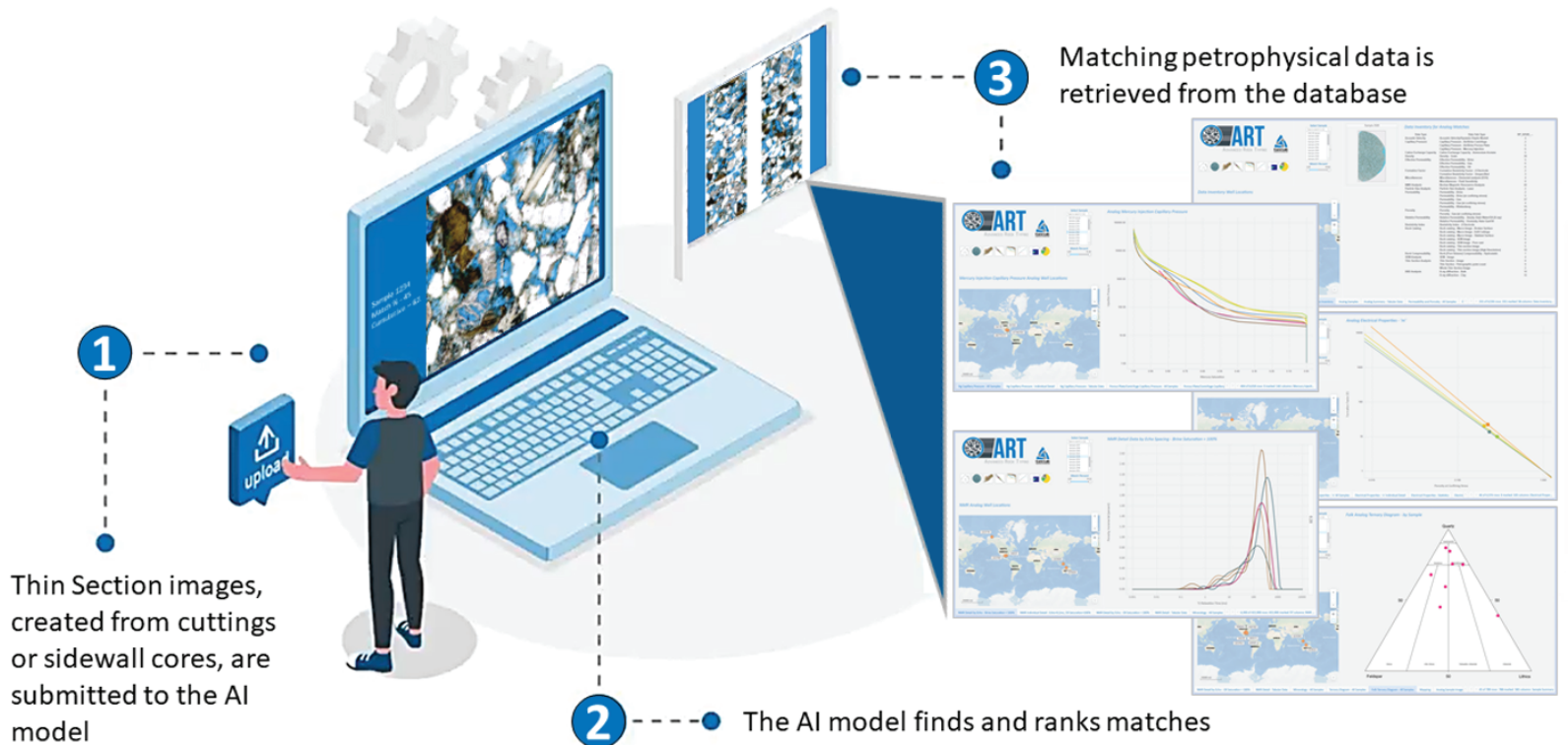DoingMoreWithLess

Advanced Rock Typing

Core Lab®

Discover the data behind your thin section

Expert-guided, machine-learning based analog search for routine and petrophysical properties from a thin section image recognition model.

World Oil® AWARDS
2021 WINNER
Best Data Management &
Application Solution Award

1 Thin Section images, created from cuttings or sidewall cores, are submitted to the AI model

2 The AI model finds and ranks matches

3 Matching petrophysical data is retrieved from the database

ART
ADVANCED ROCK TYPING

Advanced Rock Typing: Solving formation evaluation problems by providing analog petrophysical parameters

Overview

The need for petrophysical data used in reservoir characterization studies continues to grow despite virtually every oil and gas operator currently stressing the need for cost reductions. Geologic and engineering teams are being told that they must do without when it comes to recovering conventional core, long the gold standard for petrophysical data, and in some cases the recovery of even sidewall core samples is being severely constrained. Making do with less has become the new normal.

In response, Core Laboratories has developed Advanced Rock Typing (ART™), an artificial intelligence (AI) approach to find physically measured analog petrophysical data that relies on representative high-resolution thin section images of cuttings, micro core samples and/or sidewall core samples. Leveraging Core Lab's RAPID™ petrophysical database, ART™ quickly finds and ranks analog matches and returns data sets that include physically measured porosity, permeability, capillary pressure, electrical properties, geomechanical properties, NMR data as well as mineralogy and petrographic parameters.

What once required a significant capital investment to recover conventional core material, with its inherent increase in rig time as well as analytical wait time, now can be performed on representative drill cuttings, micro core samples and even sidewall core samples in a matter of days. The AI model analyzes the heterogeneity inherent in each thin section and finds analog matches that cover the range of that heterogeneity. Results are presented in an interactive web-based application which allows the user to explore the results and export data to third party analytical applications used in their existing workflows. ART™ includes rock types from throughout the world and is continuously being expanded with additional rock types and their physically measured petrophysical properties.