SPE IMPROVED OIL RECOVERY CONFERENCE

IOR 2026

Enabling IOR: Proven and Emerging Strategies for Maximizing Recovery

SPE International Mid-Continent Section

Introduction to Machine Learning (and Artificial Intelligence) for Oil and Gas Professionals

Course Description

Machine learning (ML) algorithms are transforming workflows in the oil and gas industry. The democratization and access to advanced computational tools is helping organizations exponentially accelerate their decision making using these powerful tools. This course introduces the basic principles of machine learning approaches, introduces different ML algorithms, provides a framework on how to identify if these AI/ML algorithms are useful for your data and finally lists key focus areas for successful business outcomes with focus on subsurface.

Topics:

- Basic concept of AI/ML – what does this try to achieve and what is required?
- Introduction to different types of algorithms
- Framing the correct AI/ML problem for the data (Classification vs Regression)
- Framework to address typical issues – data quality, data sufficiency, testing and final use in production (based on previous successful implementations)
- Successful business cases that drive framework and understanding

Instructor

Dr. Ashwin Venkatraman is the Founder and CEO of Resermine, a niche award-winning oil and gas technology company (MOST Promising at OTC 2018). He is the recipient of the inaugural SPE International Technical Award in Data Science and Engineering Analytics at SPE ATCE 2021 held in

Dubai. The award recognized his contributions to bringing hybrid workflows that combine AI/ML with traditional approaches to accelerate subsurface decision making.

Resermine's products have been used to optimize mature field injection operations and accelerate field development planning for fields in USA, Germany, Oman, UAE, Egypt, Mexico, India and Malaysia. Resermine is based in USA (HQ) with technology delivery centers in Kuala Lumpur (ARMC - Advanced Modeling Center), Dubai (UAE) and Muscat (Oman) to support projects in different regions.

Dr Venkatraman has published over 30 manuscripts and is on the advisory board of SPE's Data Science and Engineering Analytics Committee. He previously worked with Shell for over 12 years at all their technology centers (India, Netherlands and Houston). Dr Venkatraman served as faculty in the Petroleum Engineering Department of University of Oklahoma (2019-2020) and held research appointments in Princeton University as well as at Institute of Computational Engineering & Sciences (ICES) at the University of Texas before founding the Resermine. Dr. Venkatraman holds BSc and MSc in Chemical Engineering from IIT Bombay (India) and earned his PhD from University of Texas at Austin in Petroleum Engineering.