



Technical talk on 'Supercharging seismic data processing workflows with deep learning in Mumbai on 5th March 2025

On March 5, 2025, the SPG Mumbai Chapter hosted an insightful technical talk on *Supercharging seismic data processing workflows with deep learning*, at the WOB Conference Hall, 2nd Floor, NBP Green Heights, ONGC, Mumbai. The session was attended by esteemed dignitaries, office bearers, and SPG community members.

The session commenced with a warm welcome for distinguished individuals:

- **Mr. Vikas Mohan**, President of SPG Mumbai Chapter and GGM-Chief Geophysical Services, ONGC, Mumbai.
- **Mr. Rupjit Acharjya**, Vice President and HGS, ONGC, Mumbai

- **Mr. Sanjay Kumar**, Secretary and Head-NTA, ONGC, Mumbai
- **Dr. Bharath Shekhar**, Associate Professor, IIT Bombay (Guest Speaker)

The session began with a safety briefing, ensuring a secure and comfortable environment for all attendees. This was followed by the ONGC song, with all participants standing in unity as a mark of respect.

As part of the welcoming ceremony, Mr. Vikas Mohan, President of SPG Mumbai Chapter presented a sapling to Dr. Bharath Shekhar, symbolizing respect and appreciation.



Mr. Vikas Mohan presents a sapling to Dr. Shekar.



Mr. Vikas Mohan delivering opening remarks

The SPG Mumbai Chapter introduced Dr. Bharath Shekhar, Associate Professor at the Department of Earth Sciences, IIT Bombay. He holds an Integrated M.Sc. in Exploration Geophysics from IIT Kharagpur and a Ph.D. in geophysics from the Center for Wave Phenomena, Colorado School of Mines. His expertise spans seismic imaging, ambient noise tomography, and the application of machine learning in geophysics. Dr. Shekhar is also the co-founder of Rezlytix Technologies Ltd., a company specializing in deep learning-based seismic super-resolution solutions.

Mr. Vikas Mohan delivered the opening remarks, emphasizing the challenges faced by traditional seismic data processing and interpretation methods in handling vast, complex datasets, reducing noise, and improving resolution to identify potential hydrocarbon reservoirs.

He highlighted the significance of integrating deep learning, particularly Convolutional Neural Networks (CNNs), into seismic imaging and interpretation. He also discussed how this technology enables faster, more accurate, and automated workflows, potentially reshaping the industry.

Dr. Bharath Shekhar then delivered an insightful talk on *Supercharging seismic data processing workflows with deep learning*.

His presentation covered:

- Advancements in seismic data processing through machine learning and deep learning techniques.
- Improved speed, accuracy, and resolution when dealing with complex seismic data.
- Novel approaches for automated stacking velocity analysis using convolutional long short-term memory (ConvLSTM) networks, which combine the feature extraction capabilities of Convolutional Neural Networks (CNNs) with the sequence modeling strengths of LSTM networks.
- The potential of deep learning technologies in optimizing workflows for geophysical exploration and enhancing seismic imaging.

The talk fostered an interactive atmosphere, with attendees engaging in active discussions and posing thought-provoking questions. Dr. Shekhar provided valuable insights into the future of seismic data processing with deep learning.

As the session concluded, Mr. Vikas Mohan, delivered the closing remarks, expressing gratitude to Dr. Shekhar for his excellent presentation. He emphasized the importance of embracing technological advancements like deep learning to stay at the forefront of seismic data processing.

To honour Dr. Shekhar's contribution, Mr. Vikas Mohan, presented him with a shawl and a token of appreciation. Mr. Rupjit Acharya, Vice President of SPG Mumbai Chapter, also joined the felicitation ceremony to acknowledge the speaker's expertise and contributions.



Dr. Bharath Shekhar delivering an insightful talk



Dr. Shekar with attendees engaging in thought-provoking questions and discussions

The event concluded with a vote of thanks by Mr. Sanjay Kumar, Secretary, SPG Mumbai Chapter who expressed appreciation to the dignitaries, speaker, and participants for their active involvement and valuable contributions, making the event a resounding success.

The technical talk provided attendees with a comprehensive understanding of how deep learning is

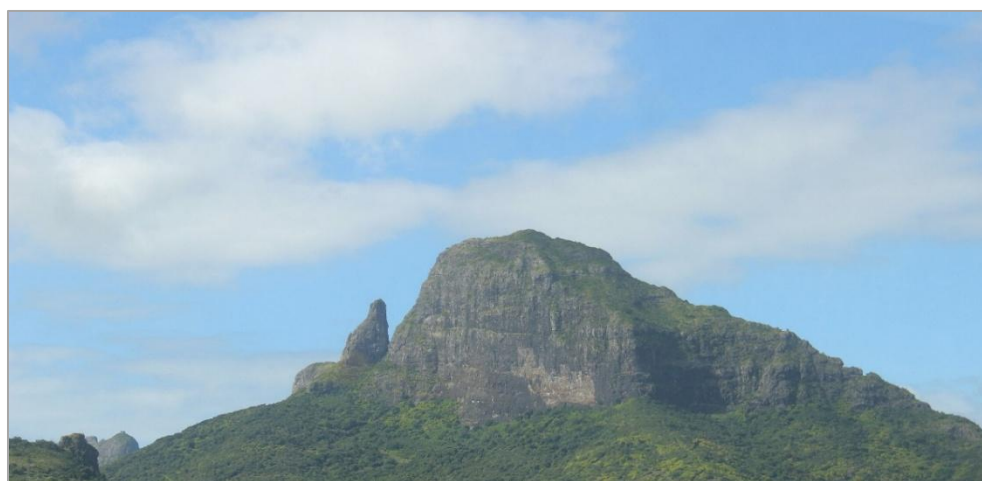
transforming seismic data processing. It offered practical insights and fostered meaningful discussions among professionals in the geophysical community.

We look forward to more such insightful events in the future!



Mr. Vikas Mohan and Mr. Rupjit Acharjya felicitate Dr. Shekhar with a shawl as a token of appreciation.

Geo Snap



Le Morne Brabant Mountain. A basaltic monolith (556 m) at the southwestern tip of Mauritius, formed from extrusive mafic volcanic rocks, mainly fine-grained basalt and locally ankaramite (a basalt rich in olivine and augite phenocrysts). This rock type is typical of the Old Series (10–5 Ma) and Intermediate Series (3.5–1.7 Ma) volcanic flows on Mauritius. Trois Mamelles Mountain (Mauritius): It is known for its unique geological formation featuring three prominent peaks. *(Photo courtesy: Ritesh Mohan Joshi)*