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Research Interests

- Exploration geophysics, geological and geophysical interpretation
- Structural and stratigraphic interpretation, seismic geomorphology
- 3D seismic and attribute workflows
- Machine Learning and its applications
- Sedimentary basin studies

Education

- 2014-19: PhD (App. Geophy.), AcSIR-National Geophysical Research Institute, Hyderabad
- 2010-13: M.Sc.(Tech) Geophysics, Department of Geophysics, Andhra University, Vizag
- 2006-09: B.Sc.(Phy), College of Basic Science and Humanities, OUAT, Bhubaneswar

Professional Experience

- 11/2020 – present: Scientist- "B"
- 01/2020-11/2020:   Research Associate, WIHG Dehradun
- 08/2013-09/2014:   Geophysicist, DEEP Industries Limited (E&P), Ahmedabad
- 05/2013-07/2013:   Research Intern, GERMI, Gandhinagar, Gujarat, India
- 05/2012-06/2012:   Industrial Trainee, ONGC (WOB), Mumbai, India

Awards and Fellowships

- 2012: ONGC Meritorious Fellowship, ONGC
- 2014: DST-INSPIRE Fellowship, Govt. of India
- 2019: Prof. R.C Misra Gold Medal Award, WIHG
- 2019: Dr. JG Negi Young Scientist Award, IGU
- 2020: "Best Paper Award", KDMIPE-ONGC
- 2021: "Best Paper Award", WIHG
- 2021: Associateship-Indian Academy of Science
- 2021: NASI-Young Scientist Platinum Jubilee Awardee, National Academy of Science-India
- 2021: "Best Doctoral Thesis Award", Association of Exploration Geophysics (AEG)

National and International Collaborations

International & National Collaborators

- Dr. Tiago M Alves (3D Seismic Lab, Cardiff University, UK)
- Dr. Qiliang Sun (Emeritus Professor, China University of Geoscience, Wuhan)
- Dr. Kamaldeen O Omosanya (Oasisgeokonsult, Trondheim Norway)
- Dr. Ovie Emmanuel Eruteya (Department of Earth Sciences, University of Geneva)
- Dr. Nicholas Waldmann (University of Haifa, Israel)

- Dr. Animesh Mandal (Asst. Professor, IIT Kanpur, India)

Voluntary Editorial Services (as Reviewer)

- Journal of Applied Geophysics, Elsevier
- Journal of Marine and Petroleum Geology, Elsevier
- Exploration Geophysics, CSIRO
- Interpretation, SEG
- Journal of Petroleum Science and Engineering, Elsevier

Research Publications

Research Articles

2022

- **Kumar, P.**C., Niyazi, Y., Ovie, O.E., Moscariello, A., Warne, M., Ierodiaconou, D. and Sain, K. 2022. Anatomy of intrusion related forced fold in the offshore Otway Basin, SE Australia. *Journal of Marine and Petroleum Geology*, 141, 105719, 1-12.

2021

- **Kumar, P.**C., Alves, T. and Sain, K. 2021. Submarine canyon systems fusing the migration of sub-surface fluid in the Canterbury Basin, South Island, New Zealand. *Nature Scientific Reports,* 11(1), 1-16.
- **Kumar, P.C.**, Omosanya, K. O., Eruteya, O.E. and Sain, K. 2021. Geomorphological characterization of basal flow markers during recurrent mass movement: a case study from the Taranaki Basin, offshore New Zealand. *Basin Research, 33(4), 2358-2382.*
- **Kumar, P.C.**, Alves, T. and Sain, K. 2021. Forced Folding in the Kora Volcanic Complex, New Zealand: A case study with relevance to the production of hydrocarbons and geothermal energy. *Geothermics, 89(101965), 1-17*

2020

- **Kumar, P.C.** and Sain, K. 2020. A machine learning tool for interpretation of Mass Transport Deposits from seismic data. *Nature Scientific Reports,* 10(1), 1-10.
- **Kumar, P.C.** and Sain, K. 2020. Interpretation of magma transport through saucer sills in shallow sedimentary strata using an automated machine learning approach. *Tectonophysics,* 789, 228541, 1-16.

2019

- **Kumar, P.C.**, Omosanya, K. O., Sain, K. 2019. Sill Cube: An automated approach for the interpretation of magmatic sill complexes on seismic reflection data. *Journal of Marine and Petroleum Geology, 100, 60-84.*
- **Kumar, P.C.**, Sain, K. and Mandal, A. 2019. Delineation of a buried volcanic system in Kora prospect off New Zealand using artificial neural networks and its implications. *Journal of Applied Geophysics, 161, 56-75.*
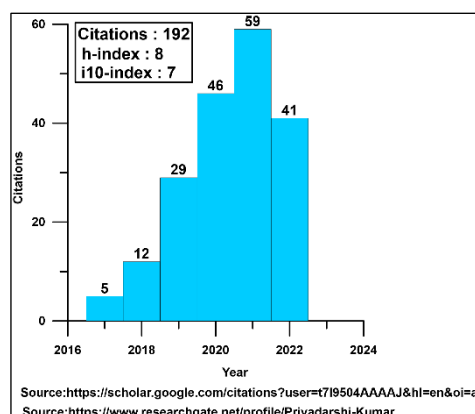
- **Kumar, P.C.**, Omosanya, K.O., Alves, T. and Sain, K. 2019. A neural network approach for elucidating fluid leakage along hard-linked normal faults**. *Journal of Marine and Petroleum Geology, 110, 518-538.*
- Sain, K. and **Kumar, P.C.** 2019. Human and Machine: An amalgamation to aid seismic interpretation. *ONGC Bulletin, 54 (2), 1-14.* **(conferred with Best Paper Award)**

2018

- **Kumar P.C.** and Sain, K. 2018. Attribute amalgamation-aiding interpretation of faults from seismic data: An example from Waitara 3D prospect in Taranaki basin off New Zealand. *Journal of Applied Geophysics, 159, 52-68.* **(Most Downloadable article by Elsevier)**

2017

- **Kumar P.C.** and Mandal, A. 2017. Enhancement of fault interpretation using multi-attribute analysis and artificial neural network (ANN) approach: A case study from Taranaki Basin, New Zealand. *Exploration Geophysics, 49(3), 409-424.*

2016

- Singh, D., **Kumar, P.C.** and Sain, K. 2016. Interpretation of gas chimney from seismic data using artificial neural network: A study from Maari 3D prospect in the Taranaki basin, New Zealand. *Journal of Natural Gas Science and Engineering, 36, 339-357.*

Conference Articles

- **Kumar P. C.** 2016. Application of geometric attributes for interpreting faults from seismic data: An example from Taranaki Basin, New Zealand. Paper presented at SEG Annual Convention, *Society of Exploration Geophysics, 2077-2081.*
- Singh, D., **Kumar, P.C.** and Sain, K. 2016. Interpretation of gas chimney in the Maari 3D field of southern Taranaki Basin, New Zealand. Paper presented at SEG Annual Convention, *Society of Exploration Geophysics, 2082-2086.*
- Srivastava, E., Mandal, A and **Kumar, P.C.** 2017. Seismic data conditioning and multi-attribute analysis for enhanced structural interpretation: A case study from offshore Nova Scotia, Scotian Basin. Paper presented at SEG Annual Convention, *Society of Exploration Geophysics, 2225-2229.*

Book Chapters

- Sain, K. and **Kumar P. C.** 2021. Seismic, Artificial Intelligence to Neural Intelligence for Advanced Interpretation, In Gupta H.K., Ed., 2nd Edition, Encyclopedia of Solid Earth Geophysics, Springer, The Netherlands.

Books-authored/Edited volume:

- Sain, K. and **Kumar P. C.** 2022. "**Meta-attributes and Artificial Networking: A New Tool in Seismic Interpretation**", Eds., AGU-John Wiley & Sons.