Monday, March 1, 2021

Virtual Meeting via Zoom
6:00 – 7:00 p.m.

HGS Members $10 Non-Members $25 Students $5
https://www.hgs.org/civicrm/event/info?id=2258
Registered Attendees: A confirmation email will be sent upon registration with meeting links.
Event contact: Bryan Guzman – bryanguzman85@gmail.com

****Non-Members can submit an application and pay their dues before registering to get the member price. Please call the HGS office at 713-463-9476 to be registered only AFTER your application and dues are submitted.****

HGS General Virtual Dinner Meeting

David Thul
CEO Geolumina
Kali Blevins
CTO Geolumina

Computer Vision: A New Approach to Data Science in Geology

Data science and analytics is an extremely broad field and growing every day. Over the past several years there have been numerous excellent presentations showing how data analysis, machine learning, and big data can be applied to derive new insight into petroleum systems. What we haven't seen in these presentations is how geologists might leverage new technology to augment their capability and shift cognitive load to computer systems to greatly change information flow and decision making.

With that in mind, we have spent the last several years thinking about what geoscientists ACTUALLY do. In our estimation, the principal skill of geoscientists is applying domain expertise to sparse data. Something computers, no matter how sophisticated, can't do. And what geoscientists ACTUALLY do is recognize patterns and find trends, mostly visually. Over the last hundred years, most advancements in geoscience are the result of new ways of displaying data and understanding relationships using visual correlation tools. Well known examples of visual correlation tools are Picket Plotts, Hingle Plotts, Buckles Plots, Horner Plots, DST pressure charts, generic cross plots, nomograms, cross section etc. And really it should probably be argued that the most humble tool in our kit, the well log, is nothing more than a tool of visual pattern recognition.

With this in mind, we set out to explore what we could accomplish using computer vision to teach a program to "see" like a geologist. In this talk we will present some results from a series of experiments on what patterns a computer can recognize in porosity-permeability plots and how these abilities can be leveraged to change what a geologists does. We hope you will join us for a discussion of cognition, geoscience and technology to think about what the future might hold for our profession. ■

Biographical Sketches

David J. Thul, CEO Geolumina, is a geologist and geochemist with broad global exploration and production background. He has worked 50 basins in 15 countries as an explorationist and raised and deployed more than $100mm in private and private equity capital. He is an E&P technology patent holder and is always looking to improve how our industry does business.

Kali Blevins, CTO Geolumina, is an ecologist and programmer that has been working on big data projects for the last 15 years. She started her career in an ambitious NSF funded ecology project called NEON and has held data science roles in various technical fields. She has been working on petroleum geoscience problems for more than a decade.