

Obertelligence Podcast # 4 with Dr. Fred Aminzadeh The Future of Data Science and Automation in O&G

This podcast (https://www.youtube.com/watch?v=mgv4mgKYC_0&t=1041s) discusses current advances in Artificial Intelligence (AI), and Data Analytic (DA) with a focus on future trends of AI-DA in the energy industry. Several AI-DA applications in petroleum engineering and geosciences that are expected to be transformative will be highlighted. A parallel between advances made in exploitation of shale resources over the last 10-20 years and what AI-DA promises to deliver over the next 10-20 years will be drawn. We will touch on the differences between AI, ML and DL as well as the related algorithms such as CNN and RNN. We will also discuss Natural Language Processing or NLP and highlight one of its applications is predictive maintenance of oil pumps. Dr. Aminzadeh will discuss AIM-DEEP that he started at the University of Houston. AIM-DEEP is an industry supported multi-disciplinary program. The goal of AIM-DEEP is to become a catalyst by bringing the oil and gas operators, service companies, high-tech data and computer companies, small start-ups and of course academia together. nature and its focus on the academic and industry alliance, complemented by government funding. He will also give us his insight on the topic of BIG Data and the SURE challenge as well as the high-performance computing requirements of oil and gas applications. We will conclude with the potential impact of rapid growth of AI-DA in the oil and gas job market and some advice to the new generation of petroleum engineers and geoscientists entering the industry.



Dr. Fred Aminzadeh is a Professor of Petroleum Engineering at University of Houston and Director of its **Artificial Intelligence Machine Learning and Data Analytics for Energy Exploration and Production (AIM-DEEP)** program. He can be reached at faminzad@central.uh.edu. Dr. Aminzadeh also serves on the Advisory Board of DOE/NETL's SMART Initiative: ([https://edx.netl.doe.gov/smart/.](https://edx.netl.doe.gov/smart/)) He is also president of FACT (www.FACT-Corp.com)

Dr. Aminzadeh has over 30 years of experience in the industry and academia. His technical expertise includes: AI, Data Analytic 3D/4D Seismic, Reservoir Monitoring, CO₂ Sequestration, Micro-seismic, and Fracture Characterization. He served as the president of Society of Exploration Geophysicists (2007-2008) and represented SEG at the Unconventional Resources Technology Advisory Committee (URTAC) and the SPE Reserves Evaluation Committee (SPPE). He is a Fellow of IEEE, and a Member of Russian Academy of Natural Sciences. He received SEG's Honorary Membership and SPE's Western Region Reservoir Characterization and Formation Evaluation Awards

Previously, he was a professor at USC and Director of its Global Energy Network (gen.usc.edu). He was also president and CEO of dGB-USA (dgbes.com), manager of geophysical technology at Unocal (now Chevron) and a member of technical staff at Bell Laboratories. He has consulted at several National Laboratories including LBNL, LLNL, LANL, ORNL and NETL. He holds 4 US patents and has authored 15 books and over 400 publications.