CURRICULUM VITAE – BAEHYUN MIN, Ph.D.

Associate Professor at Ewha Womans University, Seoul, Republic of Korea · 82-2-3277-6946 · bhmin01@ewha.ac.kr

RESEARCH INTERESTS

- Subsurface Characterization, Geoenergy Production Optimization, & Uncertainty Quantification
- Improved/Enhanced Oil Recovery (IOR/EOR) in Conventional & Unconventional Energy Resources
- Blue Hydrogen with Carbon Capture, Utilization & Storage (CCUS)
- Big Data Analytics, Top-Down Modeling, Data Assimilation, & Evolutionary Optimization
- Environmental, social, and corporate governance (ESG) and Climate Risk Evaluation & Modeling

EDUCATION

Seoul National University, Seoul, Republic of Korea

Ph.D. in Energy Systems Engineering · GPA: 4.05 / 4.30	Feb 26, 2013
M.S. in Civil, Urban, and Geosystems Engineering · GPA: 4.12 / 4.30	Feb 26, 2007
B.S. in Civil, Urban, and Geosystems Engineering · GPA: 4.01 / 4.30 (*summa cum laude*)	Feb 25, 2005

WORK EXPERIENCE

Ewha Womans University, Seoul, Republic of Korea

Department Head	Department of Climate and Energy Systems Engineering	Aug 2023 – Present
		Aug 2020 – Aug 2021
Associate Dean	HOKMA College of General Education	Aug 2021 – Jul 2023
Associate Professor	Department of Climate and Energy Systems Engineering	Mar 2021 – Present
	Department of Social Economy	Mar 2021 – Present
Assistant Professor	Department of Climate and Energy Systems Engineering	Mar 2017 – Feb 2021
	Department of Social Economy	Sep 2019 – Feb 2021

- Petroleum Engineering & Carbon Capture, Utilization, and Storage
- Big Data Analytics Using Artificial Intelligence
- Social Value and Acceptance Coping with Climate Change and Energy Transition

The University of Texas at Austin, Austin, Texas, USA

Research Associate — Center for Subsurface Modeling, under Mary F. Wheeler, Ph.D. (mfw@ices.utexas.edu) — Sep 2016 – Feb 2017

- Simulate and avoid CO_2 leakage at a geological carbon capture and storage field
- Integrate coupled flow-geomechanics simulators with global- and multi-objective optimization algorithms

Postdoctoral Fellow — Center for Petroleum and Geosystems Engineering, under Sanjay Srinivasan, Ph.D. (sanjays@psu.edu) — Jan 2014 – Aug 2016

- Extended the model selection framework with multi-objective optimization based on Pareto-optimality
- Designed a semi-analytical model of thermal injection at heavy oil reservoirs and coupled the model with an evolutionary multi-objective optimization algorithm for unbiased uncertainty quantification

Seoul National University, Seoul, Republic of Korea

Research Associate — Research Institute of Energy and Resources, under Joe M. Kang, Ph.D. (jmkang@snu.ac.kr) — Jun 2013 – Jan 2014

- Built a reservoir management software used for history-matching and production optimization
- History-matched field production of heavy oil and oil sands reservoirs located in Athabasca, Canada
- Developed an advanced evolutionary multi-objective optimization algorithm

Researcher — Research Institute of Energy and Resources, under Joe M. Kang, Ph.D. (jmkang@snu.ac.kr) — Jun 2010 – May 2013

- Optimized well locations using artificial neural networks
- Assisted production optimization of gas fields using genetic algorithm coupled with neural networks

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SKILLS

- Expert in IMEX, GEM, & STARS of Computer Modelling Group (CMG)
- Expert in MEPO Multiple Realization Optimizer & ECLIPSE of Schlumberger
- Proficient in PETREL of Schlumberger
- Proficient to SGeMS of Stanford University
- Proficient in C/C++ & MATLAB

ACADEMIC ACHIEVEMENTS

- 52 Journal Publications & 107 Conference Papers, Talks, and Posters — As of Jan., 2024
- 1 Book: 2050 Hydrogen Energy — Dec 2021
- 1 Software on History Matching of Oil and Gas Fields in the Republic of Korea
  Program Name: Seoul National University - Integrated Reservoir Management System — Dec 2015
- 4 Patents on the Development of an Optimization Algorithm in the Republic of Korea — As of Jan., 2024

AWARDS

- 16th Early Career Engineer Award, Korean Society of Mineral and Energy Resources Engineers (KSMER) — Mar 2022
- 2022 Research Excellence Award, Ewha Womans University — Mar 2022
- SPE Technical Reviewer Outstanding Service Award, Society of Petroleum Engineers (SPE) — Oct 2021
- Best Paper Award, the Korean Society of Mineral and Energy Resources Engineers (KSMER) — Nov 2019
- Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2016012796)) — Sep 2016
- Best Paper Award, Symposium of Overseas Energy & Mineral Resources Development, Energy & Mineral Resources Development Association of Korea — Aug 2008

SOCIETIES & HONORARIS

- Member, American Geophysical Union (AGU) — Since 2015
- Lifetime Member, International Association for Mathematical Geosciences (IAMG) — Since 2019
- Member, Korean Institute of Gas (KIGAS) / Director (2020-2021) — Since 2018
- Member, Korean Society for Computational Sciences and Engineering (KSCSE) — Since 2018
- Lifetime Member, Korean Society of Mineral and Energy Resources Engineers (KSMER) — Since 2017
- Lifetime Member, Korean Society of Petroleum Engineers (KSPE) / Editor in Chief (2023-Present) — Since 2019
- Member, Society for Industrial and Applied Mathematics (SIAM) — Since 2015
- Member, Society of Petroleum Engineers (SPE) — Since 2005
- Technical Research Personnel, Military Service of the Korea Army — Mar 2009 – Feb 2012
- President, Student Association at Resources Engineering in Seoul National University — 2006

JOURNALS & CONFERENCE REFEREED

- Reviewer, SPE Reservoir Evaluation & Engineering
- Reviewer, Computational Geosciences
- Reviewer, Computers and Fluids
- Reviewer, Energy Exploration & Exploitation
- Reviewer, International Conference on Ocean, Offshore & Arctic Engineering
- Reviewer, Journal of Petroleum Science and Engineering
- Reviewer, Mathematical Geosciences
- Reviewer, MDPI (e.g., Energies, Water, Sustainability, Colloids and Interfaces)
- Reviewer, Petroleum

INVITED TALKS

• The 9th Viet Nam-Korea Joint Committee Meeting on Science and Technology	Oct 24 2023
• Seoul National University, Department of Energy Resources Engineering	Sep 1, 2023
• Inha University, Department of Energy Resources Engineering	Jun 3, 2022
• Energy & Mineral Resources Development Association of Korea (EMRD)	May 17, 2022
• Energy & Mineral Resources Development Association of Korea (EMRD)	Apr 28, 2022
• 3rd Machine Learning Workshop, Korea National Oil Corporation	Dec 16, 2021
• Energy & Mineral Resources Development Symposium 2021	Dec 9, 2021
• Seoul National University, Department of Energy Resources Engineering	Dec 1, 2021
• Dong-a University, Department of Energy Resources Engineering	Dec 1, 2021
• Inha University, Department of Energy Resources Engineering	Nov 13, 2021
• Exploration and Production (E&P) Technical Subgroup 3rd Technical Session, Korean-American Oil & Gas Engineers Association (KOEA)	Sep 23, 2021
• CCUS Workshop, Korea National Oil Corporation	Jul 6-8, 2021
• Korea Institute of Geoscience and Mineral Resources	Jun 17, 2021
• Sejong University, Department of Mineral Resources Engineering	Feb 26, 2021
• Korea Institute for International Economic Policy	Feb 25, 2021
• Kongju National University	Feb 22, 2021
• Korea Institute of Geoscience and Mineral Resources, Pohang Branch Resources Engineering Plant Research Department	Jan 25, 2021
• 2nd Machine Learning Workshop, Korea National Oil Corporation	Dec 16, 2020
• Seoul National University, Department of Energy Resources Engineering	Jul 21, 2020
• Korea Institute of Geoscience and Mineral Resources	Jul 17, 2020
• Sejong University, Department of Mineral Resources Engineering	May 22, 2020
• Korea Institute of Geoscience and Mineral Resources, Pohang Branch Resources Engineering Plant Research Department	Jan 13, 2020
• Chosun University, Department of Energy and Resource Engineering	Dec 19, 2019
• 1st Machine Learning Workshop, Korea National Oil Corporation	Dec 16, 2019
• Seoul National University, Department of Energy Resources Engineering	Dec 6, 2019
• CCS Workshop, Inha University, Department of Energy Resources Engineering	Oct 4, 2019
• Exploration and Production (E&P) Technical Subgroup 3rd Technical Session, Korean-American Oil & Gas Engineers Association (KOEA)	Aug 20, 2019

- Seoul National University, Faculty Association — Aug 1, 2019
- Seoul National University, Department of Energy Resources Engineering — Jul 10, 2019
- Winter Machine Learning Workshop, Korean Society for Computational Sciences and Engineering — Dec 21, 2018
- Sejong University, Department of Mineral Resources Engineering — Nov 29, 2018
- KAIST, Department of Civil and Environmental Engineering — Oct 30, 2018
- Inha University, Department of Energy Resources Engineering — Oct 26, 2018
- Dong-A University, Department of Energy and Mineral Resources Engineering — Sep 29, 2018
- Yonsei University, Department of Earth System Sciences — Mar 16, 2018
- POSCO ICT — Jan 12, 2018
- Korea Institute of Geoscience and Mineral Resources — Dec 26, 2017
- Seoul National University, Department of Energy Systems Engineering — Nov 24, 2017
- Inha University, Department of Energy Resources Engineering — Jun 12, 2017
- Inha University, Department of Energy Resources Engineering — May 5, 2017
- Samsung Heavy Industries — Apr 5, 2017
- Korea Institute of Geoscience and Mineral Resources — Mar 17, 2017
- Sejong University, Department of Mineral Resources Engineering — Jan 4, 2017
- Seoul National University, Department of Energy Systems Engineering — Dec 29, 2016
- Ewha Womans University, Division of Sustainable Systems Engineering — Dec 23, 2016
- The University of Texas at Austin, Bureau of Economic Geology — May 25, 2016
- Kangwon National University, Department of Energy and Resources Engineering — Jan 4, 2016
- Seoul National University, Department of Energy Systems Engineering — Dec 28, 2015
- The University of Texas at Austin, Department of Petroleum and Geosystems Engineering — Feb 11, 2014
- Hanyang University, Department of Energy and Mineral Resources Engineering — Apr 30, 2013

SCHOLARSHIPS

- Brain Korea 21 Fellowship — Mar 2008 – Feb 2011
- Seoul National University (SNU) Lecture & Research Scholarship — Sep 2006 – Feb 2008
- Korea National Oil Corporation Fellowship — Sep 2005 – Aug 2006
- SNU Superior Academic Performance Scholarship — Mar 2005 – Aug 2005
- SNU Development Fund Scholarship — Sep 2004 – Feb 2005
- SNU Eminence Scholarship — Sep 2003 – Aug 2004
- SNU Superior Academic Performance Scholarship — Sep 2001 – Aug 2003

TEACHING EXPERIENCE

Ewha Womans University, Seoul, Republic of Korea

- G16519 Petroleum Production Systems — Fall 2019, 2021, 2022
- G16511 Climate and Energy Lecture Series II — Fall 2019
- G17674 Fundamentals on Petroleum and Gas Engineering — Spring 2019, 2021, 2023
- G17613 Computational Geosciences and Optimization — Fall 2018, 2020, 2023
- G17604 Applied Geostatistics — Spring 2018, 2020
- G16510 Climate and Energy Lecture Series I — Spring 2018, 2019
- G16469 Atmospheric Science Seminar II — Fall 2017

- 38541 Spatial Information Modeling — Spring 2021-2023
- 38535 Carbon Capture, Utilization & Storage — Spring 2019-2023
- 38523 Carbon Energy — Fall 2018-2023
- 38518 Basic Engineering Design for Climate and Energy Systems Engineering — Spring 2018
- 38517 Career Development in Climate and Energy Systems — Spring 2018
- 38417 Carbon and Hydrological Cycle — Fall 2017-2019
- 36573 Engineering Mathematics Practicals — Fall 2017
- 36341 Engineer Mathematics — Fall 2017
- 36339 Computer Programming & Lab — Fall 2017
- 20406 Calculus — Spring 2017

Seoul National University, Seoul, Republic of Korea

- *Guest Lecturer* of 459.622 Advanced Reservoir Engineering (Instructor: Joe. M. Kang). — Spring 2013
- *Teaching Assistant* of 465.313 Petroleum and Gas Engineering and Experiment (Instructor: Joe. M. Kang). — Spring 2010
- *Teaching Assistant* of 459.623 Well Testing (Instructor: Joe. M. Kang). — Spring 2009
- *Teaching Assistant* of 400.409 Energy Engineering (Instructor: Joe. M. Kang) — Fall 2006, 2007

LANGUAGE

- Korean, English

CURRENT RESEARCH PROJECTS

7 projects at Ewha Womans University, Seoul, Korea

- Optimal Design of Geological CO_2 Storage System using the Advanced Deep-Learning-based Automated Decision Support System (Principal Investigator, PI) Funded by the National Research Foundation of Korea (NRF) — Mar 2023 – Feb 2027
- Graduate School of Atmosphere-Climate Data Analysis (Researcher) Funded by the Korea Meteorological Institute (KMI) — Jun 2022 – Dec 2026
- Development of Packaging Design and Integrated Demonstration Technology for Oil Production Plant (Co Principal Investigator, Co-PI) Funded by the Korea Agency for Infrastructure Technology Advancement (KAIA) — Apr 2022 – Dec 2028
- Development on Improvement of CO_2 Storage Efficiency Technology (Co-PI) Funded by the Ministry of Trade, Industry and Energy (MOTIE) — Nov 2021 – Oct 2025
- Building Conceptual Design for Mid-size Integrated CCS Demonstration (Co-PI) Funded by MOTIE — Apr 2021 – Dec 2023
- Development of Cascading Outages and Restorations Strategies of Power System considering Non-Synchronous Generators (Researcher) Funded by the Korea Electric Power Corporation Research Institute (KEPRI) — Feb 2021 – Jan 2024
- Priority Research Centers Program: A study on connection between long-term Earth's climate change and short-term regional environmental change (Researcher) Funded by NRF — Jun 2018 – Feb 2027

PAST PROJECTS

18 projects at Ewha Womans University, Seoul, Korea

• Froniter-1.5D (Researcher) Funded by Private Companies (Hanwha Total)	Jun 2022 – May 2023
• Froniter-1.5D (Researcher) Funded by Private Companies (SK Innovation, Samsung Biologics, CJ, Shinhan Bank, KB Bank)	Jun 2021 – May 2022
• Needs Assessment of Educational Programs of Health Care, Climate Change, and Job Creation for Community Capacity Building in Vietnam (Researcher) Funded by National Research Foundation of Korea (NRF)	May 2021 – Jan 2022
• Nurturing of Technical Manpower for Realizing a Sustainable Energy Society (Researcher) Funded by Ewha Womans University (EWU)	Dec 2020 – May 2022
• Machine Learning-based Analysis on Gas Hydrate (Researcher) Funded by the Korea Institute of Geoscience and Mineral Resources (KIGAM)	Mar 2021 – Dec 2021
• Study on Application of Machine Learning to Well Logging (PI) Funded by KIGAM	Jun 2020 – Nov 2020
• Converged Future-oriented Humans Cultivation Research for Earth Sustainability (Researcher) Funded by Ewha Womans University	Jul 2019 – Dec 2020
• Evaluation of Significant Factors Affecting CO_2-EOR in a Carbonate Reservoir (Principal Investigator) Funded by Korea Gas Corporation (KOGAS)	Jul 2019 – Oct 2019
• Regional Climate Sensitivity for East Asia (Researcher) Funded by NRF	Jul 2019 – Jun 2022
• Development of automated decision support system based on deep learning guided by reservoir big data for optimal operation during the life cycle of the oilfield (PI) Funded by NRF	Mar 2019 – Feb 2023
• Geology-Data-Driven Oil Recovery Prediction Using Deep Learning Techniques for Optimal Operations of Offshore Oil Fields in Vietnam (Principal Investigator) Funded by NRF	Oct 2018 – Sep 2021
• Analysis of flow-stress relationship in multiphase flow based on multi-objective optimization for efficient carbon sequestration (Principal Investigator) Funded by NRF	Mar 2017 – Feb 2019
• Flow-geomechanics analysis in multiphase flow incorporated with multi-objective optimization in heterogeneous porous media (PI) Funded by NRF	Mar 2017 – Feb 2019
• Development of an evolutionary multi-objective optimization algorithm incorporated with adaptive mesh refinement (PI) Funded by EWU	Mar 2017 – Feb 2019
• Optimal design of surfactant alternating CO_2 injection technique for the improvement of enhanced oil recovery and CO_2 injectivity (PI) Funded by NRF	Dec 2017 – Dec 2018
• Development of a multiple realization optimizer coupled with a deep learning based proxy model (PI) Funded by KOGAS	Sep 2017 – Aug 2018
• Survey on CCS-EOR (PI) Funded by KIGAM	Nov 2017

– Jan 2018

- Survey on digital oil field market (PI) Funded by POSCO ICT — Dec 2017 – Dec 2017

5 projects at The University of Texas at Austin, Austin, Texas, USA

- BIGDATA: Collaborative Research: IA: F: Fractured Subsurface Characterization Using High Performance Computing and Guided by Big Data (Researcher) — Jan 2016 – Jan 2019
  Funded by National Science Foundation (NSF)
- Simulation of Pulse Testing for Leakage Detection at a CO_2-EOR Field (Researcher) — Feb 2016 – May 2016
  Funded by the Bureau of Economic Geology
- Frontiers of Subsurface Energy Security (Researcher) — Jan 2014 – May 2015
  Funded by Department of Energy (DOE)
- Error Estimation, Data Assimilation and Uncertainty Quantification for Multiphysics and Multiscale Processes in Geological Media (Researcher) — Aug 2012 – Aug 2016
  Funded by NSF
- South Louisiana Enhanced Oil Recovery/Sequestration Demonstration Project (Researcher) — Jan 2014 – Jul 2014
  Funded by DOE

10 projects at Seoul National University, Seoul, Republic of Korea

- Rate Transient Analysis for Shale Gas Reservoirs in North America (Researcher) — Mar 2013 – Dec 2013
  Funded by Korea National Oil Corporation (KNOC)
- Development Plan Research upon Consideration of Domestic and Foreign Environment (Researcher) — Mar 2012 – Jan 2013
  Funded by Korea Gas Corporation (KOGAS)
- Wedge Wells Technology for Additional Oil Sands Recovery (Researcher) — Mar 2012 – Aug 2012
  Funded by KNOC
- Study for Heavy Oil Production Technology in Canada (II) (Researcher) — Apr 2011 – Oct 2011
  Funded by KNOC
- Reserve Estimation for the O field in North America (Researcher) — Dec 2011 – Feb 2012
  Funded by STX Energy
- Production Performance Evaluation and Wellbore System Development for Multi-Reservoir (Researcher) — Jun 2010 – May 2015
  Funded by Korea Institute of Energy Technology Evaluation and Planning
- Enhanced Oil Recovery on H field (Researcher) — Jun 2010 – Oct 2010
  Funded by KNOC
- Simulation Study on New Production Scheme on the B Oil Sand Field (Researcher) — Apr 2008 – Dec 2009
  Funded by KNOC
- Estimation of Reservoir Permeability by Integrating Core and Logging Data (Researcher) — Apr 2007 – Dec 2007
  Funded by KNOC
- Optimization of Infill Well Location Using Artificial Neural Network (Researcher) — Jun 2006 – Dec 2006
  Funded by KNOC

52 JOURNAL PUBLICATIONS

1. Al-Mudhafar, W.J., Vo, T.H., Wood, D.A., Min, B.*, 2024. (*Corresponding Author). Stochastic Lithofacies and Petrophysical Property Modeling for Fast History Matching in Heterogeneous Clastic Reservoir Applications. *Scientific Reports* 14, 22.
2. Vo, T.H., Zhang, H., Dai, Z., Zhang, T., Tangparitkul, S., Min, B.*, 2024. Data-Driven Machine Learning Models for the Prediction of Hydrogen Solubility in Aqueous Systems of Varying Salinity: Implications for Underground Hydrogen Storage. *International Journal of Hydrogen Energy* 55, 1422-1433.
3. Kim, T.W. and Min, B.*, 2024. Modeling a Unified Slug Liquid Holdup Correlation Based on Comprehensive Analysis of Entering Bubble Sharpness in Two-Phase Pipe Flow. *International Journal of Multiphase Flow* 170, 104632.
4. Vo, T.H., Dashtgoli, D.S., Zhang, H., and Min, B.*, 2023. Machine-Learning-Based Prediction of Oil Recovery Factor for Experimental CO_2-Foam Chemical EOR: Implications for Carbon Utilization Projects. *Energy* 278 Part A, 127860.
5. Ji, M., Kwon, S., Choi, S., Kim, M., Choi, B., and Min, B.*, 2023. Numerical Investigation of CO_2-Carbonated Water-Alternating-Gas on Enhanced Oil Recovery and Geological Carbon Storage. *Journal of CO_2 Utilization* 74, 102544.
6. Kim, M., Kwon, S., Ji, M., Shin, H., and Min, B.*, 2023 (*Corresponding Author). Multi-Lateral Horizontal Well with Dual-Tubing System to Improve CO_2 Storage Security and Reduce CCS Cost. *Applied Energy* 330 (Part B), 120368.
7. Park, G., Kwon, S., Ji, M., Lee, S., Choi, S., Kim, M., and Min, B.*, 2022. Research on the Generation of High-Resolution Logging Data using a Deep-Learning Algorithm. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 58(4): 353-363.
8. Ji, M., Keon, S., Kim, M., Kim, S., and Min, B.*, 2022. Generation of Synthetic Compressional Wave Velocity Based on Deep Learning: A Case Study of Ulleung Basin Gas Hydrate in the Republic of Korea. *Applied Sciences* 12(17), 8775.
9. Kim, B., Jeong, J.Y., Min, B.*, and Nam, M.J.*, 2022. Applicability Analysis on Estimation of Spectral Induced Polarization Parameters Based on Multi-objective Optimization. *Geophysics and Geophysical Exploration* 25(3): 1-10.
10. Lee, H.W., Kim, M., Min, B.*, and Choi, J.H.* Machine-Learning-Based Water Quality Management of River with Serial Impoundments in the Republic of Korea. *Journal of Hydrology: Regional Studies* 41, 101069.
11. Jo, S., Jeong, D.*, Min, B.*, Park. C., Kim, Y., Kwon, S., and Sun, A., 2022. Efficient Deep-Learning-Based History Matching for Fluvial Channel Reservoirs. *Journal of Petroleum Science and Engineering* 208, 109247.
12. Jeong, D., Yoshioka, K., Jeong, H., and Min, B.*, 2021. Sequential Short-Term Optimization of Gas Lift using Linear Programming: A Case Study of a Mature Oil Field in Russia. *Journal of Petroleum Science and Engineering* 205, 108767.
13. Cho, J., Min, B.*, Kwon, S., Park, G., and Lee, K.S., 2021. Compositional Modeling with Formation Damage to Investigate the Effects of CO_2-CH_4 Water Alternating Gas (WAG) on Performance of Coupled Enhanced Oil Recovery and Geological Carbon Storage. *Journal of Petroleum Science and Engineering* 205, 108795.
14. Kwon, S., Ji, M., Park, G., Min, B.*, and Jeong, H., 2021. Analysis on Data Disclosure and Reservoir Model of the Volve Oilfield in the North Sea. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 58(4): 353–363.
15. Huy, N.X., Dung, T.Q., Trang, N.T.T., Hoang, C.M., Min, B., Delia, A.A.-M., and Binh, K.N., 2021. Modelling the Petroleum Generation and Migration of Tertiary Source Rocks in the Deepwater of Phu Khanh Basin, Offshore Vietnam. *International Journal of Oil, Gas and Coal Technology* 28(2): 137–159.
16. Kwon, S., Park, G., Jang, Y., Cho, J., Chu, M.-G., and Min, B.*, 2021. Determination of Oil Well Placement using Convolutional Neural Network Coupled with Robust Optimization under Geological Uncertainty. *Journal of Petroleum Science and Engineering* 201, 108118.
17. Ji, M., Kwon, S., Park, G., Min, B.*, and Huy, N.X., 2021. Prediction of Water Saturation from Well Log Data using Deep Learning Algorithms. *Journal of the Korean Institute of Mineral and Energy Resources Engineers*

58(3): 215–226.

18. Park, G., Kwon, S., Ji, M., Min, B.*, Huy, N.X., Kim, K., Kim, S., and Lee, K.B., 2021. A Review on Deep Learning Applications to Logging Data for Modeling Gas-Hydrate-Bearing Sediments. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 58(3): 161–178.
19. Oh, B., Kim, Y., Lee, W., Jang, Y., Min, B., and Jeong, H., 2021. Optimization of Well Operation in a Carbonate Reservoir Using Stochastic Simplex Approximate Gradient. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 58(3): 119–129.
20. Cho, J., Min, B., Jeong, M., Lee, Y., and Lee, K.S. 2021. Modeling of CO_2-LPG WAG with Asphaltene Deposition to Predict the Coupled Enhanced Oil Recovery and Storage Performance. *Scientific Reports* 11, 2082.
21. Jang, Y., Park, G., Kwon, S., and Min, B.*, 2020. Analysis of Hydraulic Fracture Propagation using a Mixed Mode and a Uniaxial Strain Model Considering Geomechanical Properties in a Naturally Fractured Shale Reservoir. *Geofluids* 2020, 6690848.
22. Chu, M.-G., Min, B.*, Kwon, S., Park, G., Kim, S., and Huy, N.X., 2020. Determination of an Infill Well Placement using a Data-driven Multi-modal Convolutional Neural Network. *Journal of Petroleum Science and Engineering* 195, 106805.
23. Kim, S., Lee, K.B., Lim, J., Jeong, H., and Min, B.*, 2020. Development of Ensemble Smoother–Neural Network and its Application to History Matching of Channelized Reservoirs. *Journal of Petroleum Science and Engineering* 191, 107159.
24. Jang, I.S., Oh, S.E., Kang, H.J., Na, J.W., and Min, B.*, 2020. Multi-Well Placement Optimisation using Sequential Artificial Neural Networks and Multi-Level Grid System. *International Journal of Oil, Gas and Coal Technology* 24(4): 445-465.
25. Piao, J., Han, W.S., Kang, P.K., Min, B., Han, G., and Park, J.G., 2020. A Hybrid Optimization Methodology for Indicating Optimal Operating Conditions for Carbon Dioxide Injection in Geologic Carbon Sequestration. *International Journal of Greenhouse Gas Control* 98, 103067.
26. Cho, J.H., Park, G., Kwon, S., Lee, K.S., Lee, H.S., and Min, B*. 2020. Compositional Modeling to Analyze the Effect of CH_4 on Coupled Carbon Storage and Enhanced Oil Recovery Process. *Applied Sciences* 10(12), 4272.
27. Min, B.*, Kwon, S., Park, G., Jeong, D., and Lee, H.S. 2020. Current Status and Prospects of Artificial Intelligence in the Oil and Gas Exploration and Production Business. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 57(3): 295–308.
28. Jeong, H., Sun, A., Jeon, J., Min, B. Efficient Ensemble-based Stochastic Gradient Methods for Optimization under Geological Uncertainty. *Frontiers in Earth Science* 8, 108.
29. Kwon, S., Park, G., Min, B.*, Kim, K., Lee, T., and Han, J. Study on Preliminary Economic Evaluation for Assessment of CO_2-EOR Efficiency in Carbonate Reservoirs. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 57(2): 185–194.
30. Kim, S., Kim, K.H., Min, B., Lim, J., and Lee, K.B., 2020. Generation of Synthetic Density Log Data Using Deep Learning Algorithm at the Golden Field in Alberta, Canada. *Geofluids* 2020, 5387183.
31. Lee, Y., Jeon, H., Lee, K., Min, B., and Choi, Y.-S., 2019. A Review on Disaster Response through Critical Discourse Analysis of Newspaper Articles - Focused on the November 2017 Pohang Earthquake. *Journal of the Society of Disaster Information* 15(2): 223–238.
32. Kim, S., Min, B.*, Kwon, S., and Chu, M., 2019. History Matching of a Channelized Reservoir using a Serial Denoising Autoencoder Integrated with ES-MDA. *Geofluids* 2019, 3280961.
33. Chung, S., Park, C., Min, B., Jang, I.S., and Kang, J.M., 2019. Optimization of Steam and Gas Push to Prevent Water Influx from a Top-Water-Bearing Area into a Vapor Chamber. *International Journal of Oil, Gas and Coal Technology* 20 (3): 304–326.
34. Lee, K.B., Kim, S.I., Choe, J., Min, B., and Lee, H.S., 2019. Iterative Static Modeling of Channelized Reservoirs using History-Matched Facies Probability Data and Rejection of Training Images. *Petroleum Science* 16 (1): 127–147.
35. Min, B., Sun, A., Wheeler, M.F., and Jeong, H., 2018. Utilization of Multiobjective Optimization for Pulse

Testing Dataset from a CO_2 EOR/Sequestration Field. *Journal of Petroleum Science and Engineering* 170: 244–266.

36. Lee, J., Min, B.*, Jo, S., and Kim, J., 2018. Optimization of SAGD Process Using Multi-Objective Optimization Algorithm. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 55 (5): 421–430.
37. Jeong, H., Sun, A., Lee, J., and Min, B., 2018. A Learning-Based Data-Driven Forecast Approach for Predicting Future Reservoir Performance. *Advances in Water Resources* 118: 95–109.
38. Kim, S., Min, B.*, Lee, K.B., and Jeong, H., 2018. Integration of an Iterative Update of Sparse Geologic Dictionaries with ES-MDA for History Matching of Channelized Reservoirs. *Geofluids* 2018, 1532868.
39. Lee, S., Min, B. *, and Wheeler, M.F., 2018. Optimal Design of Hydraulic Fracturing in Porous Media using the Phase Field Fracture Model Coupled with Genetic Algorithm. *Computational Geosciences* 22 (3): 833–849.
40. Kim, J., Kang, J.M., Park, C., Ahn, S., and Min, B., 2017. History Matching of Gas Production Rates Integrated an Artificial Neural Network with Distance-Based Candidate Selection. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 54 (4): 416–428.
41. Min, B., Kannan, K., and Srinivasan, S., 2017. Quick Screening of Pareto-Optimal Operating Conditions for Expanding Solvent-Steam Assisted Gravity Drainage Using Hybrid Multi-Objective Optimization Approach. *Energies* 10 (7) 966: 1–21.
42. Nwachukwu, A., Min, B.*, and Srinivasan, S., 2017. Model Selection for CO_2 Sequestration using Surface Deformation and Injection Data. *International Journal of Greenhouse Gas Control* 56: 67–92.
43. Min, B., Park, C., Jang, I.S., Kang, J.M., and Chung, S., 2016. Development of a Robust Multi-Objective History Matching for Reliable Well-based Production Forecasts. *Energy Exploration & Exploitation* 34 (6): 795–809.
44. Min, B., Park, C., Jang, I.S., Kang, J.M., and Chung, S., 2015. Development of Pareto-Based Evolutionary Model Integrated with Dynamic Goal Programming and Successive Linear Objective Reduction. *Applied Soft Computing* 35: 75–112.
45. Kim, J., Kim, U., Kang, J.M., Suk, H., and Min, B.*, 2015. Development of a Bottomhole Pressure Calculator and its Application to Shale Gas Wells. *Journal of the Korean Institute of Mineral and Energy Resources Engineers* 52 (3): 335–342.
46. Min, B., Kang, J.M., Chung, S., Park, C., and Jang, I.S., 2014. Pareto-Based Multi-Objective History Matching with Respect to Individual Production Performance in a Heterogeneous Reservoir. *Journal of Petroleum Science and Engineering* 122: 551–566.
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1. Ahn, Y.B., J. Choe, and Min, B.*, 2023. Characterization of a Channelized Reservoir using ES-MDA integrated with Variational Autoencoder. AGU Fall Meeting 2023, San Francisco, CA, USA, 11–15 Dec.
2. Kwon, S., Leung, J., and Min, B.*, 2023. Efficient Design of Warm-VAPEX using a Neural Network Coupled with a Multi-objective Optimization Algorithm Under Geological Uncertainty at an Oilsands Reservoir. AGU Fall Meeting 2023, San Francisco, CA, USA, 11–15 Dec.
3. Ji, M., Kwon, S., Choi, S., Kim, M., Choi, B., and Min, B.*, 2023. Performance Evaluation on CO_2 Carbonated Water-Alternating-Gas on Enhanced Oil Recovery and Geological Carbon Storage. AGU Fall Meeting 2023, San Francisco, CA, USA, 11–15 Dec.
4. Choi, S., Kwon, S., Ji, M., Kim, M., and Min, B.*, 2023. Conversion of a Depleted Gas Field into a Geological CO_2 Storage Site: A Case Study of the Donghae-1 Gas Field, Republic of Korea. AGU Fall Meeting 2023, San Francisco, CA, USA, 11–15 Dec.
5. Yoon, S., Jung, S.Y., Jang, M.C., Min, B.*, and Hwang, J., 2023. Development of the Climate Risk Assessment and Management (CREAM) for Uncertainty Quantification of the Financial Impact of a Carbon-Intensive Company. AGU Fall Meeting 2023, San Francisco, CA, USA, 11–15 Dec.
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11. Kwon, S., Kim, M., Leung, Y.J., and Min, B.*, 2023. Productivity Evaluation of Warm-VAPEX using Dimethyl Ether. 2023 Spring Conference and Exhibition of the Korean Society of Mechanical Engineers (Plant Sector), Jeju, Republic of Korea, 12–15 Jul.

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13. Vo, H.T. and Min, B.*, 2023. Coupling Genetic Algorithm and Random Forest for Robust Prediction of CO2 Storage Efficiency in Underground Formations. 2023 EAGE Annual 84th Conference and Exhibition, Vienna, Austria, 5-8 Jun.
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ADVISED POSTDOCS

- Youngbin Ahn, Ph.D. 2023.09–Present
- Minchul Jang, Ph.D. 2022.06–Present
- Vo Thanh Hung, Ph.D. (Currently at Taisei Corporation, Japan) 2022.11–2023.06
- Min Kim, Ph.D. (Currently at KNOC) 2020.09–2023.08

- Jinhyung Cho, Ph.D. (Currently at KEPCO) 2020.03–2022.05
- Youngho Jang, Ph.D. (Currently at KETEP) 2020.01–2022.04
- Hyunchul Yoon, Ph.D. (Currently at KIGAM) 2019.03–2019.06
- Min-gon Chu, Ph.D. (Formerly at KNOC, Currently at Samsung Electro-Mechanics) 2017.09–2019.02
- Sungil Kim, Ph.D. (Currently at KIGAM) 2018.02–2018.12

ADVISED GRADUATES

- Seoyoon Kwon, Ph.D. (Currently at SLB) 2018.03–2024.02
- Gayoung Park, Master of Engineering 2019.03–2021.08
- Anuudari Arvis, Ph.D. Candidate 2019.09–Present
- Minsoo Ji, Master of Engineering (Currently at POSCO International) 2021.03–2023.08
- Suin Choi, MS Student 2023.03–Present
- Soeun Yoon, MS Student 2023.03–Present

ADVISED UNDERGRADUATES

- Seri Lee, Bachelor of Engineering (Currently at SPC Group) 2020.01–2022.12
- Seoyoung Jung, BS Student 2022.07–2023.06
- Minkyung Chae, BS Student 2023.01–Present
- Sohyun Jang, BS Student 2023.04–Present
- Huiyun Jin, BS Student 2024.01–Present
- Eugene Suh, BS Student 2024.01–Present