

ANKUR ROY

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EDUCATION

Non-degree Seeking Advanced Student (Postdoc), STANFORD UNIVERSITY, CA, USA
Project (BP Sponsored): Evaluating Uncertainty in Fractured Reservoirs

PhD, THE UNIVERSITY OF TENNESSEE, KNOXVILLE, TN, USA
Major: **Geology** | Minor: **Computational Science**
Dissertation: Scale-dependent Heterogeneity in Fracture Data Sets and Grayscale Images

Master of Science, INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR, INDIA
Major: Applied Geology; Thesis: Ripple Mark Characteristics of Intertidal Regions

ACADEMIC APPOINTMENTS

Assistant Professor, Petroleum Engineering Centre [ADRACEPE], IIT Kharagpur, India (Jul 2017– present)
Assistant Professor, DES, Indian Inst. Science Education & Research, Kolkata, India (Jan 2017– Jul 2017)
Visiting Assistant Professor, Earth Ocean & Climate Sciences, IIT Bhubaneswar, India (Jan 2015– May 2015)
Research Assistant, Computational Earth Sciences, Oak Ridge National Lab., TN, USA (May – August, 2011)

INDUSTRY EXPERIENCE

Shell Technology India, Bangalore, India, *Production Geologist* (September 2008 – July 2009)
Chevron Energy Technology Company, San Ramon, CA, *Geoscience Intern* (June – August, 2008)
ExxonMobil Upstream Research Company, Houston, TX, *Geoscience Intern* (May – August, 2007)

INVITED TALKS

- *Modeling Fracture Networks and Evaluating their Flow Properties* (University of Texas Permian Basin, TX)
- *Lacunarity: Scale-dependent Changes in Data and other Applications* (Nat. Geophysical Research Inst., India)
- *Modeling Fractures, Evaluating their Scale-dependent Heterogeneity and Flow Properties* (ETH Zurich, SWI)
- *Fracture Networks: Modeling, Evaluating Heterogeneity & Flow Properties* (Idaho Nat. Lab., Idaho Falls, ID)
- *Fractures: A Multi-scale, Multi-dimensional Approach* (CGG, Houston, TX and Repsol, Houston, TX)

COURSES TAUGHT

Graduate Courses:

- Fundamentals of Petroleum Engineering
- Reservoir Characterization
- Geothermal Energy
- Precambrian & Phanerozoic Geology
- Engineering Geology and Rock Mechanics
- Principles of Hydrogeology (TA)

Guest Lectures in Graduate Courses:

- *Naturally Fractured Reservoirs: Characterization and Modeling* (Stanford University, CA)
- *Circular Statistics for Data Analysis in Geoscience* (University of Tennessee, Knoxville, TN)
- *Numerical Models in Hydrogeology* (University of Tennessee, Knoxville, TN)

INTERNAL REPORTS

- Roy, A.**, Shin, Y., Lee, P., Aydin, O., Jung, A., Mukerji, T., Caers, J. (2015), A Benchmark Dataset for Fractured Reservoirs, *28th Annual Report, Stanford Centre for Reservoir Forecasting*, Stanford, CA
- Roy, A.** (2011), Lacunarity Analysis of Drainage Networks: Texture and Classification, *Project Report, Seminar in Planetary Sciences*, University of Tennessee, Knoxville, TN
- Roy, A.** and Allen, T. (2010), Mr. Markov Plays Candyland, *Project Report, Mathematical Modeling*, University of Tennessee, Knoxville, TN

PEER REVIEWED PUBLICATIONS

- *Basa, A, Ahmed, F., Bhattacharyya, K. and **Roy, A.**, (2019), Evolution and characterization of fracture patterns: Insights from multi-scale analysis of the Buxa dolomite in the Siang Valley, Arunachal Lesser Himalayan fold-thrust belt, *Journal of Structural Geology*, 123, 54-66
- Roy, A.**, Aydin, A and Mukerji, T. (2016), The Influence of Resolution on Scale-dependent Clustering in Fracture Spacing Data, *Interpretation*, 4 (3), T387-T394
- Shin, Y, **Roy, A.**, Aydin, O., Mukerji, T. and Caers, J. (2016), A Benchmark Synthetic Dataset for Fractured Reservoir, p.555-561 in Raju, N.J., ed., *Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment: Challenges, Processes and Strategies*, Springer, Cham, Switzerland, 963pp.
- Roy, A.** and Perfect, E., (2016), Lacunarity Analysis of Fracture Intensity Maps: Are they Multifractals, p.129-134 in Raju, N.J., ed., *Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment: Challenges, Processes and Strategies*, Springer, Cham, Switzerland, 963pp.
- Roy, A.**, Perfect, E., Dunne, W.M. and McKay, L.D. (2014), A Technique for Revealing Scale-dependent Patterns in Fracture Spacing Data, *J. Geophys. Res., Solid Earth*, 119, 5979-5986, doi:[10.1002/2013JB010647](https://doi.org/10.1002/2013JB010647)
- Roy, A.** and Perfect, E. (2014), Lacunarity Analyses of Multifractal and Natural Grayscale Patterns, *Fractals*, 22 (3)
- Roy, A.**, Perfect, E., Dunne, W.M., Odling, N. and Kim, J.W. (2010), Lacunarity Analysis of Fracture Networks: Evidence for Scale-dependent Clustering, *Journal of Structural Geology*, 32, 1444-1449
- Roy, A.**, Perfect, E., Dunne, W.M. and McKay, L.D. (2007), Fractal Characteristics of Fracture Networks: An Improved Box-counting Technique, *J. Geophys. Res., Solid Earth*, 112, B12201, doi:[10.1029/2006JB004582](https://doi.org/10.1029/2006JB004582)

SELECTED CONFERENCE ABSTRACTS AND PROCEEDINGS

- Roy, A.**, Perfect, E., Mukerji, T. (2018), A Technique for Analyzing the Spatial Distribution of Fracture Attributes, in *Proceedings of the 2nd International Discrete Fracture Network Engineering Conference*, Seattle, WA
- Roy, A.**, Perfect, E., Mukerji, T. (2018), Lacunarity and Image-Quilting: Multi-scale studies of Fractured Reservoir Analogs, presented at *International Seminar and Exhibition Exploration of Oil, Gas, Coal, Minerals and Ground Water: Modern Techniques and Appliances (EXOCMING)*, Kolkata, India
- Basa, A., Bhattacharyya, K., **Roy, A.**, Ahmed, F. (2018), Evolution and Characterization of Fracture Patterns: Insights from Multi-scale Analysis of Foreland Buxa Carbonates in Arunachal Lesser Himalayan Fold-thrust Belt, Abstract EGU2018-11863, *Geophysical Research Abstracts*, vol. 20
- Roy, A.**, Mukerji, T., Caers, J. (2014), Identifying Training Images from Fracture Outcrops for MPS-based Modeling, Abstract H33C-0826, presented at *2014 Fall Meeting, AGU*, San Francisco, CA
- Roy, A.**, Shin, Y., Mukerji, T., Caers, J., Aydin, O. (2014), A Workflow for Building a Synthetic Benchmark Dataset for Fractured Reservoirs, *SEG Technical Program Expanded Abstracts 2014*, pp. 2328-2432
- Roy, A.** and Perfect, E. (2013), Anisotropy in Fracture Clustering: A Lacunarity Study, Abstract 217475, *Southcentral Section-Geological Society of America Abstracts with Programs*, vol. 45, no. 3
- Roy, A.**, Perfect, E. Kumar, J. and Mills, R.T. (2012), Does Anisotropy in Fracture Clustering Translate into Anisotropy in Intrinsic Permeability, Abstract 1235622, *AAPG-ACE*, Long Beach, CA

*Free Download (until May 23): <https://authors.elsevier.com/c/1YqOlhdGqOc1o>