SPG-NA 2021 Q2 webinar

Time: 10AM CST / 8:30PM IST

Date: May 7th, Friday

Title: Deep learning and its application towards seismic facies classification

Abstract: Seismic facies classification using 2D image segmentation techniques show abrupt discontinuities in 3D that are unrealistic. Due to large memory requirements and prohibitive runtimes using GPU devices, 3D image segmentation is not considered a viable option. In this talk, we will present results for data-parallel distributed deep learning on CPU-based HPC clusters on the cloud as a practical and viable option for geophysicists to experiment on large 3D neural networks. We will show results from experiments conducted using asymmetric 3D cuboids, which better capture variations in geophysical properties along certain directions, as well as different data augmentation strategies to handle class imbalance. We show excellent strong scaling on CPU-based HPC clusters on Microsoft Azure and demonstrate training times of ~3 hours on 3D networks with > 1 billion model parameters.

Speakers:

Dr. Santi Adavani, CTO/Cofounder, RocketML, Inc.
CTO of RocketML. PhD in Computational Sciences. Hands on knowledge of building big data systems, complex algorithms and Machine Learning models for 15 years. Worked as a Software Product Manager at Intel for 8 years.

Dr. Vishal Das, Machine Learning Scientist, Shell Global Solutions (US) Inc.
Dr. Das is a Machine Learning Scientist in Subsurface and Wells Data Science team at Shell Global Solutions (US) Inc. He is involved in Digital Center of Excellence R&D projects within Shell. In his previous assignment in Shell, he worked as a geoscientist in Deepwater Development Gulf of Mexico on the Whale field development team. Previously, he was a geoscientist with Schlumberger, working as workflow support and a consultant for seismic interpretation and geomodelling projects. Vishal received his PhD in geophysics with a PhD minor in Statistics from Stanford University and a master's in applied geophysics from the Indian Institute of Technology.