

Ahmed Alsubaih

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Professional Summary

Petroleum Engineer with 17+ years of experience in drilling, workover, reservoir, and production operations engineering within the oil and gas industry. Expert in wellbore instability analysis, well integrity, and geomechanics for conventional and unconventional reservoirs. Proficient in project management, leading complex drilling and workover projects with a focus on cost control, HSE compliance, and minimizing non-productive time (NPT). Skilled in advanced simulation tools including CMG, PHREEQC, Pason Optimizer, MATLAB, Saphir, Prosper, Landmark, Stim Plan, Merakpeep, COMSOL Multiphysics, Abaqus, Hypermesh, Tnavigator, Techlog, Pipesim, Petrel, Intersect and Drillbench. Conducting cutting-edge research at the University of Texas at Austin in geomechanics, reservoir and well integrity, geothermal wells, storage well integrity (CO₂, hydrogen, methane), and smart field simulation for carbon capture and storage (CCS). Adept at leveraging machine learning, statistical modeling, and finite element analysis for data-driven decision-making. Experienced in teaching, mentoring, and delivering industry training on drilling technologies and safety standards.

Education

PhD in Petroleum Engineering

University of Texas at Austin, Austin, Texas

2023 – Present

- Research: Geomechanics, reservoir and well integrity, geothermal wells, storage well integrity (CO₂, hydrogen, methane), smart field simulation for carbon capture and storage (CCS).
- Tools: PHREEQC, MATLAB, COMSOL Multiphysics, CMG, Petrel, Tnavigator Abaqus for simulations and AI-driven injection strategies.

PhD Coursework in Petroleum Engineering

University of Houston, Houston, Texas

2021 – 2023

- Research: Fracture containment during hydraulic fracturing operations using geomechanical simulations.

Master's in Petroleum Engineering

Missouri University of Science and Technology, Rolla, Missouri
2016

- Thesis: Shale instability of deviated wellbores in southern Iraqi fields, focusing on drilling geomechanical mitigation.

B.S. in Fuel and Energy Engineering

Technical Engineering College, Basra, Iraq
2006

Professional Experience

Senior Wellsite Leader

British Petroleum ROO, Basra, Iraq
2022 – 2024

- Ensure operations are in compliance with relevant legislation and BP policies in a consistent manner and appropriate dispensations are in place. Ensure the site safety and environmental management systems are implemented in a consistent manner. Help Wellsite leaders to achieve the right behaviors by the personnel for all HSE campaigns. Responsible for ensuring all BP EPTG Rig Audit actions are closed out and remain closed. Active participation in STOP / SOC / internal process audits on a daily basis.
- Evaluate BP wellsite staff competency, training, and skills assessments and make sure they are performed in a consistent fashion. Work with Rig Manager to ensure Drilling Contractor personnel have required competencies and action plans to close gaps. Lead rig site meetings and verify that all team members fully understand the objectives of the operation, potential risks associated and their role in delivering a safe and successful outcome. Coach WSL, WSDE, Rig Asst and contractors as appropriate.
- Review Management of Change documents and verify that changes to well program are being implemented in a consistent manner. Continuously seek ways to improve the effectiveness and efficiency of the operations. Monitor well operations and support rig teams to safely minimize downtime and control costs, ensuring NPT and ILT are tracked regularly. Accountable for successful implementation of Continuous Improvement Process or equivalent (Technical Limit) at rig site. Optimized well programs using Landmark, minimizing NPT.

Drilling Supervisor

Bashnift International, Sawama, Iraq
2021 – 2022

- Planned and executed drilling programs, ensuring adherence to HSE standards and client KPIs.
- Managed operations including drilling, casing, cementing, and BOP testing .

- Coordinated with contractors to maintain performance and safety.

Reservoir Engineer

ExxonMobil Project WQ1-FOD, Basra, Iraq

2018 – 2021

- Managed water flooding and reservoir surveillance, interpreting well logs with Petrel and Techlog.
- Conducted well test analysis using Saphir and Prosper to optimize production.
- Supported field development planning with CMG simulations.

Drilling Supervisor

Lukoil Project WQ2, Basra, Iraq

2011 – 2018

- Executed directional drilling and formation evaluation, reducing NPT through failure analysis.
- Designed well plans including bit selection, BHA configuration, and mud programs using Landmark.
- Ensured EHS compliance and optimized drilling.
- Excellent understanding of Directional Drilling & Formation Evaluation concepts.
- Experience in Well control.
- Planned and executed activities related to oil and gas drilling as part of a high-performance team.
- Providing engineering solutions for all drilling operations. Minimizing the NPT and ensuring successful operation. Failure Analysis and Root Cause Analysis.
- Performance & Reliability analysis of the D&E operational data. Corrective action implementation and monitoring.
- Completed projects within planned cost and time goals.
- Projected cost management and maintained reports and cost data. Identified operational, cost, risk and schedule issues.
- Supported the drilling operations group and the rig personnel in achieving
- EHS targets.
- Exploratory and development wells planning for both vertical & directional wells, including bit selection, BHA configuration, mud program, drilling time estimation, AFE estimation, casing setting depths & casing data.

Cementing Engineer

South Oil Company, Basra, Iraq

2009 – 2011

- Developed cementing programs and simulations using Landmark to ensure well integrity.
- Executed cement designs for zonal isolation and long-term stability.

Workover Engineer

Iraqi Drilling Company, Basra, Iraq
2009

- Supervised well stimulation, wireline, perforation, Zone isolation, and casing repairs, enhancing productivity.
- Maintained X-tree and ensured safety during operations.

Drilling Engineer Trainee

Iraqi Drilling Company, Basra, Iraq
2008 – 2009

- Supported drilling optimization, well control, and reporting using basic Landmark tools.
- Prepared drilling, cementing, mud, and HSE reports.

Production Engineer

South Oil Company, Basra, Iraq
2007 – 2008

- Monitored production rates and optimized methods to improve efficiency.
 - Reviewed and checked oil production activities such as maintaining production, and well pressure monitoring.
 - Recommended measures to improve production methods and equipment performance to increase efficiency and safety
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Research Experience

Graduate Research Assistant

University of Texas at Austin, Austin, Texas
2023 – Present

- Simulating CO₂/brine interactions with PHREEQC to optimize CCS site integrity.
- Investigating geomechanics, reservoir and well integrity in oil, gas, and geothermal wells, focusing on storage well integrity for CO₂, hydrogen, and methane.
- Developing smart field simulation and injection strategies using MATLAB, COMSOL Multiphysics, and AI tools for real-time monitoring.

Research Assistant

University of Houston, Houston, Texas
2021 – 2023

- Analyzed fracture containment in CO2 injection using Abaqus and Hypermesh simulations.

Master's Research

Missouri University of Science and Technology, Rolla, Missouri
2016

- Studied shale instability in deviated wellbores, proposing geomechanical solutions
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Teaching Experience

Adjunct Lecturer

Basrah University for Oil and Gas, Basra, Iraq

- Taught Drilling I, Drilling II, Petroleum Production I, and Petroleum Production II.
- Mentored senior projects on drilling and geomechanics.

Training Manager and Instructor

Alqiwa Training Company, Dubai, UAE
2021 – 2022

- Delivered training on petroleum engineering, drilling technologies, and HSE standards.
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Publications

- **Alsubaih, Ahmed**, Sepehrnoori, Kamy, and Delshad, Mojdeh. "Environmental Impacts of Orphaned and Abandoned Wells: Methane Emissions, and Implications for Carbon Storage." Applied Sciences, Vol. 14, 11518, 2024.
- Abbas, Mohammed A., Al-Mudhafar, Watheq J., **Alsubaih, Ahmed**, Al-Maliki, Ali, and Ali AlSukaini. "Developing a Novel Machine Learning-Based Petrophysical Rock Typing (PRT) Classification: Applied on Heterogenous Carbonate Reservoirs." SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, USA, September 2024.
- **Alsubaih, Ahmed**, Sepehrnoori, Kamy, Lopez Manriquez, Alberto, Espinoza, D. Nicolas, Allawi, H. Raed, and Swadi Hayfaa. "A Statistical Approach to Estimate the Drilling Mud Window Based on Field Data and Ten Failure Criteria in Depleted

Reservoirs - New Modified Failure Criterion." 58th U.S. Rock Mechanics/Geomechanics Symposium, Golden, Colorado, USA, June 2024.

- **Ahmed, Alsubaih**, and Swadi Hayfaa. "Trenchant Sensitive and Uncertainty Analyses to Enhance Hydraulic Fracturing Design." 55th U.S. Rock Mechanics/Geomechanics Symposium, Virtual, June 2021.
- **Ahmed, Alsubaih**, Hayfaa, Swadi, Ali, Jameel, Sarah, Abd Ali, Abdulrahman, Almanaseer, Madi, Sadi, and Alhajaj Malak. "Hydraulic Fracture Design to Improve Well Injectivity in Southern Iraqi Limestone Reservoir." 55th U.S. Rock Mechanics/Geomechanics Symposium, Virtual, June 2021.
- **Ahmed, Alsubaih**, Hayfaa, Swadi, Hussien, Abdulrida, Maher, Husain, Madi, Sadi, and Alhajaj Malak. "Extensive Hole Cleaning Optimization to Mitigate Wellbore Instability Challenges in Shale Formations." 55th U.S. Rock Mechanics/Geomechanics Symposium, Virtual, June 2021.
- **Alsubaih, Ahmed A.**, Hayfaa, Swadi, Alboshawi, Hassan S., Alaa, Asamer, Al, lawe, Erfan, M., Sawdi, Madhi, Al, Asadi, and H. Lubna. "Reservoir Geomechanics Simulation to Optimize Reservoir Management in Southern Iraq Fields." 54th U.S. Rock Mechanics/Geomechanics Symposium, June 2020.
- Al-Mudhafar, Watheq J., Al lawe, Erfan M., and **Ahmed Alsubaih**. "Bayesian Sensitivity Analysis to Enhance History Matching Through Shale Oil Reservoirs." 53rd U.S. Rock Mechanics/Geomechanics Symposium, New York City, New York, June 2019.
- Alhuraishawy, Ali K., Wei, Mingzhen, **Alsubaih, Ahmed A.**, Bai, Baojun, and Abdullah Almansour. "Evaluation of Gel Treatment in Fractured Reservoir Using Embedded Discrete Fracture Model: Experimental and Simulation Investigation." Abu Dhabi International Petroleum Exhibition & Conference, Abu Dhabi, UAE, November 2018.
- Khamees, Tariq K., Flori, Ralph E., **Alsubaih, Ahmed A.**, and Ali K. Alhuraishawy. "Modeling the Effects of Salinity, Polymer Rheology, Temperature, and Reservoir Wettability on the Performance of In-Depth Gel Treatment Coupled with Surfactant and Polymer Flooding." Abu Dhabi International Petroleum Exhibition & Conference, Abu Dhabi, UAE, November 2018.
- **Alsubaih, Ahmed**, Albadran, Firas, Abbood, Nabeel, and Nuhad Alkanaani. "Optimization of the Tripping Parameters to Prevent the Surge Related Wellbore Instability." 52nd U.S. Rock Mechanics/Geomechanics Symposium, Seattle, Washington, June 2018.
- **Alsubaih, Ahmed**, Albadran, Firas, and Nuhad Alkanaani. "Mechanical Specific Energy and Statistical Techniques to Maximizing the Drilling Rates for Production Section of Mishrif Wells in Southern Iraq Fields." SPE/IADC Middle East Drilling Technology Conference and Exhibition, Abu Dhabi, UAE, January 2018.
- **Alsubaih, Ahmed A.**, Dahm, Haider. H., and Ihsan Alsubaih. "History Matching, Sensitivity and Uncertainty Analysis to Improve Wellbore Stability Model Predictions." 51st U.S. Rock Mechanics/Geomechanics Symposium, San Francisco, California, USA, June 2017.
- **Alsubaih, A. A.**, and R. Nygaard. "Shale Instability of Deviated Wellbores in Southern Iraqi Fields." 50th U.S. Rock Mechanics/Geomechanics Symposium, Houston, Texas, June 2016.

Certifications

- IADC Well Control (Well Sharp), International Association of Drilling Contractors, 2023
- IBM Data Science Professional Certificate, Coursera, 2020
- Machine Learning Specialization, Stanford University, 2020
- Unconventional Reservoir Geomechanics, Stanford University, 2020
- Data Science and AI, IBM, Coursera, 2020
- Data Analysis with Python, IBM, Coursera, 2020
- Machine Learning with Python, IBM, Coursera, 2020
- Advance Petroleum Economic Evaluation, UAE, Dubai, 2021
- ESP Operation, Schlumberger , Iraq, Basra, 2017
- Mudlogging operations, Weatherford Company, Iraq, Basra, 2017
- Advance drilling Technology, Petroskill, Istanbul, Turkey, 2012
- Cement unit Operation, Stewart and Stevenson Company, Houston, Texas, 2011
- Drilling and workover training, Iraqi Drilling Company, 2008 to 2009

Technical Skills

- **Simulation Software:** CMG, PHREEQC, Pason Optimizer, MATLAB, Saphir, Prosper, Landmark, Stim Plan, Merakpeep, COMSOL Multiphysics, Abaqus, Hypermesh, Tnavigator, Techlog, Pipesim, Petrel, Drillbench, Eclipse and intersect
- **Programming Languages:** Python, SQL, R
- **Data Analysis:** Machine Learning, Statistical Modeling, Reservoir Engineering
- **Other Skills:** Hydraulic Fracturing, Reservoir Management, Well Integrity, Geomechanics, Project Management, Petroleum economic, HSE Compliance
- **Languages:** Arabic (Native), English (Fluent)

Affiliations

- Society of Petroleum Engineers (SPE)
 - American Rock Mechanics Association (ARMA)
 - American Association of Drilling Engineers (AADE)
 - Society of Petrophysicists and Well Log Analysts (SPWLA)
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Additional Information

- Available for relocation and travel.
- Strong team player with experience leading multicultural teams in high-pressure environments.