

# Yevgeniy Samarkin

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Google scholar: <https://scholar.google.com/citations?user=WPCp3IEAAAAJ&hl=en>

## WORK EXPERIENCE

### University of Texas at Austin

#### Graduate Research Assistant position (2023 August – present)

- Studied the behavior of the foams in smooth and rough fractures.
- Researched on the potential applications of supercritical CO<sub>2</sub> foams in geothermal systems and CCUS.

### King Fahd University of Petroleum and Minerals (KFUPM)

#### Graduate Research Assistant position (2020 – 2023)

Worked on the project titled “Improving long term hydraulic fracture conductivity using chemical additives”. The project was oriented on solving fracture conductivity problems (proppant embedment, asperities failure) arising in soft carbonate formations due to the rock creeping. The proposed solution involved improving mechanical properties of the carbonate rock samples (chalk, limestone) utilizing chemical consolidation techniques. The project required lab work and the following experiments/analyses were conducted frequently:

- Analysis of rock mechanical properties using scratch, Brinell hardness and impulse hammering tests.
- Study of chemical treatment effects on petrophysical properties of the rock samples (i.e., porosity and permeability) using helium porosimetry, steady-state and unsteady-state nitrogen gas injection techniques.
- Analysis of reaction kinetics between chemicals and carbonate rocks (utilizing inductively coupled plasma mass and optical emission spectrometry, ion chromatography and total x-ray fluorescence spectroscopy techniques).
- Identification of the changes in mineralogy of the rock samples after treatment by consolidating agents (using x-ray diffraction and scanning electron microscopy with energy dispersive spectroscopy techniques).
- Conducting API fracture conductivity tests.

#### Teaching Assistant position (2020 – 2023)

Was TA for the following courses:

PETE560 - Mathematical Methods in Petroleum Engineering

PETE410 - Natural Gas Engineering

PETE406 - Improved Oil Recovery

### CELT Colleges

#### English language teacher (September – October 2019)

Position: Speaking teacher

### Khazar University

#### Teaching Assistant position (April – June 2019)

Courses taught: Physics 1

### BP Exploration Caspian Ltd

#### Completion engineer intern, ACG team (2018 July-September)

Established boundary conditions for combining WBCO (Wellbore cleanout) and drilling operations for ACG producers and created alignment between drilling and completion teams in implementation of combined operation.

- Reviewed the impact of various drilling tools on the WBCO operation
- Identified equipment limitations and suggested solutions
- Investigated opportunities to improve the mud conditioning procedures in a combined run scenario

- Reviewed scraper designs available in the market, identified pros and cons of each and recommended scraper to be used for future operations
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## EDUCATION

### **University of Texas at Austin (2023 – present)**

PhD in Petroleum Engineering (GPA 3.89/4.00)

### **King Fahd University of Petroleum and Minerals (KFUPM) (2020 – 2022)**

MSc in Petroleum Engineering (GPA 3.893/4.00)

### **SPE Azerbaijan Young Talents program (2017 - 2019)**

Courses completed:

- General geology
- Geomechanics
- Drilling engineering

### **Middle East Technical University (METU) (2017 February – June)**

I was selected from a large number of students to participate in the ERASMUS+ program and study one semester at the leading university in Turkey. During this time, I performed well in chosen subjects, showcasing myself as an intelligent, reliable, and hardworking person.

### **Khazar University (2015 – 2019)**

BSc in Petroleum Engineering

- One of the top students at the university (GPA 91/100)

### **Full secondary school N169 (2004 – 2015)**

Graduated with excellent marks

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## PERSONAL SKILLS

### **Language proficiency**

Russian – mother tongue

Azerbaijani – native speaker

English – C1 (IELTS overall band score 8, TOEFL – 110)

German – A2 (Beginner)

### **Social skills**

Strong leadership skills

Good communication skills

Teamwork

Commendable presentation skills

### **Computer skills**

Machine Learning, Deep Learning

Microsoft Office

Adobe Photoshop

MATLAB, Python

AutoCAD, 3ds MAX

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## JOURNAL ARTICLES

1. Mahmoud Desouky, **Yevgeniy Samarkin**, Murtada Saleh Aljawad, Abduljamiu Amao, Murtadha J. AlTammar, and Khalid M. Alruwaili (2024). Diammonium Phosphate Treatment for Sustained Hydraulic/Acid Fracture Conductivity in Chalk and Limestone Formations, *SPEJ*.

<https://doi.org/10.2118/219476-PA>

2. **Yevgeniy Samarkin**, Abduljamiu Olalekan Amao, Murtada Saleh Aljawad, Mostafa Borji, Norman Scott, Murtadha J. AlTammar & Khalid M. Alruwaili (2023). In-situ micro-CT scanning and compressive strength assessment of diammonium hydrogen phosphate (DAP) treated chalk, *Scientific Reports*.

<https://doi.org/10.1038/s41598-023-43609-6>

3. **Yevgeniy Samarkin**, Abduljamiu Amao, Murtada Saleh Aljawad, Theis Sølling, Khalid Al-Ramadan, Murtadha J. AlTammar, Khalid M. Alruwaili (2023). Conductivity Enhancement of Fractured Carbonates through High-Temperature Diammonium Hydrogen Phosphate Consolidation: A Preliminary Study, *SPEJ*.

<https://doi.org/10.2118/214657-PA>

4. **Samarkin, Y.**, Amao, A., Aljawad, M. S., Sølling, T. I., Norrman, K., Al-Ramadan, K., AlTammar, M. J., & Alruwaili, K. M. (2022). Hardness Enhancement of Carbonate Rocks by Formation of Smithsonite and Fluorite. *Rock Mechanics and Rock Engineering*.

<https://doi.org/10.1007/s00603-021-02701-x>

5. **Samarkin, Y.**, Aljawad, M. S., Amao, A., Sølling, T., Abu-Khamsin, S. A., Patil, S., AlTammar, M. J., & Alruwaili, K. M. (2022). Carbonate Rock Chemical Consolidation Methods: *Advancement and Applications*. *Energy & Fuels*.

<https://doi.org/10.1021/acs.energyfuels.2c00232>

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## CONFERENCE PUBLICATIONS

1. **Yevgeniy Samarkin**, Maša Prodanovic, David DiCarlo, Abdul Raouf Tajik, Angel Wileman (2024). ScCO<sub>2</sub> Foams for Geothermal Reservoirs' Stimulation: Impact of Fracture Roughness and Temperature on Rheology. *SPE Annual Technical Conference and Exhibition*. **(Poster presentation)**

<https://doi.org/10.2118/220765-MS>

2. **Yevgeniy Samarkin**, Murtada Saleh Aljawad, Theis Ivan Sølling, Abduljamiu Olalekan Amao, Murtadha J. AlTammar, Khalid M. Alruwaili (2023). Diammonium Hydrogen Phosphate Treatment for Sustaining Long-Term Acid Fracture Conductivity of Chalk Formations. *SPE Annual Technical Conference and Exhibition*. **(Oral presentation)**

<https://doi.org/10.2118/214856-MS>

3. **Yevgeniy Samarkin**, Abduljamiu Olalekan Amao, Murtada Saleh Aljawad, Theis Ivan Sølling, Murtadha J. AlTammar, Khalid M. Alruwaili (2023). High-temperature DAP Treatments of Carbonate Rocks for Proppant Embedment Severity Mitigation. SPE Europe & 84th EAGE Annual Conference & Exhibition. **(Poster presentation)**

<https://doi.org/10.2118/214368-MS>

4. **Samarkin, Y.**, Aljawad, M. S., Amao, A. O., Sølling, T. I., Al-Ramadan, K., AlTammar, M. J., & Alruwaili, K. M. (2021). Improving Long-Term Hydraulic Fracture Conductivity in Carbonate Formations by Substitution of Harder Minerals. Abu Dhabi International Petroleum Exhibition & Conference. **(Poster presentation)**

<https://doi.org/10.2118/208118-MS>

5. **Samarkin, Y.**, Aljawad, M., Amao, A., Sølling, T., Al-Ramadan, K., Abu-Khamsin, S., Patil, S., AlTammar, M., & Alruwaili, K. (2022). Hydraulic Fracture Conductivity Sustenance in Carbonate Formations Through Rock Strengthening by DAP Solution. International Petroleum Technology Conference. **(Poster presentation)**

<https://doi.org/10.2523/IPTC-22496-MS>

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## ABSTRACTS

1. **Y. Samarkin**, G. Glatz, U. Waheed, M. Mahmoud, M. Al Jawad (2023). FMI Logs Deblurring and Inpainting Using Deep Learning. 84th EAGE Annual Conference & Exhibition. **(Poster presentation)**

<https://doi.org/10.3997/2214-4609.202310533>

2. **Samarkin, Y.**, Aslanov, E., Tariq, Z., Al-Jawad, M., & Alafnan, S. (2021). Extension of Unified Fracture Design (UFD) Concept to Naturally Fractured Formations. 82nd EAGE Annual Conference & Exhibition. (**Poster presentation**)

<https://doi.org/10.3997/2214-4609.202112933>

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## PATENTS

1. Long-term hydraulic fracture conductivity through rock strengthening via the formation of fluorite **Y. Samarkin**, M.S. Aljawad, T. Solling, M.J. Altammar, K.M. Alruwaili.

<https://patents.google.com/patent/US11767461B1/en>

2. Methods for increasing the hardness of subterranean formations **Y. Samarkin**, M.S. Aljawad, A. O. Amao, M.J. Altammar, K.M. Alruwaili.

<https://patents.google.com/patent/US12071590B2/en>

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## AWARDS

### **American Rock Mechanics Association (ARMA) applied research award (2022)**

The project I worked on during my MSc studies was selected as the best applied research of the year by ARMA. In general, the award recognizes an original contribution that advances the theoretical or fundamental aspects of rock mechanics and rock engineering.

### **SPE “Gold Standard Chapter” award recipient (2018)**

This award was presented to the SPE Khazar University Student Chapter for the outstanding activities of the chapter's board throughout 2017-2018. During the same period, I served as the president of the student chapter's board.

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## HONORS & CERTIFICATES

Certificates from Coursera/DeepLearning.AI for successful completion of Machine Learning courses (2022)

Winner of the SPE KFUPM student paper contest (2022)

Certificate of appreciation for valuable contribution to Khazar University life (Graduation, October 2019)

Successful completion of Reservoir Geomechanics online course offered by Stanford university (2018)

Honors of Dean's office for high GPA

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## MEMBERSHIPS & VOLUNTEERING EXPERIENCE

Member of Society of Petroleum Engineers (SPE)

President of SPE Khazar University Chapter (October 2017 – September 2018)

Communications Officer at SPE Khazar University Chapter (October 2016 – September 2017)

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