECTRAL DECOMPOSITION TO SUPPORT THE DRILLING PLAN OF THE URACOA-BOMBAL FIELDS, published in SEG TECHNICAL PROGRAM EXPANDED ABSTRACTS 2009, September 2009, ISSN 1949-4645 <https://library.seg.org/doi/abs/10.1190/1.3255214>
- FLUID CONTACTS AND NET-PAY IDENTIFICATION IN THREE PHASE RESERVOIRS USING SEISMIC DATA published in SEG TECHNICAL PROGRAM EXPANDED ABSTRACTS 2009, September 2009, ISSN 1949-4645 <https://library.seg.org/doi/abs/10.1190/1.3255196>

## GEOPHYSICAL ENGINEERING DEGREE PROJECT TUTORIALS

1. Linares, Luisely: CHARACTERIZATION BY SEISMIC ATTRIBUTES AND WELL LOGS OF THE SANDS OF MEMBERS JOBO AND MORICHAL OF THE EAST AREA OF TEMBLADOR FIELD. Degree work presented to the Central University of Venezuela to qualify for the title of Geophysical Engineer. Caracas, 2012.

2. Quijada, Rossi: CHARACTERIZATION BY MULTIATTRIBUTE TRANSFORMATIONS OF THE SANDS OF THE FIELD EL SALTO, EDO. MONAGAS. Degree work presented to the Simón Bolívar University to qualify for the Geophysical Engineer degree, Caracas, 2012.
3. Rodríguez, Mariana: APPLICATION OF ROCK PHYSICS AND EXTENDED ELASTIC IMPEDANCE IN THE WEST OF THE TEMBLADOR FIELD. Degree work presented to the Simón Bolívar University to qualify for the title of Geophysical Engineer, Caracas, 2015.
4. Rodriguez, Yohnny: CHARACTERIZATION OF THE EFFECT OF CLAY MINERALS IN UNCONSOLIDATED SANDSTONE RESERVOIRS THROUGH INTEGRATION OF PETROPHYSICS AND ROCK PHYSICS. . Degree work in progress to be presented to the Central University of Venezuela to qualify for the title of Geophysical Engineer, Estimated, December 2021.

## LECTURER

1. "USE OF SPECTRAL SEISMIC ATTRIBUTES IN THE INTEGRATED GEOPHYSICAL SUPPORT FOR THE URACOA-BOMBAL FIELD DRILLING PROGRAM" at the 1st Venezuelan Earth Sciences Symposium held in La Tahona, Caracas from September 7 to 12, 2008.
2. "FLUID CONTACTS AND NET-PAY IDENTIFICATION IN THREE-PHASE RESERVOIRS USING SEISMIC DATA" at III World Heavy Oil Congress, Isla de Margarita from November 3 to 5, 2009.
3. "COMBINATION OF ELASTIC AND ROCK PHYSICS INVERSION FOR THE CHARACTERIZATION OF HEAVY OIL RESERVOIR IN THE TEMBLADOR FIELD, MATURIN SUB-BASIN", work accepted to be presented at the XVI Colombian Congress of Geology, in Santa Marta del August 28 to September 1, 2017.
4. "USE OF GEOPHYSICAL TECHNIQUES FOR THE OPTIMIZATION OF LAND USE IN AGRICULTURAL ACTIVITIES", at the IV International Congress of Agricultural and Tourist Sciences, in Tulcán on December 06 and 07, 2018.
5. "THE USE OF ROCK PHYSICS FOR THE CHARACTERIZATION OF HYDROCARBON RESERVOIRS, EXAMPLE: CRANFIELD FIELD, MISSISSIPPI, UNITED STATES", at the III International Congress of Basic Sciences of the Technical University of Manabí in Manabi on October 21-23 2020.

## COURSES

1. Petrel Introduction - 40 Hours, from September 22 to 26, 2008. El Tigre. Venezuela.
2. Petrel, Seismic Visualization and Interpretation - 24 Hours, from November 10 to 12, 2008. Puerto La Cruz, Venezuela.
3. Basic Interpretation of Electrical Logs - 16 Hours, from January 12 to 13, 2009. Maturín, Venezuela.
4. Lagnippe Toolkit - 80 Hours, May 18-29, 2009, Houston, USA.
5. Integrated 3-D Seismic & Well Log Interpretation Project (Temblador Field) - 240 Hours, from June 22, 2009 to July 31, 2009, Maturin, Venezuela.
6. Physical Characterization of Reservoirs- 40 Hours, from September 13 to 17, 2010. Maturín,

Venezuela.

7. Interpretation and Validation of PVT Tests - 40 Hours, from September 27 to October 02, 2010. Maturín, Venezuela.
8. Energy Characterization of Reservoirs - 40 Hours, from October 11 to 16, 2010. Maturín, Venezuela.
9. Analysis of Pressure Tests - 40 Hours, from October 25 to 30, 2010. Maturín, Venezuela.
10. Estimation of Hydrocarbon Reserves - 40 Hours, from November 08 to 13, 2010. Maturín, Venezuela.
11. Enhanced Oil Recovery - 40 Hours, from November 22 to 27, 2010. Maturín, Venezuela.
12. Basic Geology - 40 Hours, from September 12 to 17, 2011. Maturín, Venezuela.
13. Stratigraphy and Sedimentology - 40 Hours, from September 26 to October 1, 2011. Maturín, Venezuela.
14. Seismic for Reservoir Engineers and Geologists - 40 Hours, from October 10 to 15, 2011. Maturín, Venezuela.
15. Structural Geology - 40 Hours, from October 24 to 29, 2011. Maturín, Venezuela.
16. Production Geology - 40 Hours, from November 21 to 26, 2011. Maturín, Venezuela.
17. Analysis and Interpretation of Well Logs - 40 Hours, from January 9 to 14, 2012. Maturín, Venezuela.
18. Seismic Data Loading and Management R5000 - 40 Hours, from July 9 to 13, 2012. Maturín, Venezuela.
19. Geo Data Management R5000 - 24 Hours, from August 06 to 08, 2012. Maturín, Venezuela.
20. DSD Getting Started - 08 Hours, on August 9, 2012. Maturín, Venezuela.
21. DSD Geophysics Module - 24 Hours, from August 15 to 17, 2012. Maturín, Venezuela.
22. Seismic Stratigraphy - 40 hours, from October 29 to November 02, 2012. Caracas, Venezuela.
23. Seismic Surveillance for Reservoir Delivery - 08 Hours, March 13, 2013. Caracas Venezuela.
24. AVO (Amplitude Vs Offset): Techniques and Applications - 40 Hours, from January 13 to 17, 2014. Los Teques, Venezuela.
25. Geosteering Seminar - 08 Hours, March 18, 2016, March 18, 2016. Maturin, Venezuela.
26. Processing and Interpretation of Multicomponent Seismic Data - 40 Hours, from September 04 to 08, 2017. Maturín, Venezuela.
27. Computers, Waves, Simulations: A Practical Introduction to Numerical Methods using Python - 35 Hours, November 28, 2019 to January 03, 2020. Online Training
28. Learn to use tools to create digital teaching material and to communicate virtually with your students - 40 Hours, April 13 to May 8, 2020. Online Training.

29. Statistical Thermodynamics: Molecules to Machines - 35 Hours, May 1 to June 20, 2020. Online Training
30. Fundamentals of Electromagnetism for Engineering - 35 Hours, June 01 to July 07, 2020. Online Training
31. Introduction to Calculus - 40 Hours, June 1 to July 12, 2020. Online Training
32. Earthquake Seismology - 35 Hours, June 1 to July 12, 2020. Online Training
33. Quantitative and Qualitative Techniques for Research - 18 Hours, June 1 to July 12, 2020. Online Training
34. Differential Equations for Engineers - 40 Hours, June 1 to July 12, 2020. Online Training
35. Matrix Algebra for Engineers - 40 Hours, June 1 to July 12, 2020. Online Training
36. Numerical methods for mathematics with Octave - 25 Hours, June 1 to July 13, 2020. Online Training
37. Simulation and modeling of natural processes - 40 Hours, May 1 to July 22, 2020. Online Training
38. Fundamentals of waves and vibrations - 25 Hours, June 1 to July 26, 2020. Online Training

## PROFESIONAL REFERENCES

- **PhD Mario Caicedo, Retired Professor at the Simón Bolívar University (USB), [mcaicedo@usb.ve](mailto:mcaicedo@usb.ve)**
- **PhD Alexander López, Professor at the Escuela Politécnica del Litoral (ESPOL), [alexlop@espol.edu.ec](mailto:alexlop@espol.edu.ec)**
- **PhD Milagrosa Aldana, Professor at the Simón Bolívar University, [maldana@usb.ve](mailto:maldana@usb.ve)**
- **Ginette Lagrave, Superintendent of Reservoirs and Integrated Studies, PDVSA Petrodelta, [glagrove@pdvsa.com](mailto:glagrove@pdvsa.com)**