

A series of thin, light-brown lines forming an abstract geometric pattern in the top-left corner of the slide.

EXPLAINABLE ARTIFICIAL INTELLIGENCE (XAI)

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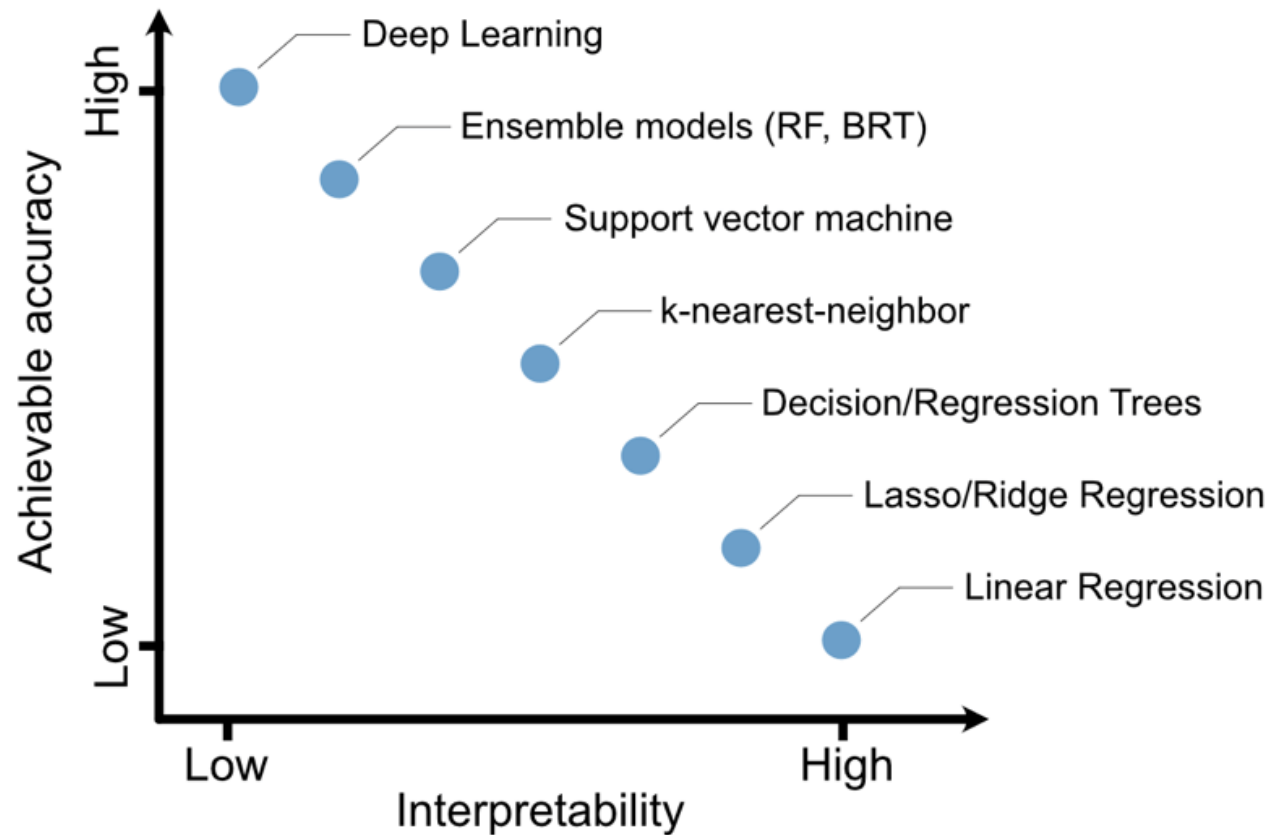
A series of thin, light-brown lines forming an abstract geometric pattern in the top-left corner of the slide. The lines intersect to create various triangular and quadrilateral shapes, some of which are partially cut off by the edges of the frame.

INTRODUCTION

Explainable AI (XAI) refers to the set of techniques, methods, and practices used to make the decision making processes of artificial intelligence systems more **understandable, interpretable, and transparent to humans**.

The primary goal of XAI is to provide insights into why AI models make specific predictions or decisions, especially in situations where AI is used in critical applications, such as healthcare, finance, autonomous vehicles, and law enforcement.

ACCURACY VS INTERPRETABILITY





EXAMPLE

Understanding the relationship between land use/land cover (LULC) and land surface temperature (LST) :

Independent variables :

1. Landscape features : NDBI, NDWI, GNDVI
2. Topographic features : Elevation, Slope
3. LULC features : Urbanized area, Land Cover Map,
Agricultural area, Forest area,
Grassland area, Wetland area, Bareland area,
Water area.



XGBOOST

we developed the LST prediction model and estimated the LST reduction effects after specific LULC changes.

Results showed that the prediction accuracy of LST was maximized when landscape, topographic, and LULC features within a 150 m buffer radius were adopted as independent variables.

Do all the variables show equal importance in final prediction ?

BLACK BOX

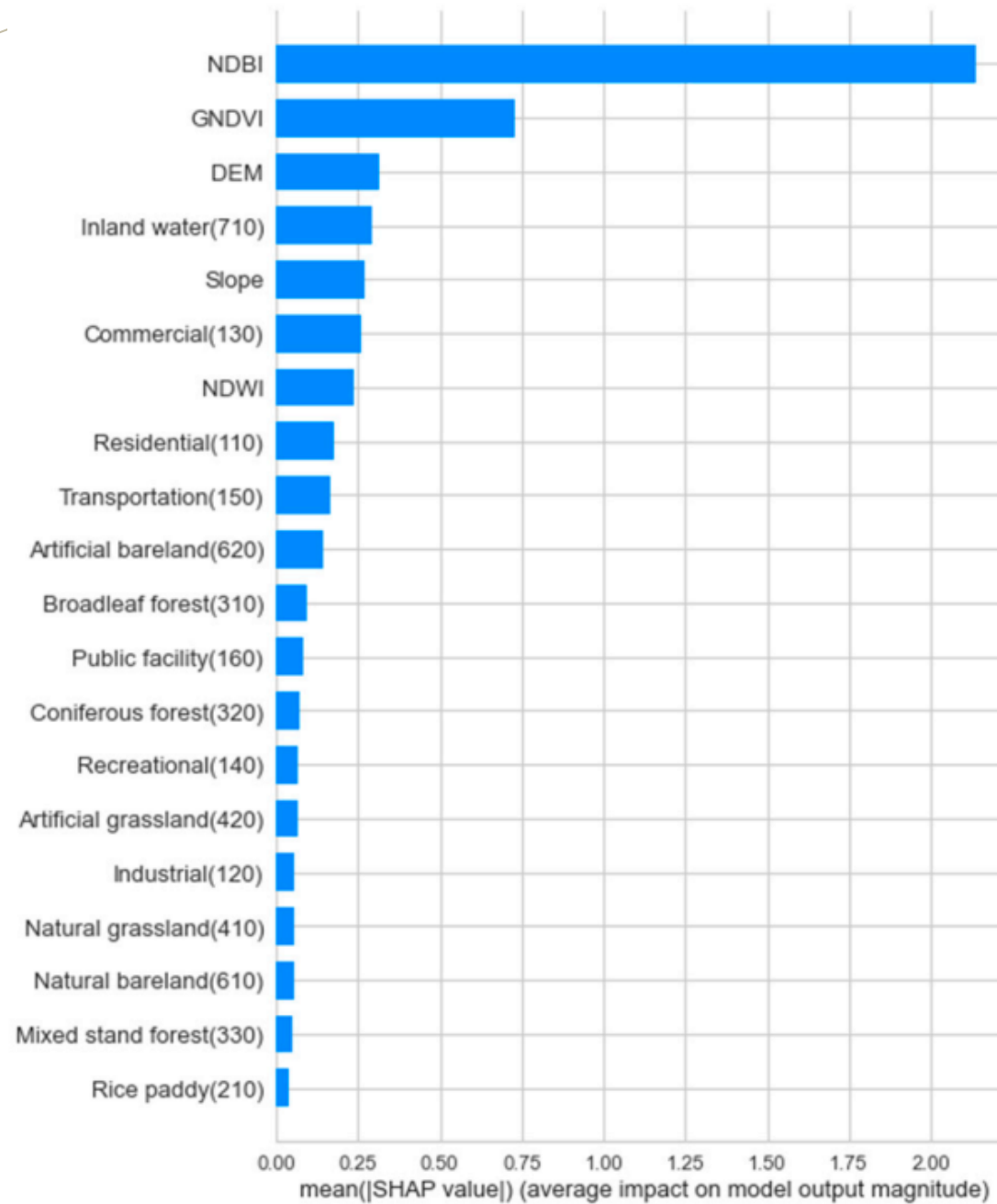


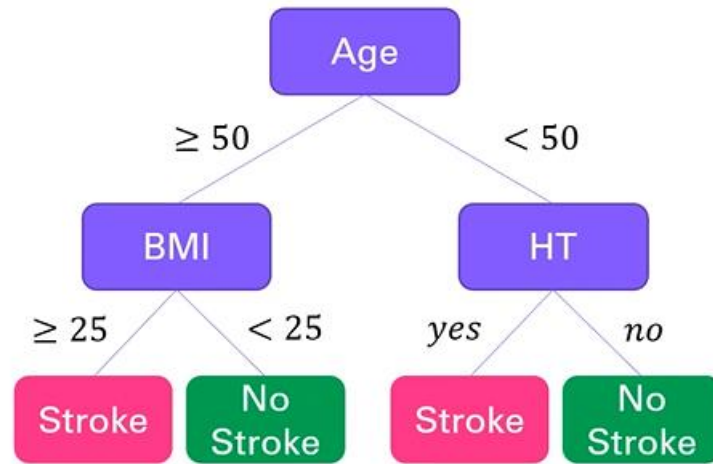
SHAP

Shaply Additive exPlanations

These values assign an importance score to each feature in a prediction.

These scores indicate how much each feature contribute to the final prediction. If a feature is irrelevant (i.e., its value doesn't affect the prediction), its SHAP value will be close to zero.





A series of thin, light-brown lines intersecting to form a series of overlapping triangles and polygons in the top-left corner of the slide.

OBJECTIVE

Rainfall Prediction

1. Predict tomorrow's rainfall using blackbox approach (eg: Decision tree classifier)
2. Using Explainable Boosting Algorithm to explain the final decision.
3. Create an user interface where user can visualize predictions as well as explanations.



THANK YOU