Stanford

Mingliang Liu

Physical Science Research Scientist

Energy Science & Engineering

Bio

BIO

Mingliang Liu is a Research Scientist at the Stanford Center for Earth Resources Forecasting (SCERF). His research focuses on multiscale subsurface characterization and the sustainable development of Earth resources.

ACADEMIC APPOINTMENTS

- Phys Sci Res Assoc, Energy Science & Engineering

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Geophysics (2023 - present)
- Associate Editor, Computers and Geosciences (2022 - present)

LINKS

- Google Scholar: https://scholar.google.com/citations?user=gRr5WXUAAAAJ&hl=en

Publications

PUBLICATIONS

- **Hierarchical Homogenization With Deep-Learning-Based Surrogate Model for Rapid Estimation of Effective Permeability From Digital Rocks** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
  Liu, M., Ahmad, R., Cai, W., Mukerji, T.
  2023; 128 (2)
- **Joint Inversion of Geophysical Data for Geologic Carbon Sequestration Monitoring: A Differentiable Physics-Informed Deep Learning Model** *Journal of Geophysical Research: Solid Earth*
  Liu, M., Vashisth, D., Grana, D., Mukerji, T.
  2023; 128 (3)
- **Multiscale Fusion of Digital Rock Images Based on Deep Generative Adversarial Networks** *GEOPHYSICAL RESEARCH LETTERS*
  Liu, M., Mukerji, T.
  2022; 49 (9)
- **Uncertainty quantification in stochastic inversion with dimensionality reduction using variational autoencoder** *GEOPHYSICS*
  Liu, M., Grana, D., de Figueiredo, L. P.
  2022; 87 (2): M43-M58
- **Stochastic nonlinear inversion of seismic data for the estimation of petroelastic properties using the ensemble smoother and data reparameterization** *GEOPHYSICS*
  Liu, M., Grana, D.

2018; 83 (3): M25–M39

- **Frequency-domain electromagnetic induction for the prediction of electrical conductivity and magnetic susceptibility using geostatistical inversion and randomized tensor decomposition** *GEOPHYSICS*
  Liu, M., Narciso, J., Grana, D., Van De Vijver, E., Azevedo, L.
  2023; 88 (6): E159-E171
- **Computation of effective elastic moduli of rocks using hierarchical homogenization** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  Ahmad, R., Liu, M., Ortiz, M., Mukerji, T., Cai, W.
  2023; 174
- **Joint Inversion of Geophysical Data for Geologic Carbon Sequestration Monitoring: A Differentiable Physics#Informed Neural Network Model** *Journal of Geophysical Research: Solid Earth*
  Liu, M., Vashisth, D., Grana, D., Mukerji, T.
  2023; 128 (3)
- **Randomized Tensor Decomposition for Large-Scale Data Assimilation Problems for Carbon Dioxide Sequestration** *MATHEMATICAL GEOSCIENCES*
  Liu, M., Grana, D., Mukerji, T.
  2022
- **Prediction of CO2 Saturation Spatial Distribution Using Geostatistical Inversion of Time-Lapse Geophysical Data** *IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING*
  Grana, D., Liu, M., Ayani, M.
  2021; 59 (5): 3846-3856
- **Stochastic inversion method of time-lapse controlled source electromagnetic data for CO2 plume monitoring** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
  Ayani, M., Grana, D., Liu, M.
  2020; 100
- **Petrophysical characterization of deep saline aquifers for CO2 storage using ensemble smoother and deep convolutional autoencoder** *ADVANCES IN WATER RESOURCES*
  Liu, M., Grana, D.
  2020; 142
- **A comparison of deep machine learning and Monte Carlo methods for facies classification from seismic data** *GEOPHYSICS*
  Grana, D., Azevedo, L., Liu, M.
  2020; 85 (4): WA41–WA52
- **Seismic facies classification using supervised convolutional neural networks and semisupervised generative adversarial networks** *GEOPHYSICS*
  Liu, M., Jervis, M., Li, W., Nivlet, P.
  2020; 85 (4): O47–O58
- **Time-lapse seismic history matching with an iterative ensemble smoother and deep convolutional autoencoder** *GEOPHYSICS*
  Liu, M., Grana, D.
  2020; 85 (1): M15–M31
- **Generation and evolution of overpressure caused by hydrocarban generation in the Jurassic source rocks of the central Junggar Basin, northwestern China** *AAPG BULLETIN*
  Guo, X., He, S., Liu, K., Yang, Z., Yuan, S., Liu, M.
  2019; 103 (7): 1553–74
- **Accelerating geostatistical seismic inversion using TensorFlow: A heterogeneous distributed deep learning framework** *COMPUTERS & GEOSCIENCES*
  Liu, M., Grana, D.
  2019; 124: 37–45
- **Recycling of oceanic crust from a stagnant slab in the mantle transition zone: Evidence from Cenozoic continental basalts in Zhejiang Province, SE China** *LITHOS*
  Li, Y., Ma, C., Robinson, P. T., Zhou, Q., Liu, M.
  2015; 230: 146–65