



Monday, May 16 (Day 1)

8:00 – 9:00 Registration

Session 1: Opening (Chair: Aria Abubakar)

9:00 – 9:30 Opening Remarks

Ghailthan Muntasher, Aramco Americas R&D Director

9:30 – 10:30 Panel Discussion: Machine Learning in Geoscience: The Opportunities and Challenges (Moderators: Weichang Li, Anisha Kaul)

Tariq Alkhalifah, Biondo L. Biondi, Maarten de Hoop, Sergey Fomel, Yaoguo Li, Gerard Schuster, Mrinal K. Sen

10:30 – 11:00 Networking Break

Session 2: Machine Processing – I (Chair: Wenyi Hu)

11:00 – 11:30 Efficient Physics-Informed Bayesian Inversion of Seismic Data

Gerard T. Schuster, King Abdullah University of Science and Technology

11:30 – 12:00 It is Possible to "Swap Physics" with Symmetric Autoencoders for Seismic Inversion

Laurent Demanet, Massachusetts Institute of Technology

12:00 – 13:30 Lunch Break

Session 3: Student Talks

(Chairs: Anisha Kaul, Henri Houllévigüe)

13:30 – 13:50 Predicting Missing Sonic Logs with Seismic Constraint

Nam Pham, The University of Texas at Austin

13:50 – 14:10 Microseismic Event Analysis in Downhole DAS Data through Convolutional Neural Networks

Paige Given, Stanford University

14:10 – 14:30 Seafloor Elastic Parameters Estimation Using a Regression Neural Network

Moacyr de Souza Bezerra, Colorado School of Mines

14:30 – 14:50 The Pitfalls and Insights of Log Facies Classification Using Machine Learning

David J. Emery, University of Calgary

14:50 – 15:10 A Supervised Machine Learning Approach to Log-Based Lithology Labelling of North Sea Wells

Promise C. Ekeh, Imperial College London

15:10 – 15:30 Karsted Carbonate Reservoirs: Machine Learning Fractal Heterogeneity and Fracture Modelling

Daniel Junior Okyere, Kwame Nkrumah University of Science and Technology

15:30 – 15:50 Using Machine Learning Methods to Estimate True Bottomhole Temperature in Eaglebine and Duvernay Basins

Nabeel Muhammadiyah, University of Houston

15:50 – 16:30 Networking Break

Session 4: NLP (Chair: Weichang Li)

16:30 – 17:00 Natural Language Processing for Knowledge Management in Exploration and Production

Eric Schoen, i2k Connect

17:00 – 17:30 Digital Raster – Transforming Well Logs to Digital Data

Atul Laxman Katole, Schlumberger

17:30 – 20:00 Ice Breaker

Tuesday, May 17 (Day 2)

Session 5: Energy Transition

(Chairs: Aria Abubakar, Weichang Li)

9:00 – 9:30 Integration of Deep Neural Networks into Seismic Workflows for Low-Carbon Energy

Biondo L. Biondi, Stanford University

9:30 – 10:00 Physics-Guided Learning-driven Computational Seismic Imaging: From Synthetic Practice to Field Applications

Youzuo Lin, Los Alamos National Laboratory

10:00 – 10:30 Networking Break

10:30 – 11:00 An Efficient Deep Learning Approach for CO₂ Plume Body and Property Monitoring

Wenyi Hu, Schlumberger

11:00 – 11:30 Unsupervised Learning for the Subsurface Monitoring of Hydraulic Fracture Propagation and CO₂ Plume Migration

Siddharth Misra, Texas A&M University

11:30 – 12:00 The Application of Unsupervised Physical-Informed Full Waveform Inversion on CO₂ Monitoring

Shihang Feng, Los Alamos National Laboratory

12:00 – 13:30 Lunch Break

Session 6: Seismic Processing – II

(Chairs: Wenyi Hu, Henri Houllévigüe)

13:30 – 14:00 MLReal: Data and Label Transformations to Bridge the Distribution Gap Between Synthetic Data Training and Real Data Applications in Machine Learning

Tariq Alkhalifah, King Abdullah University of Science and Technology

14:00 – 14:30 Machine Learning for Seismic Processing: Filling the Gaps by Learning From Field Data

Anatoly Baumstein, ExxonMobil

14:30 – 15:00 Automated Parametrization of Processing workflows

Paul Webster, Shell

15:00 – 15:30 Networking Break

15:30 – 16:00 Deep learning Ground Roll Attenuation

Weichang Li, Aramco Americas, Houston Research Center

16:00 – 16:30 Deep Learning Ensemble for Seismic First Break Picking

Tao Zhao, Schlumberger

16:30 – 17:00 Learning from Migration and Demigration: A Practical Approach for Fast Denoising

Chengbo Li, ConocoPhillips

18:00 – 20:00 Dinner

Sponsors:





Wednesday, May 18 (Day 3)

Session 7: Geophysical Inversion – I

(Chairs: Mehdi Aharchaou, Weichang Li)

- 9:00 – 9:30 **Injective Flows for Uncertainty Quantification and Seismic Inverse Problems**
Maarten de Hoop, Rice University
- 9:30 – 10:00 **Machine Learning Inversions Incorporating Geologic Information Through Variational Autoencoder and Physics-Based Neural Network**
Yaoguo Li, Colorado School of Mines
- 10:00 – 10:30 **Networking Break**
- 10:30 – 11:00 **Solving Seismic Inverse Problems by an Unsupervised Hybrid Machine Learning Approach**
Mrinal K. Sen, The University of Texas at Austin
- 11:00 – 11:30 **Machine Learning of Acoustic Impedance With Large Synthetic Training Data: Rationale, Benefits and Workflow**
Hongliu Zeng, University of Texas at Austin
- 11:30 – 12:00 **Generative Modeling for Inverse Problems**
Rami Nammour, TotalEnergies
- 12:00 – 13:30 **Lunch Break**

Session 8: Wellbore

(Chairs: Anisha Kaul, Wenyi Hu)

- 13:30 – 14:00 **Insights from TotalEnergies Roadmap on Log Conditioning & Interpretation for Subsurface Digital Transformation**
Henri Houllévigue, TotalEnergies
- 14:00 – 14:30 **Deep Learning Enhanced Multi-Physics Joint Inversion**
Jiefu Chen, University of Houston
- 14:30 – 15:00 **Estimating Density and Velocity Using Energy-Driven DAS VSP Inversion and Deep Learning**
Vladimir Kazei, Aramco Research Center
- 15:00 – 15:30 **Networking Break**
- 15:30 – 16:00 **Fundamental Challenges of Traditional Machine Learning Applications in Petrophysics: New Approaches and Opportunities**
Shuvajit Bhattacharya, The University of Texas at Austin
- 16:00 – 16:30 **Image-Based Petrophysical Properties Prediction Using Computer Vision and Machine Learning**
Tao Lin, Aramco Research Center
- 16:30 – 17:00 **Comparison of Different Machine Learning Methodologies for Log Prediction**
Vanessa Simoes, Schlumberger
- 17:00 – 17:30 **Machine Learning-Based Well Log Prediction with Rock-physics Constraints**
Lei Fu, Aramco Research Center



Sponsors:



Thursday, May 19 (Day 4)

Session 9: Geophysical Inversion – II

(Chair: Henri Houllévigue)

- 9:00 – 9:30 **Deep Learning for Integrated Subsurface Property Estimation**
Haibin Di, Schlumberger
- 9:30 – 10:00 **Neural Architecture Search for Inversion**
Xin Zhao, Microsoft
- 10:00 – 10:30 **Field Applications of Physics-Coupled Deep Learning Inversion**
Daniele Colombo, Saudi Aramco
- 10:30 – 11:00 **Networking Break**

Session 10: Seismic Interpretation – I

(Chair: Aria Abubakar)

- 11:00 – 11:30 **Results from SEAM AI — A Collaborative Industry Research Project on Machine Learning in Applied Earth Science**
Michael Oristaglio, Yale University, SEAM AI Project Manager
- 11:30 – 12:00 **Common-Task Method and Machine-Learning Benchmarks**
Sergey Fomel, University of Texas at Austin
- 12:00 – 13:30 **Lunch Break**

Session 11: Seismic Interpretation – II

(Chairs: Mehdi Aharchaou, Haibin Di)

- 13:30 – 14:00 **Deep Learning in Salt Interpretation from R&D to Deployment: Challenges and Lesson Learned**
Pandu Devarakota, Shell

- 14:00 – 14:30 **Where Can Semi-Automatic Fault Detection Using Machine Learning Take Us?**
Stan Jayr, Chevron
- 14:30 – 15:00 **Facies Classification with Wavelets and Deep Learning**
Akhilesh Mishra, Mathworks
- 15:00 – 15:30 **Networking Break**
- 15:30 – 16:00 **Two for One: A Joint Denoising and Segmentation Scheme for Post-Stack Seismic Data**
Tariq Alkhalifah, King Abdullah University of Science and Technology
- 16:00 – 16:30 **Deep Learning Application for Characterizing Petroleum Systems: A Case Study from the Scarborough Gas Field, Offshore Australia**
Julian Chenin, Bluware
- 16:30 – 17:00 **A Comparison of Traditional, Supervised, and Unsupervised Machine Learning-Based Denoising Methods for Post-Stack Seismic Data**
Lukas Mosser, Earth Science Analytics
- 17:00 – 17:30 **Accelerating the Time from R&D to Deployment**
Nanne Hemstra, dGB Earth Sciences
- 17:30 – 17:45 **Closing remarks**
Aria Abubakar, Schlumberger