

SUMMARY

Ph.D. student in environmental engineering at the University of Guelph, studying the building decarbonization strategies to reduce both operational and embodied carbon footprint of buildings. I will use optimization techniques and economics models to propose decarbonization solutions toward creating cost-effective environmentally-aware buildings. M.Sc. graduate of petroleum engineering competent in managing academic projects on formation damage, enhanced oil recovery, and application of Nano fluids in the oil and gas industry. A life-long learner with excellent interpersonal, communication, and organizational skills. An enthusiastic and professional attitude towards teaching communication and presentation skills, thanks to the demonstrated history of research and teaching at the University of Tehran.

EDUCATION

Ph.D. Student in Environmental Engineering (2023 – 2027)

Atmospheric Innovations Research (AIR) Laboratory, University of Guelph, Guelph, ON, Canada

Dissertation: Improved Multi-Scale Urban Physics Modeling

Supervisor: Dr. Amir A. Aliabadi

MSc (First-Class Honors) in Petroleum Engineering (2017 – 2019)

Institute of Petroleum Engineering, University of Tehran, Tehran, Iran

Dissertation: Nanoparticle's Effects on Fine Migration at Various Salinity, pH, and Temperature

GPA: 3.77 out of 4.0

Supervisor: Dr. Siavash Riahi

BSc (First-Class Honors) in Petroleum Engineering (2013 – 2017)

Institute of Petroleum Engineering, University of Tehran, Tehran, Iran

Dissertation: The Investigation of Calculated Pressure Drop in Petroleum Wells by Empirical Equations and Calculating the Errors of the Equations by Pipesim software

GPA: 3.35 out of 4.0

Supervisor: Dr. Mohammadreza Rasaei

PUBLICATIONS

INTERNATIONAL JOURNALS

- Aliabadi AA, Chen X, Yang J, **Madadzadeh A**, Siddiqui K. (2023) "Retrofit optimization of building systems for future climates using an urban physics model". *Building and Environment*. <https://doi.org/10.1016/j.buildenv.2023.110655>.
- **Madadzadeh A.**, Sadeghein, A., & Riahi, S. (2020). "The use of nanotechnology to prevent and mitigate fine migration: a comprehensive review", *Reviews in Chemical Engineering*. <https://doi.org/10.1515/revce-2019-0055>.
- **Madadzadeh A.**, Sadeghein A., Riahi S. (2021) "A Comparison of Different Nanoparticles' Effect on Fine Migration by Low Salinity Water Injection for Oil Recovery: Introducing an Optimum Condition", *Journal of Energy Resources Technology*. <https://doi.org/10.1115/1.4052415>.
- **Madadzadeh A.**, Sadeghein A., Riahi S. (2021) "Nanosilicas' Effects on Fine Migration and Location Distribution of Blockage in Different pH and Temperatures: Modeling and Experimental Studies", *The Canadian Journal of Chemical Engineering*. <https://doi.org/10.1002/cjce.24353>.
- Zojaji I., **Madadzadeh A.**, Riahi S. (2021) "Elemental Analysis of Scale Inhibitors' Effect on Water Incompatibility in Carbonate Reservoirs: Modeling, bulk and Core Scales Studies", *Journal of Petroleum Science and Engineering*. <https://doi.org/10.1016/j.petrol.2021.109580>.
- Ghobadi H., Riahi S., Nakhaee A., **Madadzadeh A.** (2021) "Design of a Sand Production Control System using Particle Size Distribution Analysis in Two Southwestern Iranian Oil Reservoirs", *Journal of Mineral Resources Engineering*. <https://doi.org/10.30479/JMRE.2021.15215.1498>.

- Sabzian A., **Madadzadeh A.**, Riahi S., Kaffashi B. (2022) " A Study on Synergetic Effects of two Polymers on Enhancing Oil Recovery at Harsh Reservoirs Conditions: Introducing an Optimum Solution". *Journal of Petroleum Science and Engineering*. <https://doi.org/10.1016/j.petrol.2022.110619>.

INTERNATIONAL CONFERENCES

- Sadeghein A, **Madadzadeh A.**, Riahi S. "A Review on the Experimental Methods of Fine Migration", *5th International Conference on Applied Research in Chemistry and Chemical Engineering*, **2018**.
- Zojaji I., **Madadzadeh A.**, Riahi S. " The Mitigation of Formation Damage in Seawater Flooding by Scale Inhibitors", *3rd International Biennial Oil, Gas, and Petrochemical Conference*, **2021**.
- Ghobadi H., **Madadzadeh A.**, Riahi S., " An Investigation of Various Salts and pH's Effect on Fine Migration in Sandstone Reservoirs", *3rd International Biennial Oil, Gas, and Petrochemical Conference*, **2021**.

TEACHING EXPERIENCE

Graduate Teaching Assistant at Institute of Petroleum Engineering, University of Tehran, Iran

- **Fluid Mechanics** (Fall 2018)
 - Teaching Matlab Programming language
 - Invigilating Exams
- **Thermodynamics 1** (Winter 2018)
 - Orientation–Training
 - Invigilating Exams
 - Grading
- **Production Engineering** (Fall 2017)
 - Organized tutoring classes and solved related examples
 - Responded to students' questions via email and provided detailed feedback to students
 - Invigilating Exams
 - Grading

Teaching Specialist and Advisor at Kannon Ghalamchi Amozesh, Tehran, Iran (Sep 2016- June 2017)

- **Teaching Mathematic to high school students**
- **Teaching Fundamental of Physics to high school students**
- **Advisor and Preparing Study Plan**

JOB EXPERIENCES

Graduate Student Researcher at Institute of Petroleum Engineering, University of Tehran, Iran (2017-May 2023)

- Laboratory Advisor
 - Teaching new Students and researchers to install and run laboratory's Set ups and devices
 - Studying the effect of low salinity and engineered water flooding on enhancing oil recovery of oil wells in Azadegan field, Iran.
- Investigated nanoparticles' effect on fine migration at various pH and temperatures using the sand-clay retention test apparatus at the Chemical Enhanced Oil Recovery Laboratory
- Contributed in design and development of a cutting-edge high-pressure high-temperature (HPHT) apparatus to simulate static and dynamic conditions of the reservoir
- Used PIPESIM to simulate multiphase flow in conventional wells, applied the developed model into the oil wells in Azadegan field, Iran
- Investigated key parameters in the injectivity of oil wells during waterflooding processes

Production Engineer at Pars Petro Zagros Engineering & Services Co. (PPZ), Tehran, Iran (April 2022-April 2023)

- Data analysis
- Modeling the vertical flow performance (VFP) in wells (Prosper software)
- Well testing and DST analysis (Saphir software)
- Reservoir Dynamic modeling (Petrel and Eclipse software)
- Providing Reports

Junior Production Engineer at Research Institute of Petroleum Industry (RIPI), Tehran, Iran (2021-April 2022)

- Data analysis
- Providing Reports

Project Control Manager at Institute of Petroleum Engineering, University of Tehran, Iran (2020-May 2022)

- Project planning
- Collaborating with project managers, crew leaders, superintendents, and engineering professionals working on the project
- Scheduling planning meetings and progress check-ins
- Reviewing project quality compared to the desired objective

RESEARCH INTERESTS

Environmental Engineering	Urban Modeling	Optimizations techniques
GHG Emission Mitigation	Environmental Economics	Renewable Energies

AWARDS AND ACHIEVEMENTS

- Ranked **16th** among more than 3000 contestants in the national entrance exam for master studies (**2017**)
- Ranked in the top **0.5%** of the participants in Iran's national university entrance exam (a division of mathematics and physics, **2013**)

COMPUTER SKILLS

Programming: Matlab, Python
Simulation: VCWG, PIPESIM, PROSPER, Saphir, ECLIPSE 100/300, Petrel

LABORATORY SKILLS

Core-Flood Apparatus
High-Pressure High-Temperature (HPHT) Sand-Clay Production Test Apparatus
IFT and Contact Angle

LANGUAGE SKILLS

Persian (Farsi)	Native/Bilingual		
Turkish	Native/Bilingual		
English	Fluent	TOEFL iBT:	101/120

REFERENCES

Dr. Amir A. Aliabadi Email: aliabadi@uoguelph.ca	Associate Professor of Environmental Engineering Atmospheric Innovations Research (AIR) Laboratory, School of Engineering, University of Guelph, Guelph, Canada
Dr. Siavash Riahi Email: Riahi@ut.ac.ir	Professor of Petroleum Engineering Institute of Petroleum Engineering, University of Tehran, Tehran, Iran
Dr. Mohammadreza Rasaei Email: Mrasaei@ut.ac.ir	Associate Professor of Petroleum Engineering Institute of Petroleum Engineering, University of Tehran, Tehran, Iran