Homayoun (Jeremy) Gerami

MSc, P.Geo

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PROFILE

I am a senior Geoscientist / Data Analyst, with 18 + years of worldwide diversified experience in Oil and Gas industry. During the past last 12 years, I have contributed to various reservoir characterization projects from Middle East, Far Fast and North America ranging from carbonate, clastic and unconventional plays with challenges from carbonate heterogeneity and tight sand reservoirs to heavy oil, and CO2 storage. In addition to that, I have applied and deployed machine learning models in various domains, such as oil and gas, finance, supply chain and process controls. My passion is to implement Data Science and Machine Learning methods, alongside with classic methods, for better informed decisions in the oil and gas exploration and development projects.

Expertise:

- Seismic Reservoir Characterization
- Seismic Inversion and Interpretation
- Borehole Seismic (VSP) Processing
- Analytical Modeling and Machine Learning

SELECTED CAREER ACCOMPLISHMENTS

- **Delineating Porous Sand Geo-Bodies Over Aquistore Seismic Survey:**
  This project was a CO2 storage research and demonstration project, with the aim of capturing and storing CO2 in deep porous sandstone geo-bodies. I used my domain expertise knowledge, as well as machine learning skills to identify and map the porous sandstones. The project gone through, seismic/log data conditioning, clustering and Bayesian class definitions, implementing various optimization methods, model building and finally data visualization stages.
  Project Overview: Delineating Porous Sand Geo-Bodies Over Aquistore Seismic Survey

- **Integration of 21 Seismic Inversion Independent Projects into One Consistent Project:**
  There was an extensive AVO inversion project comprising of 21 seismic surveys covering more than 1000 sq km in British Columbia, Canada, focusing on the Montney reservoir. After performing inversions on every individual survey, the inversion results were not consistent across the entire prospect. As such, client was not able to rank and effectively use the results for further field development planning. To address this challenge, I came up with a unique way to construct a regional Low Frequency Model (LFM) for the entire area. I then updated the inversion results using the model and the final results became very consistent

across the whole area. Client was able then to trace a particular anomaly across the entire prospect and rank their leads for their future operation.

- **Implementation and Integration of AVO, AVOAz Inversion and Ant Tracking Techniques:**
  I utilized AVOAz inversion using with different optimization algorithms, Simulated Annealing (SA) and Gradient Based Optimization (GBO), and observed that GBO outputs were superior for illustrating the characteristics and dynamics of the sediments, in presence of hard contrasts. I also effectively used Shear Velocity Anisotropy, derived from AVOAz Inversion, with Ant Tracking outputs and demonstrated that those two combined may reveals meaningful insights related to the carbonate heterogeneity.
  Project Overview: Implementation of AVO, AVOAz Inversion and Ant Tracking

- **Look Ahead VSP:**
  In a geologically complex reservoir, I used VSP data to predict the top of the reservoir ahead of the drilling bit. That enabled the client to optimize the drilling plan and successfully approach the target zone following my analysis.

- **Shear Reflected Image with VSP:**
  Processed 3-C VSP data to generate the shear wave reflected image as an additional product and to validate the compressional image. The overall correlation of major features in both images provided confidence to the results. The minor differences also revealed some potential fluid information that can be further assessed through seismic reservoir characterization techniques.

PROFESSIONAL EXPERIENCE

- **Accelerate Data Technologies.** **2021 – present**

Data Engineer/ Machine Learning Developer

- Building up supervised and unsupervised models for classification and prediction purposes
- Data visualization

I am the only developer of 'Alpharank' platform, https://alpharank.com/, which is a data analytical tool for investors.

- **Schlumberger Oilfield Services, Calgary, Canada.** **2012 – 2020**

Senior Reservoir Seismic Specialist, WesternGeco

I extensively worked on projects from Western Canadian Sedimentary Basin, including Montney and Duvernay formations, as well as projects from Gulf of Mexico and Eagle Ford. I had the following tasks undertaken:

- Communicated with seismic processing team to make sure the processing flows are tuned to persevere AVO signatures, and the results is also reasonably conditioned for performing seismic reservoir characterization workflows
- Collected and ensured quality control of all the required inputs for running seismic reservoir characterization projects
- Performed seismic interpretation and characterization workflows to derive required quantitative seismic attributes as per scope of work for various projects. Utilized rock physics insights to discriminate lithology units (and fluids if possible)
- Regularly communicated with clients during execution of seismic reservoir characterization projects, making sure the results fulfilled their needs and were easily useable
- Collaborated with the center manager as well as sale and marketing teams during the bid submission process

- **Schlumberger Oilfield Services, Kuala Lumpur, Malaysia. 2009 –2012**

  Senior Reservoir Geophysicist, Data Consulting Services

  I performed Seismic reservoir characterization projects from MEA and FEA and I was responsible for the following tasks:

  - Gathered and ensured quality control of all the required inputs for executing seismic reservoir characterization projects as well as performed the required seismic conditioning and/or log and horizons editing
  - Identified potential sweet spots and nominated for future drilling
  - Predicted abnormal pore pressure zones and updated well trajectories to avoid or safely go through such zones

- **Schlumberger Oilfield Services, Tehran, Iran. 2008 –2009**

  Borehole Seismic Team Lead, Data Consulting Services

  - Processing various types of borehole seismic data (ZVSP, OVSP, WVSP)
  - Lead and train of junior team members

- **Schlumberger Oilfield Services, Tripoli, Libya. 2006 –2007**

  Borehole Geophysicist, Data Consulting Services

  - Processing various types of borehole seismic data (ZVSP, OVSP, WVSP)

- **Schlumberger Oilfield Services, Tehran, Iran. 2003 –2006**

  Borehole Geophysicist, Data Consulting Services

  - Processing various types of borehole seismic data (ZVSP, OVSP, WVSP)

PUBLICATIONS include:

- H.Gerami; Application of Full Zoeppritz AVO Inversion for Delineating Porous Sand Geobodies over Aquistore Seismic Survey; CSEG Recorder 2019,September edition
- H.Gerami, P.Evans; Implementations of AVO, AVOAz Inversion and Ant Tracking Techniques in Wembley Valhalla Integrated Merge 3D Seismic Survey, Alberta; GeoConvention 2018
- H.Gerami; Utilizing VSP for suppressing Surface Seismic Multiples; GeoConvention 2016
- H.Gerami, J.Lin, A.Haque, J. Johnson; Utilization of Seismic AVO Inversion and Ant Tracking Techniques to Understand and Predict Fracture Behaviors in Montney; GeoConvention 2014
- H.Pourhossein and H.Gerami; Surface seismic processing improvement using VSP Q-Estimated filter; EAGE Shiraz Conference 2009
- A.Arianfar, H.Gerami and Z.Movahed; Advanced Subsurface Imaging Using Integrated VSP-Image Log Methodology in Complex Structures; GeoIndia 2008

EDUCATION

- **M.Sc.,** Data Analytics, Georgia Institute of Technology, 2020-2021, Atlanta, U.S.A
- **M.Sc.,** Geophysics (Exploration Seismology), 1998-2001, Tehran University, Tehran, Iran
- **B.Sc.,** Mining Engineering (Exploration), 1994-1998, Tehran University, Tehran, Iran