UNIVERSITÀ DEGLI STUDI DI TRIESTE

OGS Istituto Nazionale di Oceanografia e di Geofisica Sperimentale

SEG SOCIETY OF EXPLORATION GEOPHYSICISTS
University of Trieste Student Chapter

Self-Supervised Approaches in Seismic Data Processing: Insights and Applications

Presented by: Vincenzo Lipari – Senior Researcher OGS

Date: 15.10.2024, 16:00 - 17:00

Classroom: Aula Magna, Via Weiss 1 (pal. C)

Virtual class: Join Teams Meeting

Meeting ID: 398 701 756 240

Passcode: KZwuhg

FOR INFORMATION:
units.student.chapter@gmail.com

Abstract:

Deep learning has significantly impacted the field of geophysics, initially generating excitement through successful applications in interpretative tasks. However, the anticipated advances in seismic processing and imaging have not materialized as expected in production applications.

The main reasons for this shortcoming include: i) the need to a rigorous approach to processing and imaging, requiring signal preservation; ii) a lack of reliable “noisy-clean” training data pairs; and iii) challenges in explicitly incorporating relevant physical processes related to specific processing tasks.

Therefore, a fundamental shift in approach could be beneficial, reducing the reliance on training data by integrating classical inverse problem theory into learning algorithms. Various methods within this framework can address seismic processing tasks such as denoising, interpolation, and simultaneous source deblending.