Mostafa Tabatabaei

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Education

University of Tehran **Sep 2018 – Sep 2022**
Bachelor of Science in Petroleum Engineering *GPA: 17.51/20 (3.6/4)*

Research Interest

- Machine Learning | Deep Learning
- Optimization
- Underground Gas Storage (UGS)
- Enhance Oil Recovery (EOR)

Publications

- Mostafa Gilavand, Zahra Almahmoodi, **S. Mostafa Tabatabaei**, Fatemeh Eghbali, Behnam Sedaee, Shahrzad Sajadi, "New dynamic methods of reservoir cut off determination at heterogeneous reservoir: Azadeghan field case study", 3rd International Conference on the New Technologies in the Oil, Gas and Petrochemical Industries.

Research Experience and Projects

Cut-Off Determination | *Excel, VBA* **Mar 2021 – Sep 2021**
- Conducted research project to determine cut-off value for a heterogeneous reservoir of Azadegan oil field.
- Used conventional and modern methods to calculate cut-off and compared results to show advantages of modern method for a heterogeneous reservoir.
- Analyzed large amounts of field data, including well tests, SCAL, RCAL, MICP, PVT, well log data, etc.
- Developed industrial software to incorporate modern methods for calculating cut-off value in heterogeneous reservoirs.

Carbon Capture and Storage | *Python, Curve Fit* **Sep 2021 – May 2022**
- Conducted a comprehensive study of capillary pressure and relative permeability models.
- Collected over 90 capillary pressure and 60 relative permeability experimental data for CO_2 - brine from a thorough literature review to support the study.
- Utilized Python programming and curve fitting techniques to evaluate 11 capillary pressure models and six relative permeability models for the best fit.
- Co-authored a research paper detailing the study's findings and submitted it to a peer-reviewed journal for publication (under review by Environmental Earth Sciences).

EOR Screening | *Python, Machine Learning, Optimization* **Nov 2021 – Aug 2022**
- Co-authored a research paper on building a neural network model for predicting most suitable EOR methods in reservoirs, with a focus on optimizing the model using the Sparrow Search Algorithm (SSA).
- Gathered and pre-processed over 200 EOR samples to train the model.
- Utilized Keras framework to build the neural network and optimized it using SSA to improve accuracy.
- Demonstrated proficiency in machine learning techniques and optimization algorithms.

Well Placement Optimization | *Python, Eclipse, Optimization* **Sep 2022 – Present**
- Developed a reservoir simulation model using Eclipse software to represent the Yadavaran oil field in Iran.
- Utilized two optimization algorithms, Particle Swarm Optimization (PSO) and Sparrow Search Algorithm (SSA), to determine the optimal locations for production and injection wells under various scenarios.
- Developed and implemented a Quality Map concept to enhance accuracy and efficiency in well placement optimization.

Oil Field Development Strategies: A Global Analysis **Nov 2022 – Jan 2023**
- Conducted extensive research to gather data on oil fields worldwide with a focus on recovery factor.
- Analyzed the gathered data to identify successful oil fields and their associated development strategies, including government policies and laws.
- Identified patterns and trends in the data to develop insights into effective field development strategies.
- Contributed to the report's recommendations for improving the development of oil fields in Iran.

Material Balance in Hydrate-capped Gas Reservoirs | *Coure Project* **Mar 2021 – May 2021**

- Conducted research on material balance in Hydrate-capped Gas Reservoirs as a course project in Reservoir Engineering II.
- Studied the formation and stability conditions of gas hydrate reservoirs.
- Researched and presented on the mathematical derivation of material balance for these reservoirs.
- Presented the findings of the study in a comprehensive report and delivered an oral presentation to the course instructor and classmates.

Sudoku Solver Application | *Course Project* **Jan 2019**
- Developed a Python program with GUI to solve Sudoku puzzles.

Work Experience

Internship **July 2021 – Sep 2021**
Persia Oil and Gas Company *Tehran, Iran*
- Gained hands-on experience with production engineering tasks and workflows.
- Conducted a project on modeling multi-fluid flow behavior from reservoir to surface facilities using OLGA software.

Research Assistant **Jan 2021 – Present**
Institute of Petroleum Engineering (IPE), Tehran University *Tehran, Iran*
- Supervisor: Dr. Behnam Sedaee

Teaching Assistant **Jan 2022 – Jun 2022**
Institute of Petroleum Engineering (IPE), Tehran University *Tehran, Iran*
- Reservoir Engineering II
- Instructor: Dr. Behnam Sedaee

Honors and Awards

Top Rank Certification at Faculty of Engineering (FOE) **Sep 2021**
- Ranked 4th among 25th student

Relevant Course

- Reservoir Rock Properties (4/4)
- Reservoir Engineering I, II (4/4)
- Enhanced Oil Recovery (4/4)
- Well Testing (4/4)
- Well Loging (4/4)
- Production Engineering (4/4)

Online Course

- Data Structure and Algorithm
- Python Programming
- Git
- Machine Learning Specialization
- Machine Learning Basics
- Linux Administration Bootcamp: Go from Beginner to Advanced

Technical Skills

Programming/Scripting: Python, Visual Basic, LaTeX
Developer Tools: VS Code, Pycharm, Linux, Git
Frameworks: Numpy, Pandas, Tensorflow, Scikit-learn, Matplotlib, Seaborn, Qt
Softwares: Saphir, Eclipse, OLGA, Microsoft Office
Soft skills: Teamwork, Project Management, Fast Learner, Problem-solving, Initiative

Languages

Persian: Native
English: Fluent (TOEFL iBT will be taken on 20th Aug.)

References, Further information, and Proofs are available upon Request.