# New ways to solve spatial problems with Machine Learning and ArcGIS

The intersection of geographical information systems (GIS) and machine learning (ML) is a new frontier for exposing data-driven relationships from spatial big data and predicting outcomes without empirical models. There are many ways to integrate these powerful technologies to answer seemingly unanswerable questions and turning spatial data into deep spatial understanding.

Esri, the global market leader in geographic information systems (GIS), offers the most powerful mapping and spatial analytics technology available. ArcGIS is a platform for organizations to create, manage, share, and analyze spatial data. Machine Learning and Artificial Intelligence (AI) tools integrated with ArcGIS are enabling anyone with a GIS to predict outcomes with greater speed and accuracy.

In addition to traditional Machine Learning techniques, ArcGIS also has a subset of ML techniques that are inherently spatial. These spatial methods that incorporate some notion of geography directly into their computation can lead to deeper understanding. Both traditional and inherently spatial machine learning can play an important role in solving spatial problems.

Machine learning plays a critical role in spatial problem solving in a wide range of application areas, from image classification to spatial pattern detection to multivariate prediction. Some of the most recent examples include for example predicting accurate travel times, discovering alternate climate zones, predicting car accident risk per road segment per hour or for example predicting global seagrass occurrence.

We believe that GIS, infused with machine learning and artificial intelligence, can help executives make better decisions.