ROMAL RAMADHAN

Austin, TX, USA ✉ romalramadhan@utexas.edu
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Research Interests

Research Interests: CO_2 Storage, H_2 Storage, Geothermal Energy, Critical Minerals, Geomechanics
Primary Fields: Reservoir Simulation, Coupled Subsurface Flow–Geomechanics, Fault Leakage, Caprock Integrity, Wellbore Stability, Containment Risk, and Monitoring Design and Uncertainty Analysis
Secondary Fields: Subsurface Containment Risk Assessment, Geologic Energy Storage Design & Monitoring and Data Integration

Skills

Technical Skills: CMG, Petrel, Eclipse, MBAL, Pressure Transient Analysis (PTA)
Data Analysis: Python, MATLAB, OriginLab, and LaTeX

Education

Ph.D. in Geosciences, The University of Texas at Austin, USA — Aug 2024–2028 (expected)
Gulf Coast Carbon Center (GCCC), Bureau of Economic Geology (BEG)
Co-Advisors: Dr. Seyyed A. Hosseini; Dr. Larry W. Lake
Relevant Coursework: Reservoir Simulation, Advanced Reservoir Engineering, Subsurface Energy Storage, Enhanced Oil Recovery, Applications of Data Analysis, Visualization in Geosciences, Python and Machine Learning in Geosciences

M.Sc. in Petroleum Engineering, Chulalongkorn University, Thailand — Jan 2021–Jan 2023

B.Sc. in Petroleum Engineering, Universitas Islam Riau, Indonesia — Sep 2014–Jun 2018

Work Experience

Graduate Research Assistant, Gulf Coast Carbon Center (GCCC), Bureau of Economic Geology (BEG), UT Austin — Aug 2024–Present

Reservoir Engineer (Research), CCS Frontier Research Centre, Chiang Mai University — Jan 2023–Jun 2024

Selected Peer-Reviewed Publications

Ramadhan, R. & Hosseini, S. A. (under review). *Gradual modifiers for storage-conserving truncated porous media models: accuracy and efficiency in CCS flow simulation*. Advances in Water Resources

Ramadhan, R & Mon, M. T (under review). *Underused Geothermal Potential in Southeast Asia's Net-zero Transition*. Geoscience Frontiers

Ramadhan, R., Abdurrahman, M., Arsad, A., et al. (2025). *Reservoir heterogeneity and its role in long-term CO_2 storage performance: A case study of Air Benakat formation*. Deep Resources Engineering.

Tangparitkul, S., Akamine, T., **Ramadhan, R.**, et al. (2025). *CO_2 storage infrastructure and cost estimation for BECCS in northern Thailand*. Carbon Capture Science & Technology.

Ramadhan, R., Tapanya, C., Thakheru, A., Leelasukseree, C., & Tangparitkul, S. (2024). *CO_2 trapping dynamics in tight sandstone: Insights into trapping mechanisms in Mae Moh's reservoir*. Journal of Environmental Management.

Ramadhan, R., Mon, M. T., Tangparitkul, S., Tansuchat, R., & Agustin, D. A. (2024). *Carbon capture, utilization, and storage in Indonesia: Storage capacity, status, economics, and policy*. Energy Geosciences.

Ramadhan, R., Promneewat, K., Thanasaksukthawee, V., et al. (2024). *Geomechanics contribution to CO_2 storage containment and trapping in tight sandstone complexes: Mae Moh Basin*. Science of the Total Environment.

Ramadhan, R., Abdurrahman, M., Bissen, R., Maneeintr. K. (2023). *Numerical simulation of potential site for CO_2*

sequestration in a depleted oil reservoir in northern Thailand. Energy Report.

Presentations

Poster: "Sealing or leaking? Evaluating fault integrity under CO_2 storage operations" Jackson School Annual Research Symposium, Austin, TX — 2026

Oral: "Efficient Boundary Modeling for CO_2 Storage in Saline Aquifers" GSA Connect, San Antonio, TX — 2025

Poster: "Reduced-grid models with boundary-condition accuracy for subsurface energy and waste storage" Jackson School Annual Research Symposium, Austin, TX — 2025

Oral: "Numerical simulation of potential site for CO_2 sequestration in a depleted oil reservoir in northern Thailand" ICREC, Paris, France — 2022

Oral: "Correlation comparison for prediction of density and viscosity of aqueous 2-(ethylamino)ethanol (EAE) for carbon capture" AUA Academic Conference, Kuala Lumpur, Malaysia — 2022

Awards, Fellowships and Activities

CCUS Conference Week 2025 — Whole Value Chain CCUS — 2025

SMART-CDR Competition (Carbon Dioxide Removal) — Semi-finalist — 2024

Chevron Scholarship for Graduate Student ~USD 2000 — 2023

Chulalongkorn University's Graduate Scholarship Programme — 2021-2023