Hybrid Conference

04 – 05 June 2026

AI in the Geosciences

CONFERENCE PROGRAMME

The Geological Society

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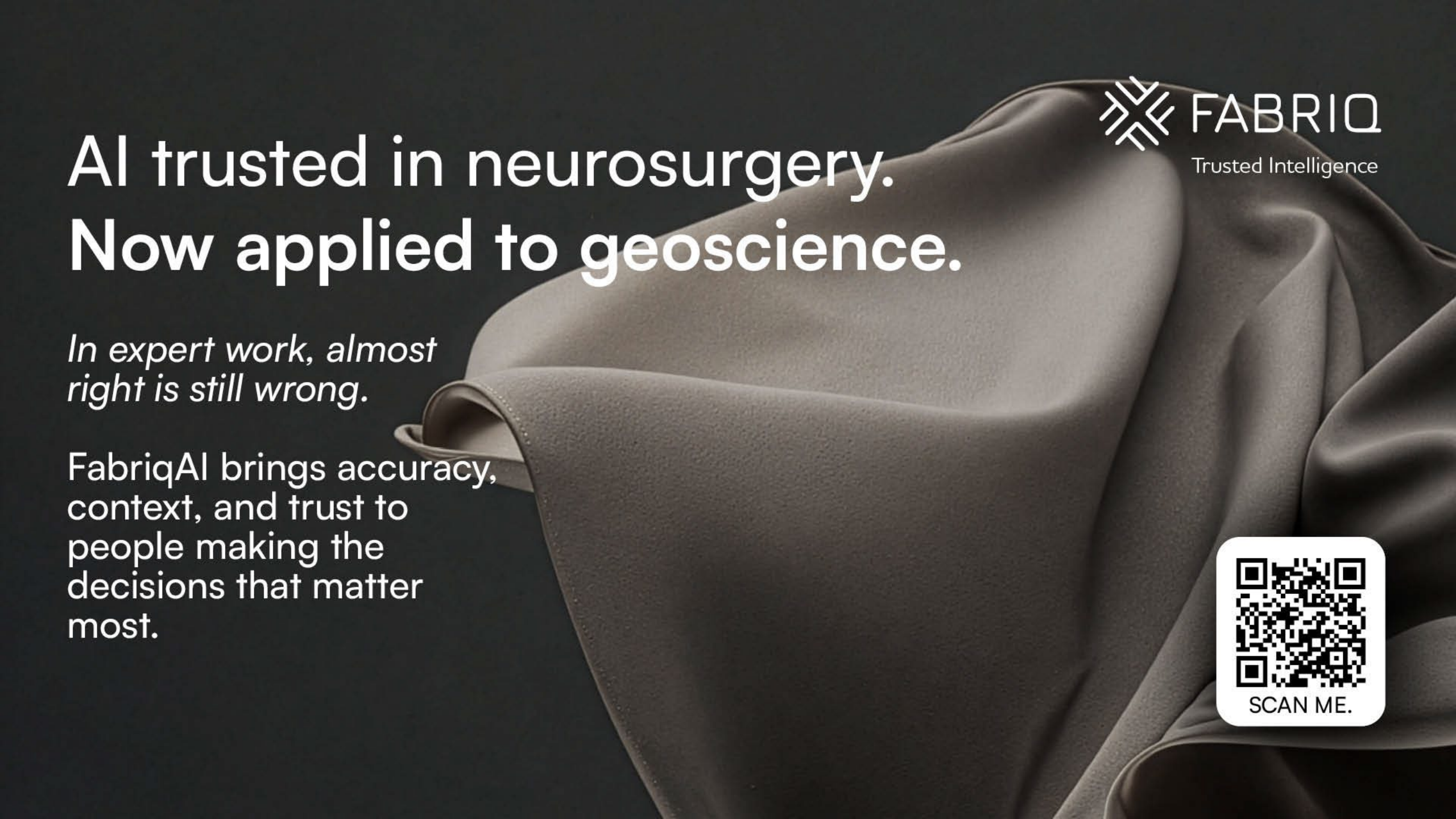
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FabriqAI brings accuracy, context, and trust to people making the decisions that matter most.
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Thursday 4 June		
0930 - 1000	Registration opens, tea & coffee	
1000 - 1010	Welcome Address	
1010 - 1100	**Keynote:** At the Axis: Orienting AI in the Geosciences Toward the Public Good	David Leslie, *Turing Institute & Queen Mary, University of London*
Session One: Machine Learning		
1100 - 1115	Ensemble Data Assimilation for Parameter Calibration of Stratigraphic Forward Models Using Well-Log–Derived Thickness Observations	Liang Wang, *Queen Mary, University of London*
1115 - 1130	Physics-Informed Fourier Neural Operators for Variably Saturated Flow in Unsaturated Subsurface Systems	Amin Nadimy, *Queen Mary, University of London*
1130 - 1145	Multimodal Log–Guided Generation of High-Fidelity Synthetic Core Images from FMS Data	Cedric John & Daqian Shi, *Queen Mary, University of London*
1145 - 1200	Deep Learning for Sediment Core Analysis: An Explainable AI Framework for Facies Segmentation	Andrea Di Martino, *University of Bologna*
1200 - 1230	Tea & coffee break	
Session Two: Machine Learning		
1230 - 1245	Reconstructing historic coastal and mining landscapes with AI, digitised maps, and LiDAR	Iris Kramer, ArchAI
1245 - 1300	A multi-modal semi-supervised model for ocean sediment lithology	John Aiken, *University of Oslo*
1300 - 1315	Enriched clustering methodology with relaxation labeling for automated electrofacies interpretation from wireline data	Francesco Saverio Patacchini, *IFP Energies nouvelles*
1315 - 1330	From Source to Runout: A Scalable Machine Learning Framework for Regional Landslide Risk Assessment in New Zealand	Alex Stokes, *TetraTech (Virtual)*
1330 - 1430	Lunch	
Session Three: Analytical applications		
1430 - 1445	Assessment of formation integrity and rock strength to improve wellbore stability in overpressured sequences by using AI (Central North Sea)	Peter Evans, *NEO NEXT*
1445 - 1500	Beyond classified geological maps: the case for AI-enabled mapping of geological properties	Charlie Kirkwood, *University of Exeter*

Continued on the next page....

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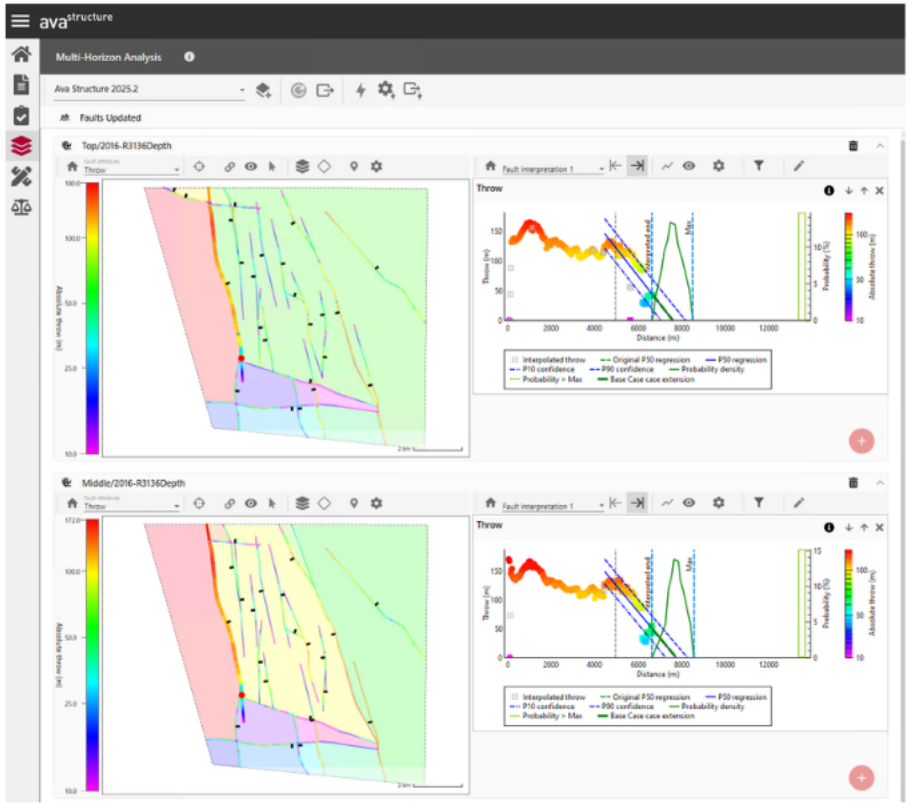
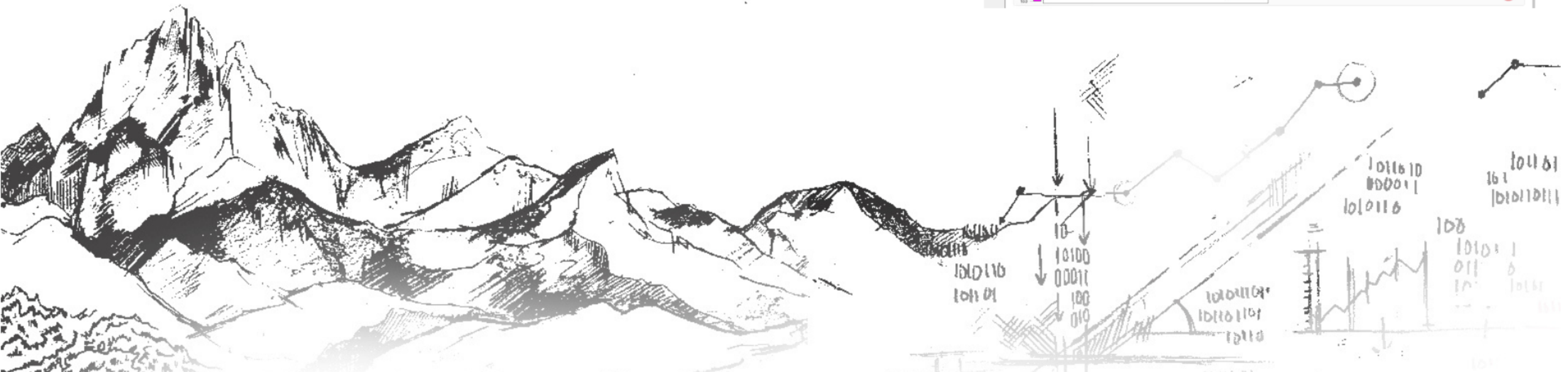
Developed in partnership with operators and academic institutions, our Ava Clastics and Structure SaaS technologies:

- deliver new insights into the quality and reliability of data used for interpretation and geomodelling;
- generate more representative reservoir models while respecting inherent uncertainties;
- perform analyses and share results to implement best practices.





Session Three: Analytical applications *continued*...		
1500 - 1515	Agent-Based Reinforcement Learning for Geochemical Control in Geothermal Energy Systems	Füsun Tut-Haklidir, *Istanbul Bilgi University (Virtual)*
1515 - 1530	Integrating Geochemistry and Geodynamics into Machine Learning–Based Mineral Prospectivity along the Andean Margin	Juan Bello, *GeoInnova (Virtual)*
1530 - 1545	Mapping essential ocean variables with machine learning: Needs, challenges and opportunities	Arianna Olivelli, *Flanders Marine Institute*
1545 – 1600	Tea & coffee break	
Session Four: Panel Discussion		
1615 - 1700	**Panel discussion** **AI in the Geosciences: Ethical, social, and educational considerations** *This panel will explore insights into real and theoretical challenges and opportunities associated with current and possible use of AI on the broad range of geoscience topics, both within the subject and to support the future community of geoscientists.*	David Leslie, Cedric John, Mrinalini Kochupillai, Andy Kingdon. Chaired by Paul Cleverley
Virtual Poster Session		
1700 – 17:05	AI-Driven Extraction of Legacy Well Logs to Support CCUS Site Characterization in Michigan	Usman Ayobami, *CoreExtract & Autumn Haagsma, Michigan Geological Survey (Virtual)*
17:05 – 17:10	Development of an Intelligent Chatbot DAISY for Natural Disaster Information Dissemination	Amanda He, *Valley Christian High School (Virtual)*
17:10 – 17:30		
1730 - 1900	Poster session & Drinks Reception Sponsored by pds group	

Careers Day

Explore career pathways, meet industry professionals and discover exciting opportunities for geoscience students.

4 November 2026

Burlington House

Learn more & get involved:

geolsoc.org.uk/careersday

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Friday 5 June		
0900 - 0930	Registration opens, tea & coffee	
0930 - 1020	**Keynote:** Can AI discover a new oil field? Practical applications of AI for subsurface evaluation	Karen Heyburn, *Halliburton*
1020 - 1100	**Panel discussion** **The Three Frontiers in AI for the Geosciences** *This panel will consider cutting edge applications of AI tools to support geoscientists, including generative models for geology, accelerated geophysical simulations and automated decision-making considering uncertainties*	Karen Heyburn, TERRAAI, Charlie Kirkwood and Jesse Lord. Chaired by David Hodgetts
1100 - 1130	Tea & coffee break	
Session Five: Ethical considerations and use cases		
1130 - 1145	The Intelligent Geoscientist: Harnessing AI for Discovery, Decision-Making, and the Next Generation	Keith Richard Holdway, *Society of Petroleum Engineering & Society of Exploration Geophysicists (Virtual)*
1145 - 1200	Who Builds the Ground Model? Ethics and Fostering Engineering Judgement in AI-Enabled Ground Engineering Practice	Thomas Perriment, *Mott MacDonald (Virtual)*
1200 - 1215	Ethical impacts of AI upon the science of a national geological survey	Andrew Kingdon, *British Geological Survey*
1215 - 1230	Fair and Responsible AI for Earth Science: Benchmarking Deep Learning and Generative Methods for Rare Class Detection in Geological and Environmental Data	Masoud Rostami, *University of Texas at Arlington (Virtual)*
1230 - 1245	Architecting Synergy: Reframing AI as a Traceable Digital Junior to Drive Positive Disruption in the Geosciences	Bernique de Kock, *Terra Mineral Solutions (pty) Ltd*
1245 - 1300	The relation of students with AI in geosciences	Mario Sarasa Navarro, *Universidad de Barcelona* & Lorién Crespo Gracia, *TU Bergakademie Freiberg*
1300 - 1400	Lunch	
Session Six: LLM		
1400 – 1415	Promises and challenges in geoscience information retrieval with Large Language Models: examples with technical reports and basin simulation results	Antione Bouziat, *IFP Energies Nouvelles*
1415 - 1430	Guiding Generative AI With Subsurface Reasoning for Scalable Play Innovation in Oil and Gas Exploration	Nicholas Holgate, *Shell*
1430 - 1445	AI for mineral exploration: What are areas of promise and challenges of AI-assisted subsurface imaging of ore deposits?	Thomas Samuel Hudson, *Fleet Space Technologies Ltd & ETF Zurich*

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Session Six: LLM *continued…*		
1445 - 1500	Knowledge Graph–Augmented Reasoning for Accurate and Transparent Geological Inference with Small Language Models	Maryam Alakkas *(virtual)*
1500 - 1515	Geoscience and AI: A Collaborative Approach to Trustworthy Literature Synthesis	Jesse Lord & Sandra Merton, *FabriqAI*
1515 - 1545	Tea & coffee break	
Session Seven: Implementation for datasets		
1545 - 1600	GebPy, a Python-based open source tool for the synthetic generation of geophysical and compositional data of minerals, rocks and whole rock sequences	Maximilian Alexander Beeskow, *RWTH Aachen University*
1600 - 1615	Unlocking Geological Archives with AI: Multimodal Retrieval and UI Design applied to Critical Mineral Intelligence	Andrew Kingdon & Rachel Heaven, *UKRI & British Geological Survey*
1615 - 1630	Optimizing Deep Learning Workflows for Seismic Catalog Building	Rossella Fonzetti, *Istituto Nazionale di Geofisica e Vulcanologia*
1630 - 1645	AI-Powered Understanding of Geological Uncertainty in Fractured Caprocks	Sarah Perez, *Heriot-Watt University*
1645 - 1700	Transformer-Based Geotechnical Classification of Borehole Logs with Benchmarking of Uncertainty Quantification Methods: an Italian case study.	Roberto Cilli, *GeoResources Universitè de Lorraine*
1700 - 1715	Looking forward, Publication opportunities and closing words	

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Poster Presentations	
Development of an Intelligent Chatbot DAISY for Natural Disaster Information Dissemination	Amanda He, *Valley Christian High School (Virtual)*
Using machine learning for seabed sediment mapping	Ben Marchant, *British Geological Survey*
RockGPT, a Researcher-Curated, Self-Hosted Large Language Models for Trusted Knowledge Management in the Geosciences	Daniele Bailo, *Istituto Nazionale di Geofisica e Vulcanologia - INGV*
A Deep Learning-based Workflow for the Automated Focal Mechanism Determination in Italy	Flavia Tavani, *Istituto Nazionale di Geofisica e Vulcanologia - INGV*
Integrating Multisource Geodata Using AI Tools for Enhanced Mineral Mapping in Algeria	Hamida Diab, *University chikh Larbi tebessi Tebessa Algeria*
iGeologist: The Connected Ecosystem of Rocks, Sensors, AI, and Geologists	James Cleverley, *IMDEX*
Spectro-Temporal Characterisation of Urban Traffic: A Deep Learning Approach to Estimating Vehicles from Seismic Data	Luke Potts, *Manchester Metropolitan University*
From limited scenarios to robust subsurface insights: A practical autonomous workflow for asset management	Mathieu Ducros, *Kognitus*
Groundwater model emulation with Recursive Neural Networks	Matthew Arran, *British Geological Survey*
Responsible resource ownership: Operationalising AI in ore movement	Michelle Keegan, *Augment Technologies*
Deep Learning for Geothermal Frontier Exploration: Identifying Hydrothermal Alteration in Puga Valley, Ladakh, Using PRISMA Hyperspectral Data and CNNs	Mohammad Taqi Daqiq, *Indian Institute of Technology Roorkee*
AI-Driven Optimization of Reservoir Management and Production Forecasting	Mohammed Abubakar, *Federal University of Lafia*
AI assisted drought monitoring with open CHIRPS rainfall data: a reproducible notebook workflow for geoscience education	Nimatallahi Masuud, *INFINION Technology*
Deep Learning for Seismic Facies Classification in the Sergipe-Alagoas Basin	Robson Wants, *Federal University of Paraná*
AI-Powered Extraction and Visualization of Historic Well Logs for CCUS Projects	Usman Ayobami, *CoreExtract (Virtual)*
GEOLAB+: An AI-Enhanced LINE Chatbot and Virtual Mineral–Rock Laboratory for Improving Geoscience Learning Performance	Vimoltop Singtuen, *Khon Kaen University (Virtual)*
Seamount detection using a convolutional neural network	*Zhenyu Wang, Institute of Earthquake Forecasting, China Earthquake Administration & University of Oxford*

Convenors:

- **Dr David Hodgetts** – Founder, VRGeoscience Ltd
- **Prof Paul Cleverley** – Founder, Infoscience Technologies Ltd; Visiting Professor of Information Science & Technology, Robert Gordon University, UK
- **Prof Cedric John** – Professor & Head of Data Science for the Environment and Sustainability, Digital Science Research Institute (DERI), Queen Mary University of London, UK
- **Dr Silvia Peppoloni** – Researcher, National Institute of Geophysics and Volcanology (INGV), Rome, Italy; Chair/Director, International Association for Promoting Geoethics (IAPG)
- **Dr Giuseppe di Capua** – Senior Technologist, National Institute of Geophysics and Volcanology (INGV), Rome, Italy; Secretary General, International Association for Promoting Geoethics (IAPG)

THANK YOU

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The Geological Society

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