Miguel Angel Corrales

PhD. Student at King Abdullah University of Science and Technology

Earth Science and Engineering Program

miguel.corrales@kaust.edu.sa | linked.in/macg11 | dig.kaust.edu.sa/people/detail/miguel-corrales

+966 54280 7181 | August 11, 1994

I am a Ph.D. student in Earth Science and Engineering Program specializing in deep generative modeling and uncertainty quantification for subsurface imaging applications. I have demonstrated outstanding academic achievement and am highly collaborative in my research by tackling challenges to bridge deep learning and subsurface imaging. My knowledge comprehends deep learning, uncertainty quantification, deep generative modeling, fluid flow in porous media, percolation theory, inverse problems, and modeling naturally fractured reservoirs.

EDUCATION

PhD Program
01/2022 - Present

King Abdullah University of Science and Technology
Earth Science and Engineering Program. Member of Deep Imaging Group (DIG)

- Deep Reservoir characterization and Uncertainty Quantification from macro scale rock imaging to reservoir scale characterization using Deep Learning framework and Deep Generative Models.

MS Program
08/2019 - Present

King Abdullah University of Science and Technology
Energy Resources and Petroleum Engineering Program. Member of Advanced Reservoir Modeling and Simulation Research Group (ARMS)

- Assessment of CO_2 storage in saline aquifers in the Unayzah Reservoir, Central Arabia, Kingdom of Saudi Arabia.

GPA: 3.85

Petroleum Engineering
08/2012 - 11/2017

Universidad Central del Ecuador
Strong Fundamentals about the different of Oil and Gas Supply Chain. Honorific mention.

Petroleum Engineering
08/2016 - 12/2016

Universidad Nacional Autonoma de Mexico (UNAM)
Academic exchange Program, Faculty of Engineering. 9th Semester. Enhanced Oil Recovery Fundamentals, Well Forecasting, and Well Completion.

PROFESSIONAL EXPERIENCE

Reservoir Engineering
03/2017 - 08/2017

Petroamazonas EP
Waterflooding in Coca-Payamino field (Sandstone U) using Mathematical Reservoir Simulation.

Scientific Research
08/2016 - 12/2016

Oil Industry Service Unit (USIP - UNAM)
Participation in the Project SENER-CONACYT-HYDROCARBON 0185183, Enhanced Oil Recovery Process, Polymer Flooding and PPG.

PUBLICATIONS

Papers and Posters

- Corrales, M.,Izzatullah M., H. Hoteit, and M. Ravasi. A Wasserstein GAN with gradient penalty for 3D porous media generation: EAGE AI Workshop - 2022.
- Romero J., Corrales M., Luiken N., and Ravasi M. Plug and Play Post-Stack Seismic Inversion with CNN-based Denoisers: EAGE AI Workshop - 2022.

- Corrales, M.,Izzatullah M., M. Ravasi, and H. Hoteit, Bayesian RockAVO: direct petrophysical inversion with Hierarchical Conditional GANs: SEG image - 2022, submitted. 2022.
- Corrales, M., M. Ravasi, and H. Hoteit, 2022, Data-driven, direct rock-physics inversion of pre-stack seismic data.: EAGE 2022.
- Corrales M.,Tasianas A., Mantilla S.,, Hoteit H., Afifi A., The Potential for Underground CO2 Disposal Near Riyadh. IPTC 2022.
- Mantilla S, Tasianas A., Corrales M., Hoteit H., Afifi A., Quantifying Uncertainty through 3D Geological Modeling for Carbon Capture Utilization and Storage in the Unayzah Formation in Saudi Arabia. EGU General Assembly 2021.
- Enabling CO_2 Geological Storage within a Low-Carbon Economy. King Abdullah University of Science and Technology (KAUST), February 22-24, 2021.

ADDITIONAL

Hard Skills

Python, Pytorch, Matlab, R, CMG Reservoir Simulation, Petrel E&P, Interactive Petrophysics, LaTeX.

Awards

- Hackathon KAUST NVIDIA 2022 Winner, Accelerating Scientific applications using GPU's (October 2022).
- Petrobowl Team (KAUST) - Top 3 MENA Qualifiers (August 2022).
- BEST IN SHOW, Hackathon - Explainable A.I., EAGE ANNUAL 2022, Madrid-Spain (June 2022)
- Third Place e-Poster competition. KAUST Research Conference - Enabling CO2 Geological Storage Within a Low-Carbon Economy, (February 2021).
- Petrobowl Team (KAUST) - Top 16 Worldwide Competition (January 2021).
- Petrobowl Team (KAUST) - Top 3 MENA Qualifiers (August 2020).
- Academic Exchange Recognition, Universidad Central del Ecuador (2016).
- Academic Excellence Scholarship, Universidad Central del Ecuador (2012-2017).

Languages

Spanish (Mother tongue). English

REFERENCES

Prof. Matteo Ravasi
Assistant Professor @ King Abdullah University of Science and Technology (KAUST)
matteo.ravasi@kaust.edu.sa

Prof. Hussein Hoteit
Associate Professor @ King Abdullah University of Science and Technology (KAUST)
hussein.hoteit@kaust.edu.sa