



16th SGA BIENNIAL MEETING KEYNOTE SPEAKER

In concurrent session:

Data-driven geoscience: machine learning and multivariate data analysis



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Machine Learning applied to mineral deposits

Machine learning (ML) is a subfield of artificial intelligence (AI) that includes computational methods to efficiently, objectively, and repeatably identify patterns in data. These methods have increasingly been adopted in the science of mineral exploration. Computational techniques such as clustering, classification, and automation algorithms are several decades old yet are only recently moving from the use by Earth informatics specialists towards common application by mineral exploration geologists. Applying these methods in a mineral exploration context is not limited to generating drill targets and prospectivity maps; value also comes from producing familiar outputs such as bedrock lithology and alteration maps, extracted logs from drill core, and analysis of ore deposit geometry. By combining ML with domain expertise, mineral exploration and mining workers can achieve objective and repeatable results while retaining familiar traditional work flows.

Shawn Hood

Shawn is Chief Technical Officer at GoldSpot Discoveries Corp. He is a P.Geo in Economic Geology with experience across a broad base of exploration and mine geologist roles ranging from open pit, underground, brownfields, and greenfields projects. His Ph.D. research demonstrated the application of machine learning towards mineral exploration and investigated why geologists' input is fundamentally essential. Shawn applies machine learning techniques to understand ore deposits by integrating disparate datasets and enhancing mineral exploration work programs. He focuses on understanding how this technology can deliver objective and repeatable results in mineral exploration settings, especially where trained geoscientists can apply their expert knowledge to guide machine learning models and situations where data-driven results can be field-validated and improved by geologists. Shawn is a graduate of Carleton University in Ottawa (BSc Hons.) and the University of British Columbia's Mineral Deposits Research Unit (MSc).