



JASSEM ABBASI

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ABOUT ME

Research Scientist with six years of experience in Scientific Machine Learning, Scientific Software Development, and Reservoir Engineering. Passionate about developing AI-driven solutions for sustainable energy technologies. Eager to explore new fields and driven by an unwavering enthusiasm for science and innovation.

QUALIFICATIONS

Programming
Scientific Software Development
Machine Learning | Deep Learning
Optimization | Inverse Calculations
Applied Mathematics | Statistics
Data Science | Data Analytics
Reservoir Engineering/Simulation
Computational Fluid Dynamics (CFD)
Flow in Porous Media | Thermodynamics

SKILLS

ECLIPSE, CMG, MRST (...)	<div><div></div><div></div><div></div><div></div><div></div></div>
COMSOL, OpenFoam	<div><div></div><div></div><div></div><div></div><div></div></div>
Petrel	<div><div></div><div></div><div></div><div></div><div></div></div>
PVTi, PVTsim (...)	<div><div></div><div></div><div></div><div></div><div></div></div>
Optimization (History-matching)	<div><div></div><div></div><div></div><div></div><div></div></div>
Python, C#, MATLAB, (...)	<div><div></div><div></div><div></div><div></div><div></div></div>
TensorFlow, PyTorch, JAX	<div><div></div><div></div><div></div><div></div><div></div></div>
Sciklearn, SciPy, (...)	<div><div></div><div></div><div></div><div></div><div></div></div>
Visualization (Matplotlib, ...)	<div><div></div><div></div><div></div><div></div><div></div></div>
Git (Version Control)	<div><div></div><div></div><div></div><div></div><div></div></div>
Azure ML	<div><div></div><div></div><div></div><div></div><div></div></div>
Databases (MySQL)	<div><div></div><div></div><div></div><div></div><div></div></div>
GPU Computing	<div><div></div><div></div><div></div><div></div><div></div></div>
OOP (Object Oriented Programming)	<div><div></div><div></div><div></div><div></div><div></div></div>
PowerBI	<div><div></div><div></div><div></div><div></div><div></div></div>
WP Web Development	<div><div></div><div></div><div></div><div></div><div></div></div>
Adobe Photoshop	<div><div></div><div></div><div></div><div></div><div></div></div>
Digital Marketing	<div><div></div><div></div><div></div><div></div><div></div></div>

LANGUAGES

English
Norwegian

CURRENT ACTIVITY

Application of Physics-informed Machine Learning for Modelling of Multiphase Flow Processes in Porous Media
> 3D simulation of two-phase flow (CO₂ flooding) in multiscale fractured shale rocks.
See: <https://arxiv.org/abs/2410.20801>

EXPERIENCES (selected)

ETH Zürich (2024)
ETH AI Center – Visiting Researcher (Python, PyTorch, SciML, ...)
EQUINOR ASA, Norway (2022) - (Intern)
Geoscience/Reservoir Simulation Engineer (ECLIPSE, Numerical Simulation, Ensemble Analysis, ...)
ZODAN SOLUTIONS LTD., UK (2019-2020)
Scientific Software Developer (C#, Thermodynamics, Software Development, ...)
SHIRAZ UNIVERSITY/PETROAZMA (2016-2018)
Reservoir [Simulation] Engineer/Researcher (ECLIPSE, MRST, Python, Petrel, ...)
PETROTIRAZIS PTED. (2016) - (Intern)
Scientific Software Developer (MATLAB, Software Development, Field Development, Economics, ...)

EDUCATION

UNIVERSITY OF STAVANGER (2021- Dec. 2024)
Scientific Machine Learning (PhD)
SHIRAZ UNIVERSITY (2014-2016)
Reservoir Engineering (M.Sc.)
PETROLEUM UNIVERSITY OF TECHNOLOGY (2010-2014)
Reservoir Engineering (B.Sc.)

HONORS & AWARDS (selected)

2024 Awarded a prestigious research commercialization fund from **RCN (~0.5 MNOK)** for research on scientific machine learning (SciML).
2024 Awarded as the **Best PhD Candidate** of The Year by SPE Stavanger
2023 Awarded an innovation research stipend (PLOGEN, 100K NOK)
2020 Ranked 2nd in a national Hackathon: Optimized well-placing in a highly heterogeneous oil field
2019 3 Years Distinguished Researcher of EOR Research Centre at Shiraz University
2017 Distinguished Researcher of EOR Research Centre at Shiraz University

PUBLICATIONS (selected)

Under Review (2025): Can Physics-Informed Neural Networks Effectively Model Shock Fronts in Multiphase Flow in Porous Media? A Methodology Review
ML4PS @ NeurIPS (2024): History-Matching of Imbibition Flow in Multiscale Fractured Porous Media Using Physics-Informed Neural Networks (PINNs) →
SPE Journal (2024): Application of Physics-Informed Neural Networks for Estimation of Saturation Functions from Counter current Spontaneous Imbibition Tests →
Neurocomputing (2024): Physical Activation Functions (PAFs): An Approach for More Efficient Induction of Physics into Physics-Informed Neural Networks (PINNs) →
Energy and Fuels (2023): Simulation and Prediction of Spontaneous Imbibition at Early and Late Times Using Physics-Informed Neural Networks →



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EXPERIENCES

ETH Zürich, Switzerland (2024)

[ETH AI Center – Visiting Researcher](#)

Collaborating with the host researchers regarding the challenges in modelling the flow problems with shock front discontinuities.

University of Stavanger, Norway (2021-2024)

[PhD Research Fellow in Petroleum Technology/ Artificial Intelligence](#)

Research Physics-Informed Neural Networks (PINNs) and their application in solving forward and inverse problems related to flow in porous media. Also, developing technology for more efficient usage of multi-fidelity datasets using PINNs.

Equinor ASA, Norway (2022)

[Subsurface Engineer | Reservoir Simulation \(intern\)](#)

Worked on a business and engineering case involving the tie-back of two offshore gas fields, addressing both economic and technical aspects.

> I successfully completed the numerical simulations for the project and delivered statistical (ensemble-based) engineering and financial insights to the management team to support decision-making.

ZODAN Solutions LTD., UK (2019-2020)

[Scientific Software Developer](#)

Developed commercial software for simulating the thermodynamics of subsurface geofluids, including oil, gas, and brine (in C#).

Shiraz University/PetroAzma (2016-2018)

[Reservoir Simulation Engineer | Research Assistant](#)

> Conducted core-to-field scale studies of improved recovery methods across multiple oil/gas fields, including screening techniques, experiment design and evaluation, parameter extraction, upscaling, and geological analysis (ECLIPSE, CMG).

> Responsibilities included geological analysis, field-scale history-matching, development evaluation, pilot design, proposal preparation (ECLIPSE, CMG, Petrel).

> Performed PVT study of a gas condensate field.

> High fidelity analysis of water flow around production wells in naturally fractured reservoirs.

> Serving as a research assistant on academic projects, while advising several master's students.

PetroTirazis PTED. (2016)

[Software Developer \(intern\)](#)

Developed software tailored to the petroleum industry, designed to support fast-track planning during the early stages of field development projects.

CERTIFICATES (selected)

Machine Learning

[Stanford University - 2020](#)

Scientific Machine Learning

[By KTH and Brown universities - 2023](#)

Fundamentals of Scalable Data Science

[By IBM, 2020](#)

Fundamentals of Digital Marketing

[Google, 2021](#)

PRESENTATIONS (selected)

[2024 ML4PS Workshop at NeurIPS](#)

[2024 InterPore Norway Branch](#)

[2024 Energy Norway](#)

[2024 EAGE IOR+](#)

[2022 SPE SPWLA](#)

[2022 EAGE EUROPEC](#)

TEACHING (selected)

Scientific Machine Learning (workshop)

[University of Campinas, 2024 - Lecturer](#)

Advanced Fluid Phase Calculations (workshop)

[Shiraz University, 2019 - Lecturer](#)

Advanced MATLAB Programming (workshop)

[Shiraz University, 2018 - Lecturer](#)

ECLIPSE Reservoir Simulation Software

[Shiraz University, 2015-2017 - Lecturer](#)

PVTi and PVTsim Fluid Modelling Software

[Shiraz University, 2016 – Lecturer](#)

VOLUNTEER (selected)

[2024 Session Chair at EAGE Annual Conference in Oslo \(ML & AI\)](#)

[2022 Organizer at Pint of Science Norway](#)

[2018-Present Journal and Conference Reviewer](#)

[2012-2014 Editor in Chief at a student scientific journal](#)

[2011-2012 A member of student scientific association committee during my B.Sc.](#)

REFERENCES

Pål Østebø Andersen

[Supervisor, University of Stavanger | pal.andersen@uis.no](#)

Siddhartha Mishra

[Supervisor, ETH Zurich | siddhartha.mishra@sam.math.ethz.ch](#)

Farokh Shaoei

[Manager, Equinor | ffk@equinor.com](#)

Ameya D. Jagtap

[Supervisor, Worcester PTech. Inst. \(WPI\), USA | ajagtap@wpi.edu](#)