Souvik Mukherjee, PhD, PMP

Principal Technical Advisor

Dr. Souvik Mukherjee is a founding member of EmPact-AI, and Principal Technical Advisor. His 15+ year career spans several sectors in the energy and tech industries as a noted geophysicist, data scientist, and product champion. He has a strong track record of being awarded and successfully managing several cross- disciplinary multimillion dollar projects. He has a strong track record of developing industry leading data optimization and machine learning based solutions.

Amongst his notable achievements:

- **Cross-functional project management:**
  - Successful productization of award winning propped hydraulic fracture delineation technology, QUANTUM for Carbo Ceramics. A multimillion-dollar effort executed in successful collaboration with Sandia National Laboratory, Mathworks, Zonge Geophysical Services, and University of British Columbia.
  - Successful execution of Shell Gamechanger award for imaging hydrocarbons in complex geologic settings. Delivered via coordination with Shell Technology Center, Shell Exploration Business Unit, and University of British Columbia.
  - Successfully executed Shell Frontier Exploration Study, coordinating a team of 15 technical experts spanning multiple specializations and departments. Strong, positive impact on Shell's $100M lease acquisition strategy.
- **High impact technology development:**
  - USPTO single author patent awarded for novel imaging method for propped hydraulic fractures, 2022.
  - Patent pending technology (2021) for scalable deep learning-based three-dimensional image reconstruction from recorded remote sensor response.
  - Winning team, Clari Hackathon project, 2022, for developing cutting edge benchmarking metrics for revenue generation using novel data analytics concepts.
  - Coauthor, best paper award, URTEC conference, 2019.
  - Best paper award nominee, Shell biennial geophysical conference, 2012, and 2014.
  - Shell special recognition award, innovative data driven support during deepwater drilling operations in Gulf of Mexico, 2012.
  - Best paper award, Shell New Technical Professional Expo, 2009.
  - Well cited peer reviewed publications electromagnetic sensor response. Adopted by Colombian military for detection of hidden unexploded ordnance (UXO).
  - Pioneering work on three-dimensional image reconstruction adopted by BHP Billiton. Deployed on multiple occasions in mineral exploration projects (diamond, base metals).

Educational Qualifications:

PMP (Project Management Professional): Project Management Institute, 2020
PhD. Geophysics, Texas A & M University. 2010.

SELECTED PUBLICATIONS, CONFERENCE PRESENTATIONS, & INDUSTRY SPONSORED REPORTS

- Mukherjee, S., R.S. Bell, W.N. Barkhouse, S. Adavani, P.G. Lelievre, C.G. Farquharson, 2022, High-resolution imaging of subsurface infrastructure using deep learning artificial intelligence on drone magnetometry, The Leading Edge, 41, 7, 462 – 471.
- Mukherjee, S., 2022, Systems and methods for detecting a proppant in a wellbore, USPTO Patent number 11428839, published 2022, Publication Number: 20200209421. Owner: Carbo Ceramics.
- Haustveit, K., M. Almasoodi, W. Al-Tailji, S. Mukherjee, T. Palisch, R. Barber, 2019, Far-Field Proppant Imaging Offsettng Depletion: A STACK Case History. Paper URTeC 2019-1035 presented at the SPE/AAPG/SEG Unconventional Resources Technology Conference, Denver, CO (**Best paper** award winner)
- Mukherjee, S., N. Van Farowe, H. Hunter Huston, 2014, Delineating autochthonous Louann Salt in Deep water Norphlet reservoirs using integrated seismic and gravity data and reprocessing benefits using gravity gradiometry, Shell Geophysical Conference (**Best paper** nomination)
- Mukherjee, S., L. Ashabranner, M.I., Ross, 2012, Delineation of Florida – North America suture zone using magnetic bathograms and their significance for exploration. Shell Geophysical Conference (**Best paper** nomination)
- Mukherjee, S., and M.E. Everett, 2011, 3–D controlled source electromagnetic edge – based finite element modelling of conductive and permeable heterogeneities, Geophysics, 76 pp. F215-F226. (**60+ citations** to date, **technology adopted for use by Colombian military on prototype instrument for enhanced landmine detection**)
- Ross, M.I., S. Mukherjee, L. Kennan, G.S. Steffens, S.C. Barker, E.K. Biegert, S.C. Bergman, T. Petitclerc, 2011, Geologic and Geophysical Constraints on Crustal Type and Tectonic Evolution of Gulf of Mexico, AAPG Houston (**Several invitations to re-present**: International Geologic Congress, Basin Modeling Workshop, and others).
- Barker, S.C., and S. Mukherjee, 2011, Interpretation of the Basement Step – Some Observations and Implications in the Gulf of Mexico, AAPG Houston (**Several invitations to re-present**: Salt Modeling Consortium, UT Austin, Geological Society of Houston, and others).
- Zhdanov, M.S., R.G. Ellis, and S. Mukherjee, 2004, Three-dimensional regularized focusing inversion of gravity gradient tensor component data, Geophysics, 69 pp. 925-937 (**250+ citations** to date, **BHP Billiton commercialized techology**)