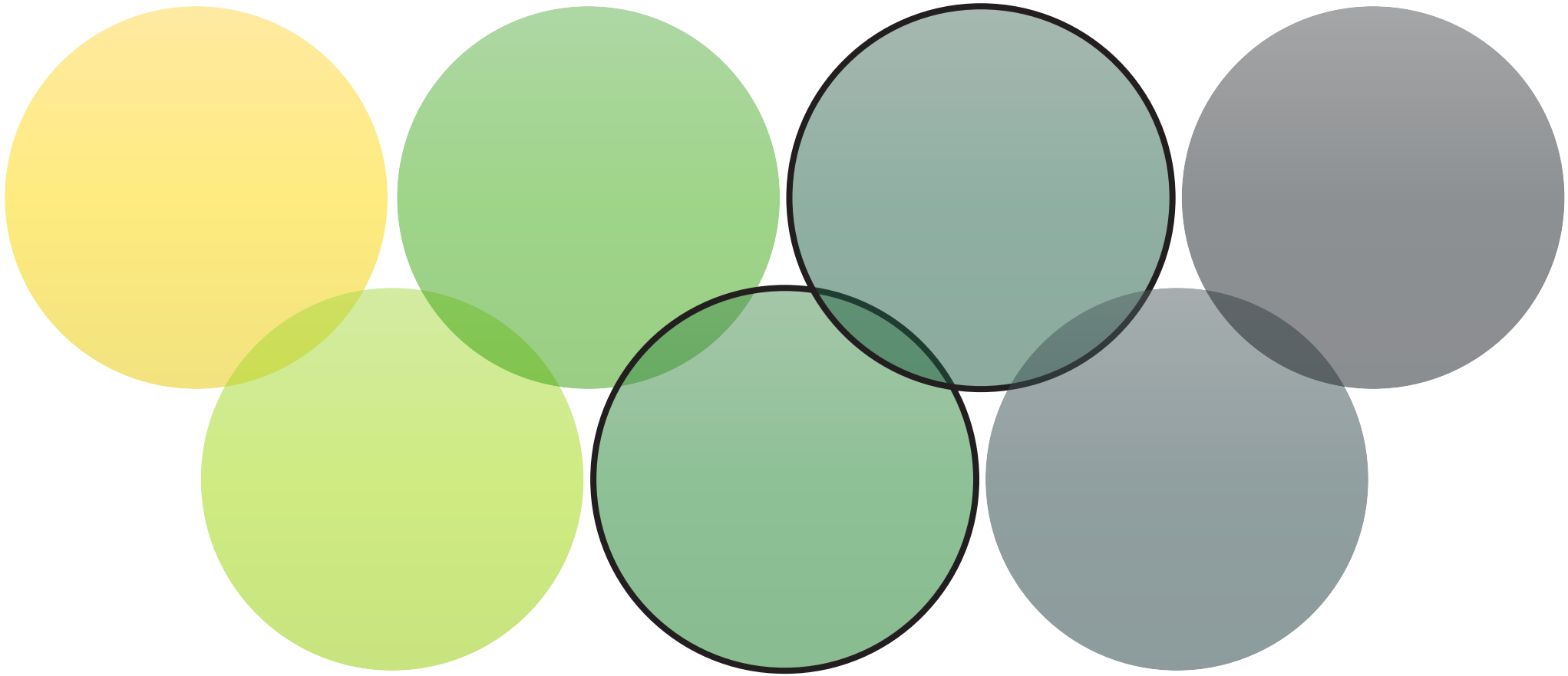
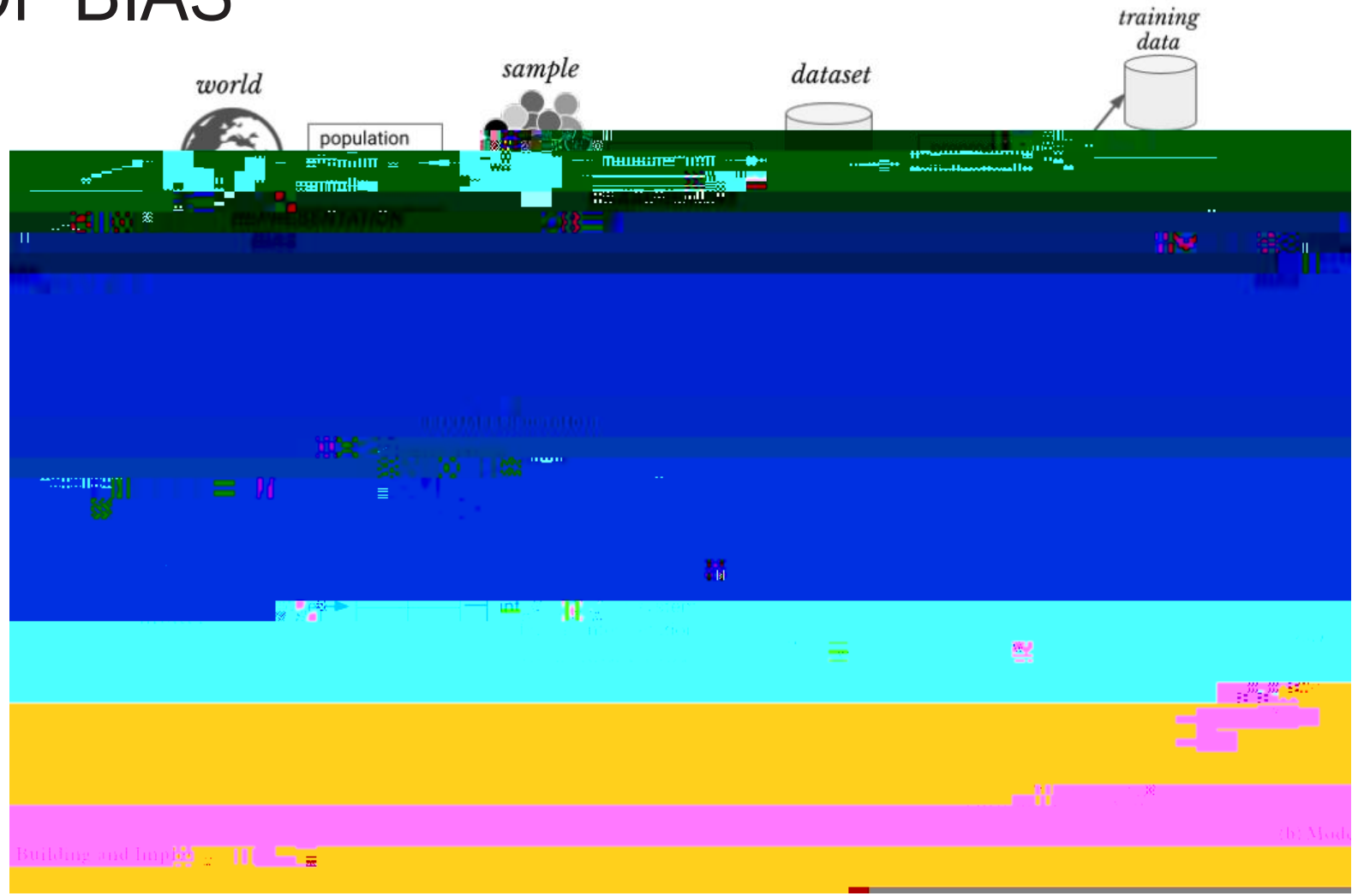
AI IN EARTH OBSERVATION

GUIDELINES & FRAMEWORKS

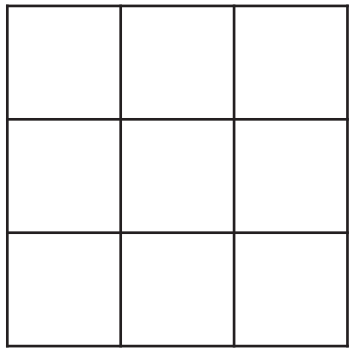


FAIRNESS / BIAS

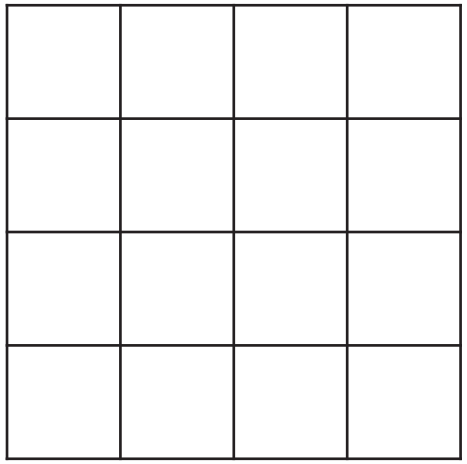
TYPES OF BIAS



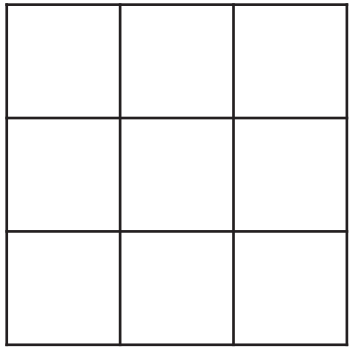
FAIRNESS?

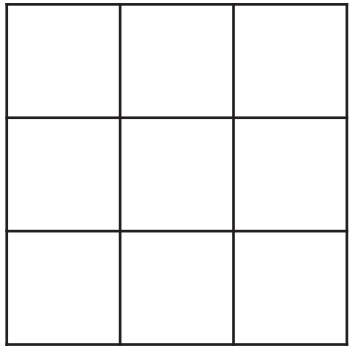


SIMPLE



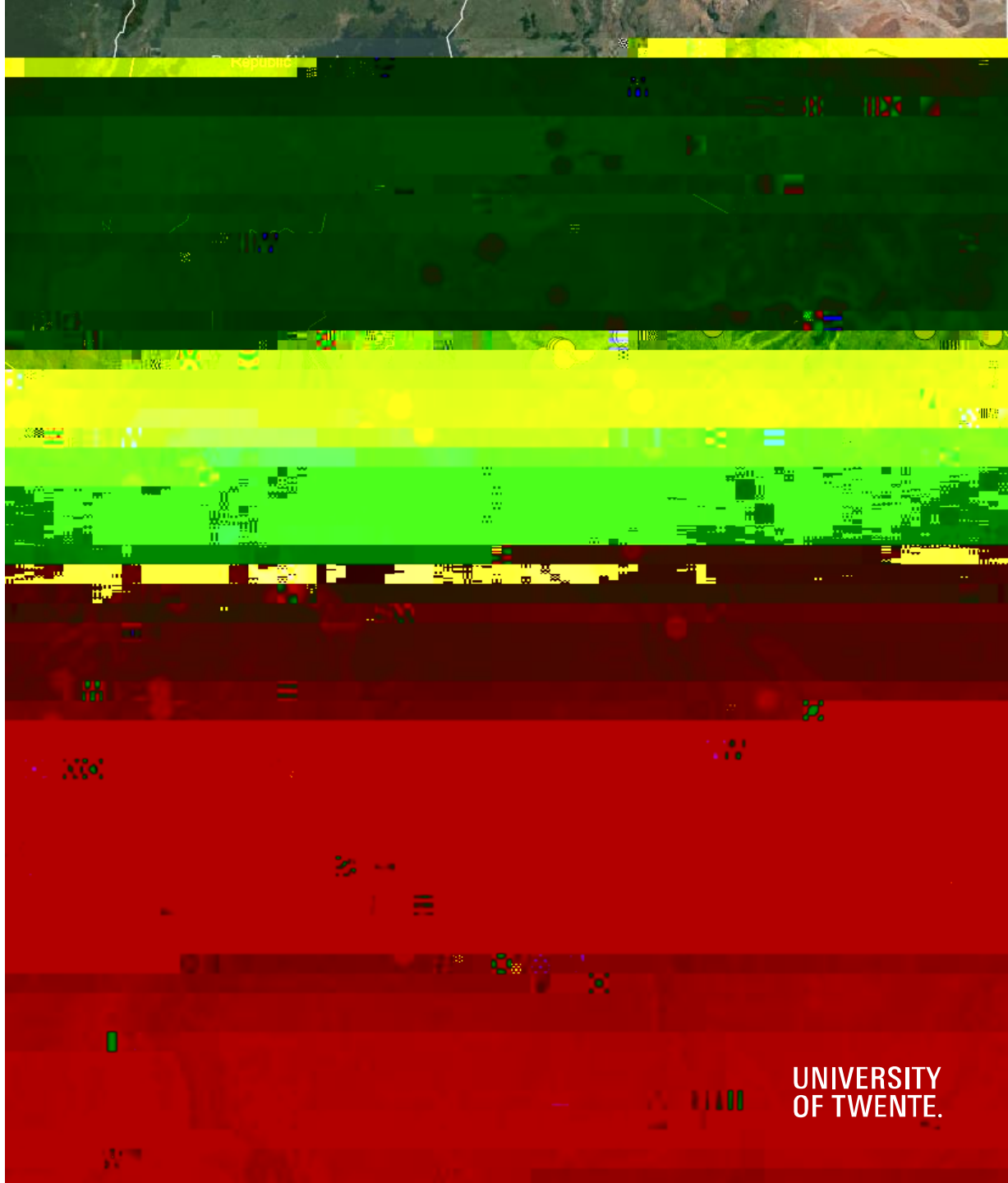
MULTI-CLASS





AUDIT FOR BIASES

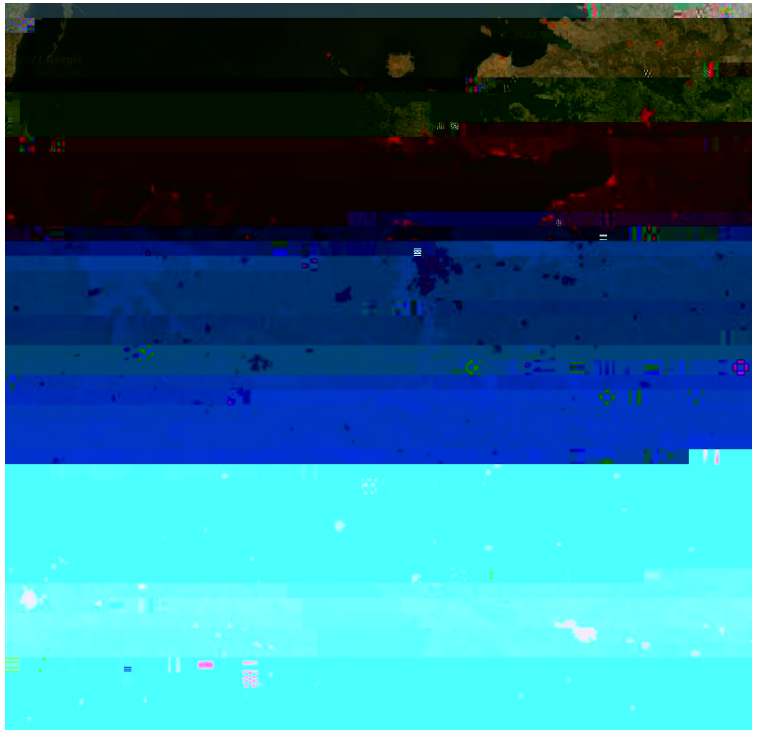
EXAMPLE ð BUILDING DETECTION IN TANZANIA



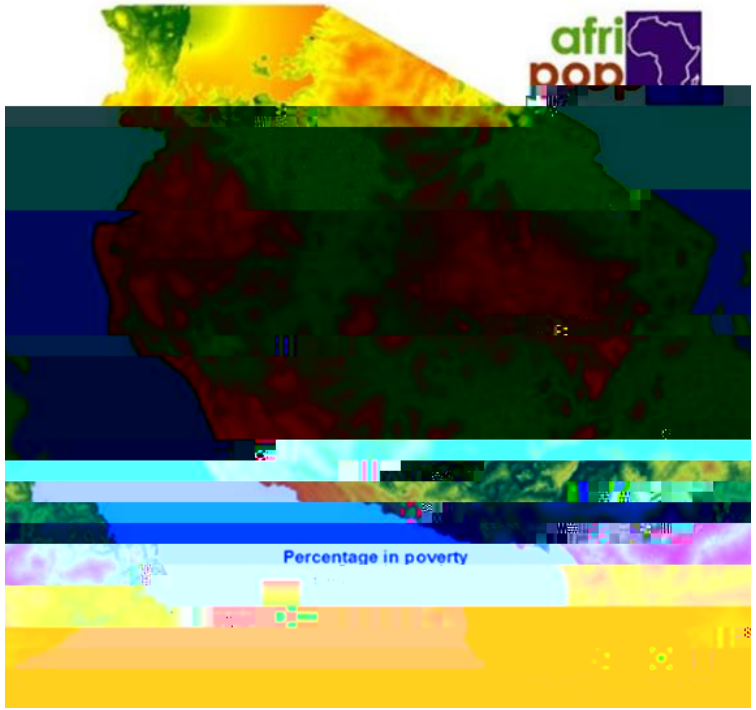
UNIVERSITY OF TWENTE.

SENSITIVE ATTRIBUTES

CITY SIZE



POVERTY



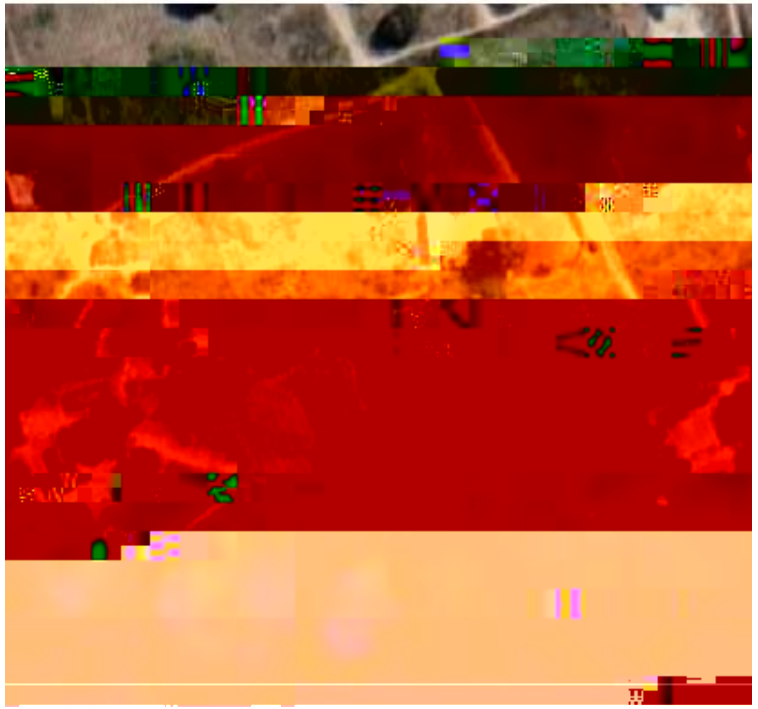
BUILDING SIZE

DOI : _____

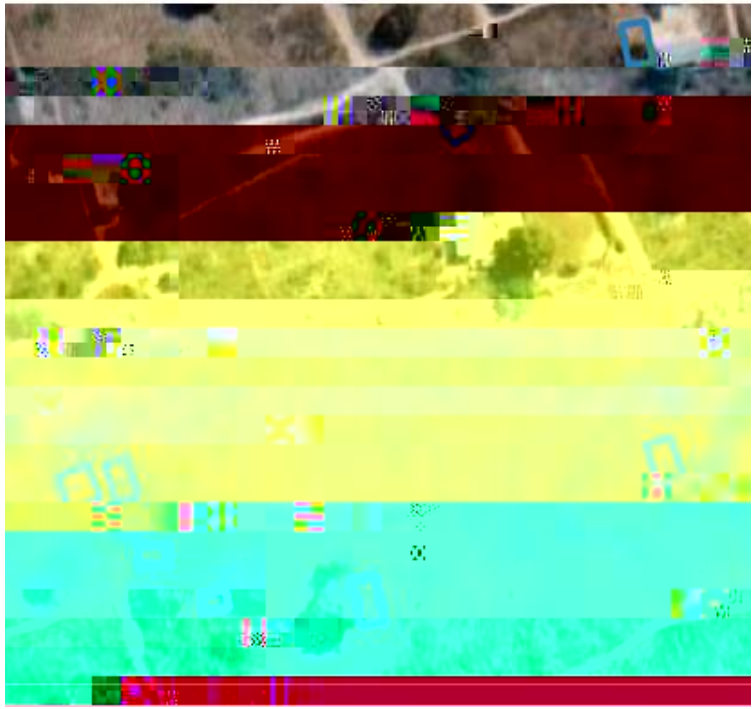
ACCURACY ð

ACCURACY ð EXAMPLE HIGH POVERTY, RURAL

OSM



BING

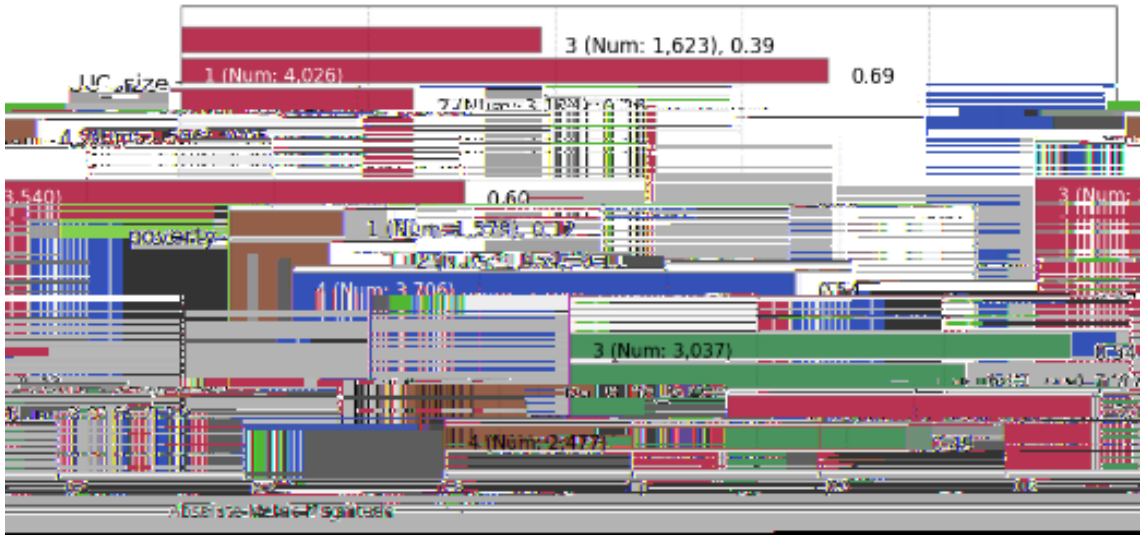


GOOGLE

PRECISION

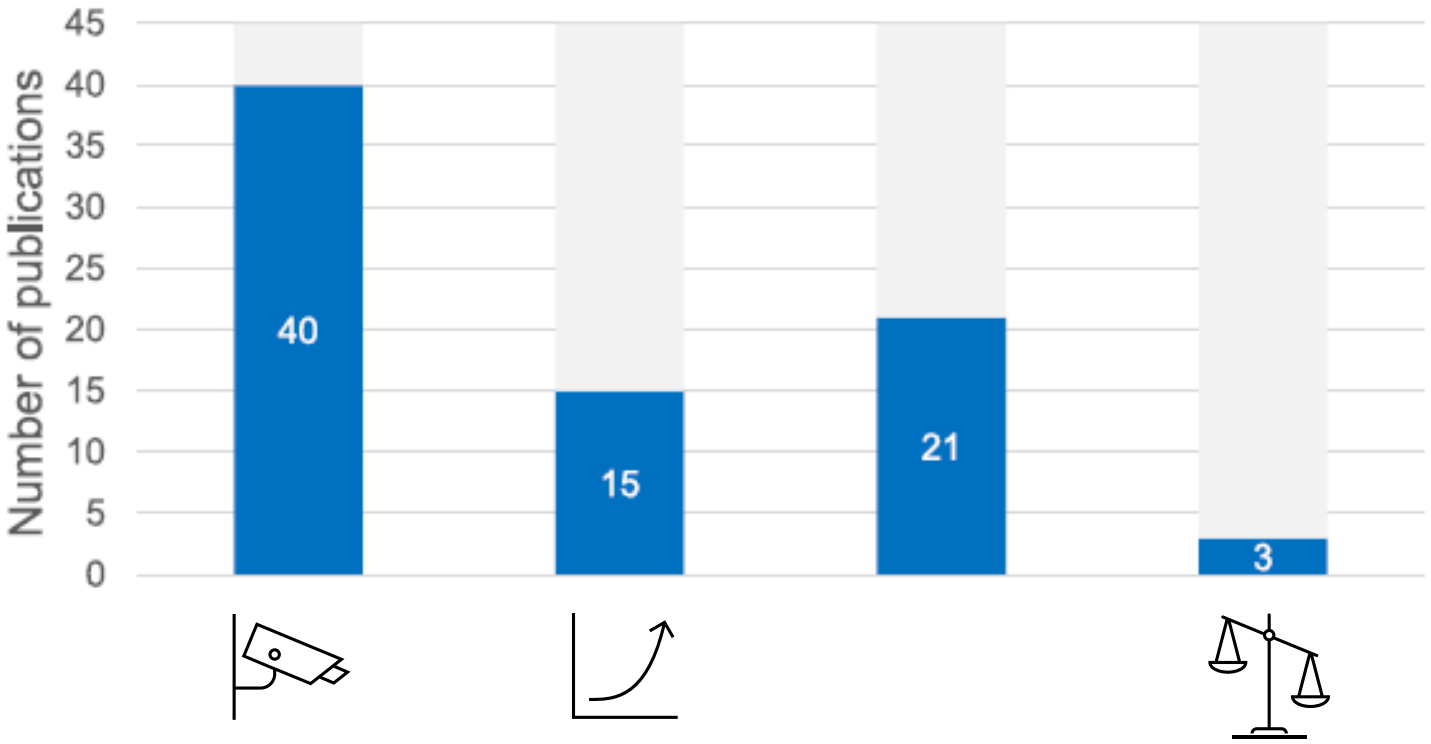
OSM

GOOGLE

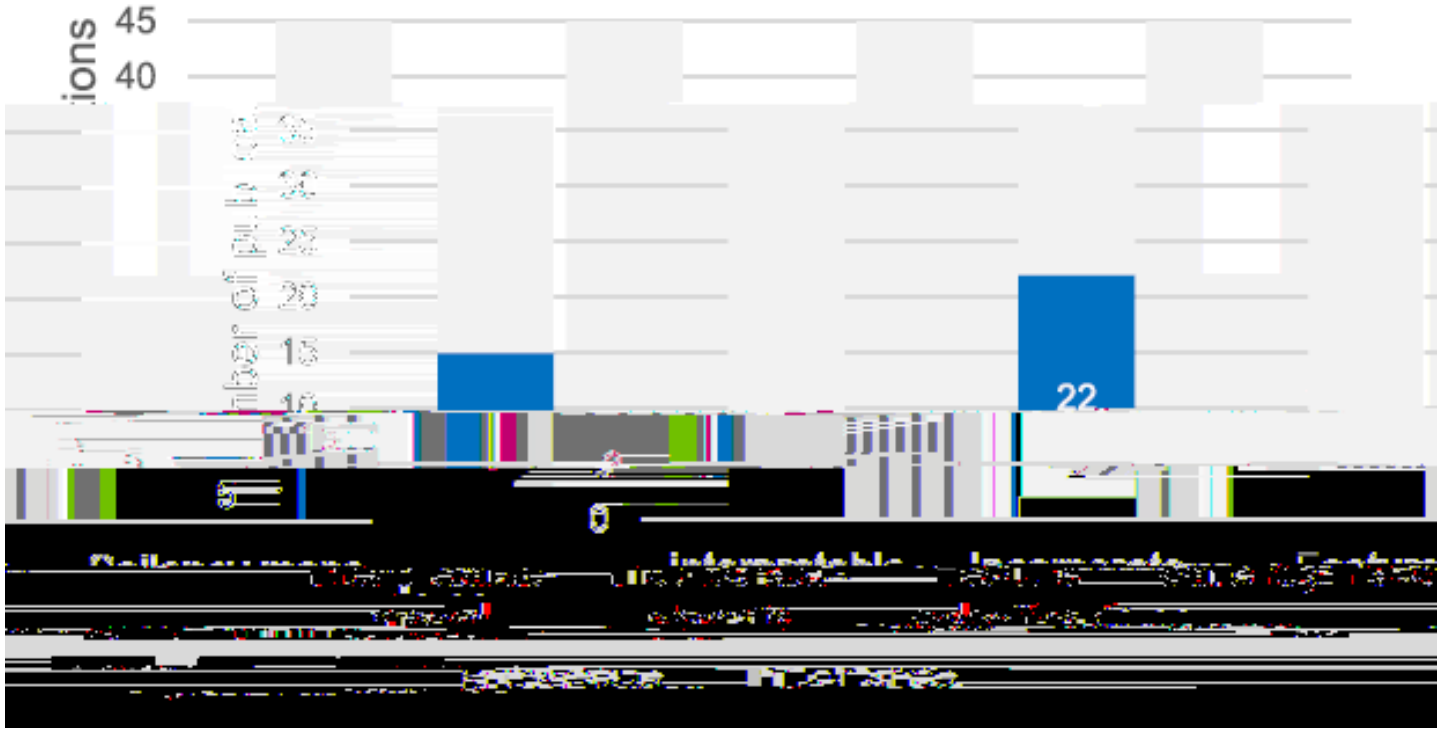


EXPLAINABILITY

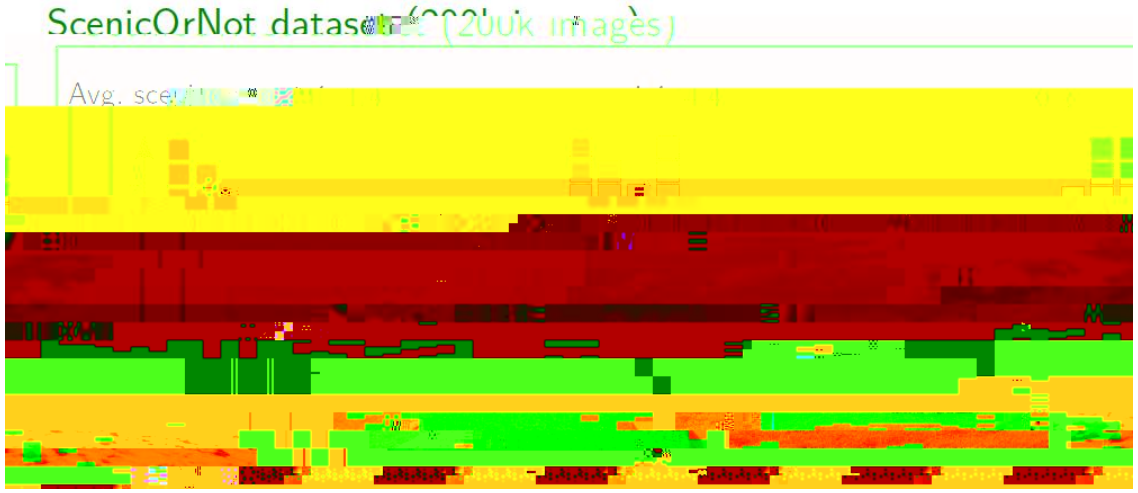
MOTIVATIONS FOR EXPLAINABLE AI



TYPES OF EXPLAINABLE AI IN EARTH OBSERVATION

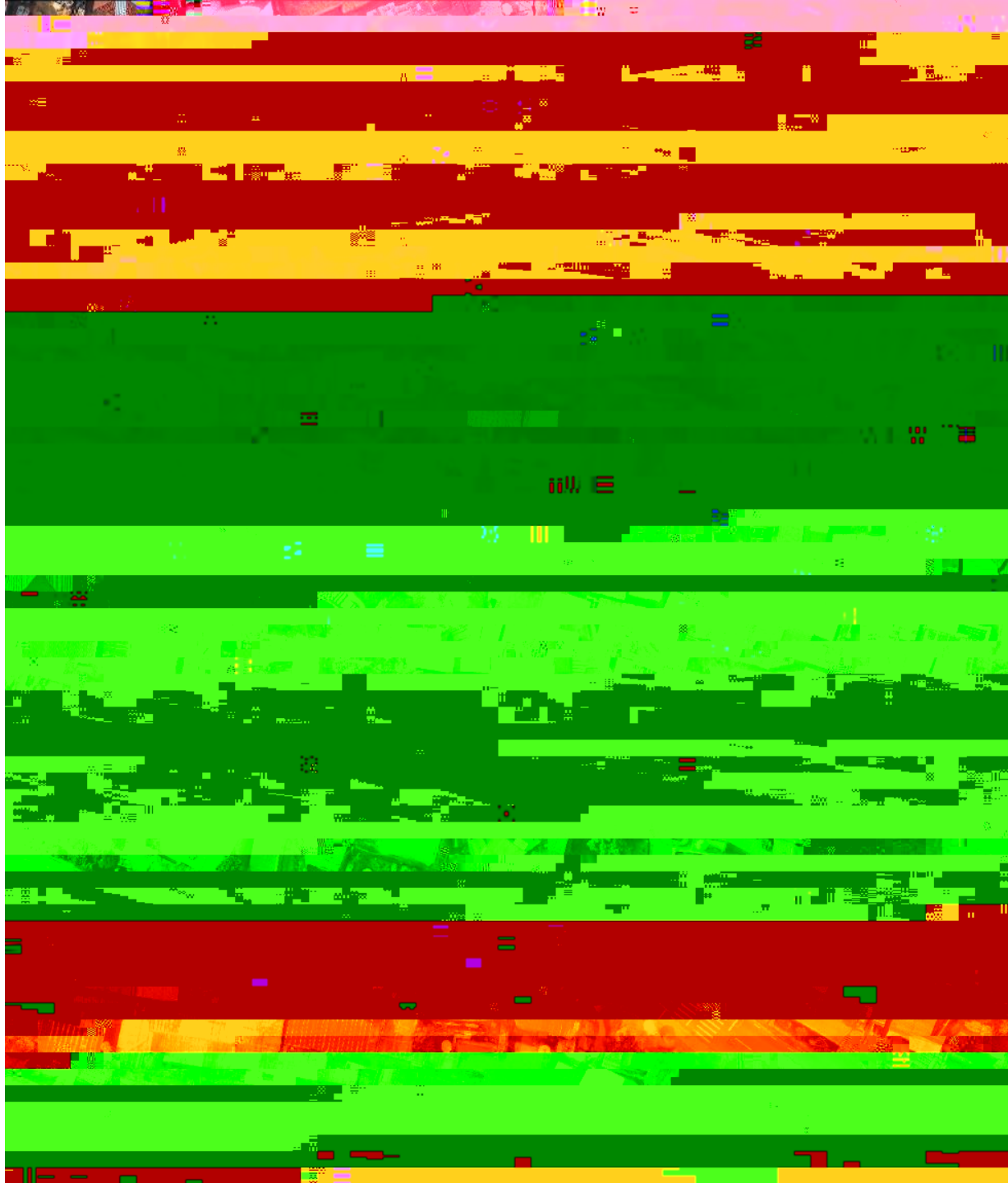


INTERPRETABLE MODELS



Marcos, D., Lobry, S., Tuia, D. 2019. Semantically Interpretable Activation Maps: what-where-how explanations with CNNs. ICCV 2019

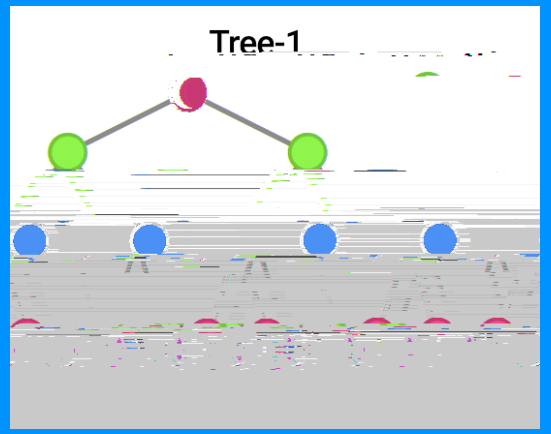
Features:

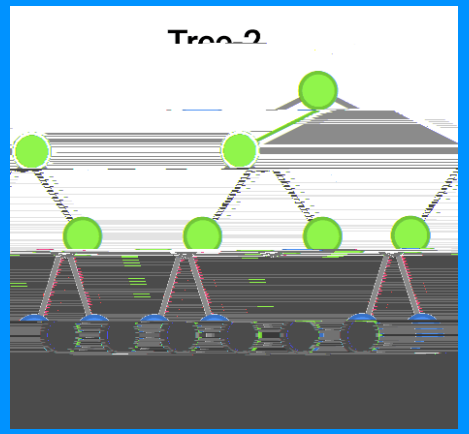


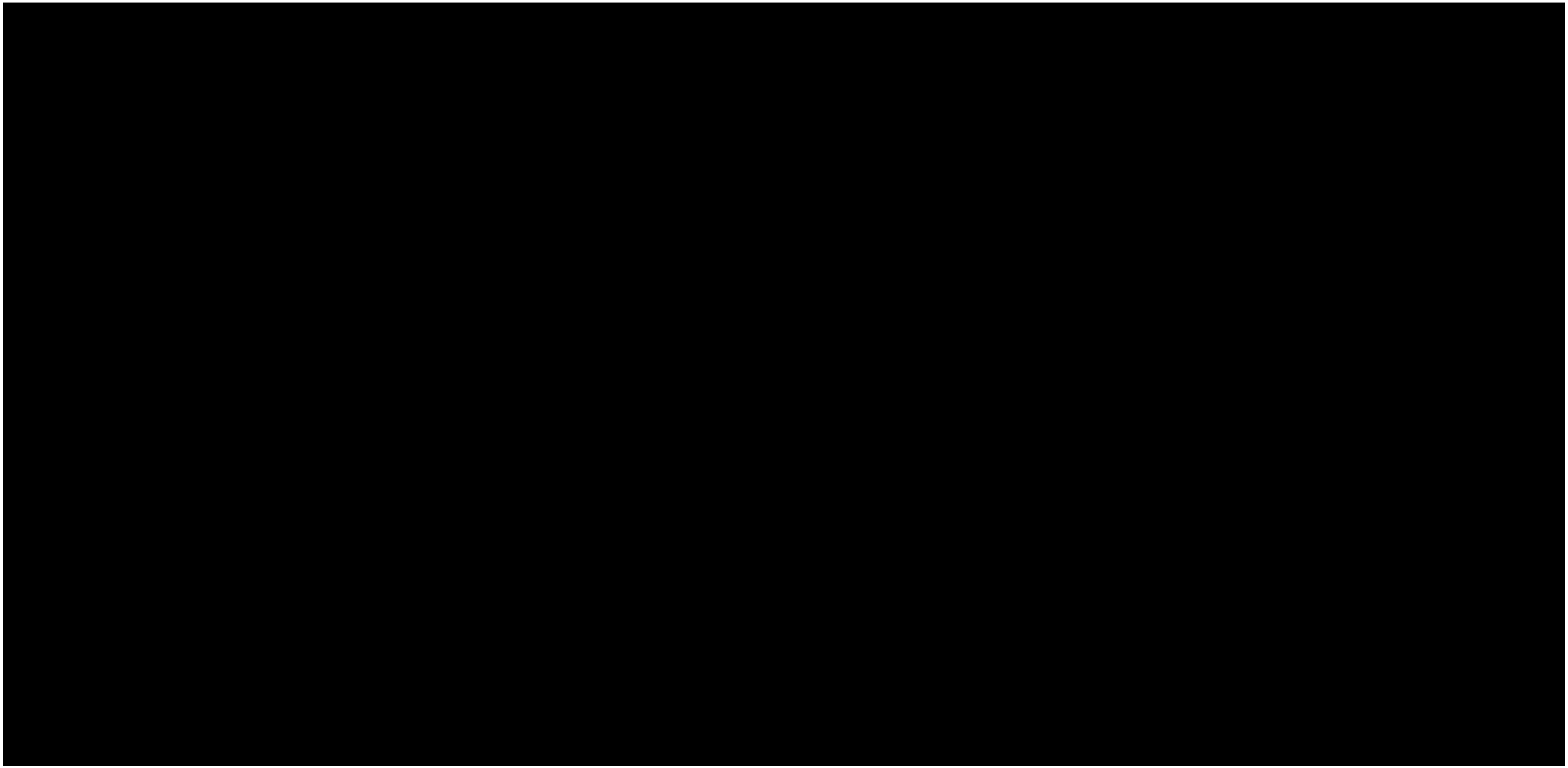
SALIENCY MAPS

CRITIQUES

ARE RANDOM FORESTS INTERPRETABLE?







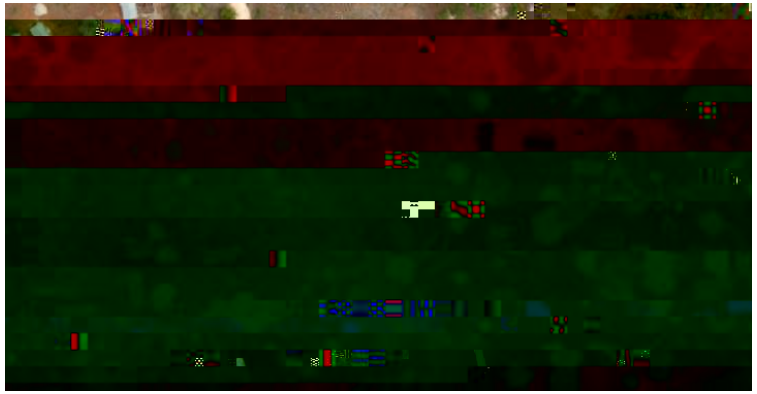
EXPLAINABILITY ð IS THIS MODEL SUITABLE?

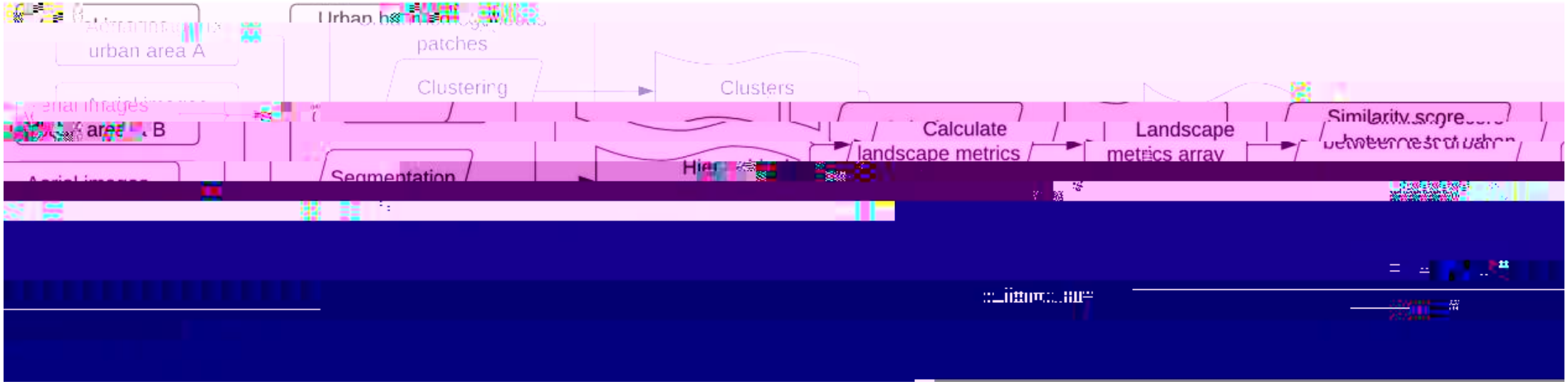
GENERALIZATION CAPABILITY

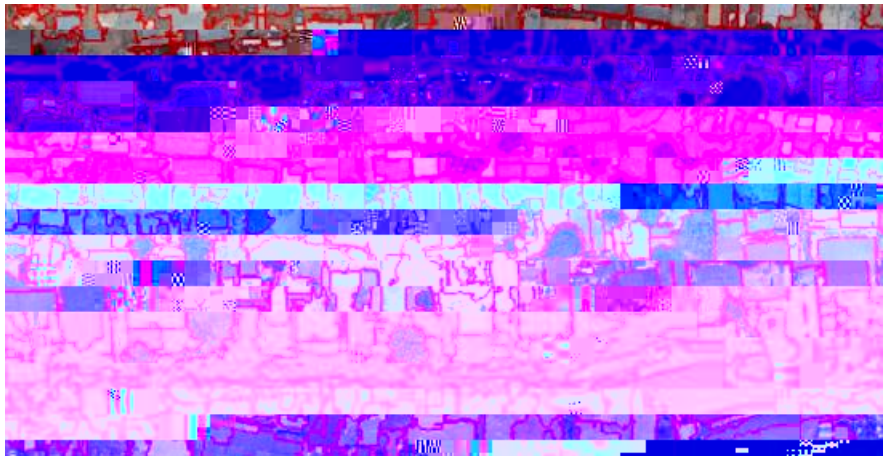
ACCRA

DAR ES SALAAM

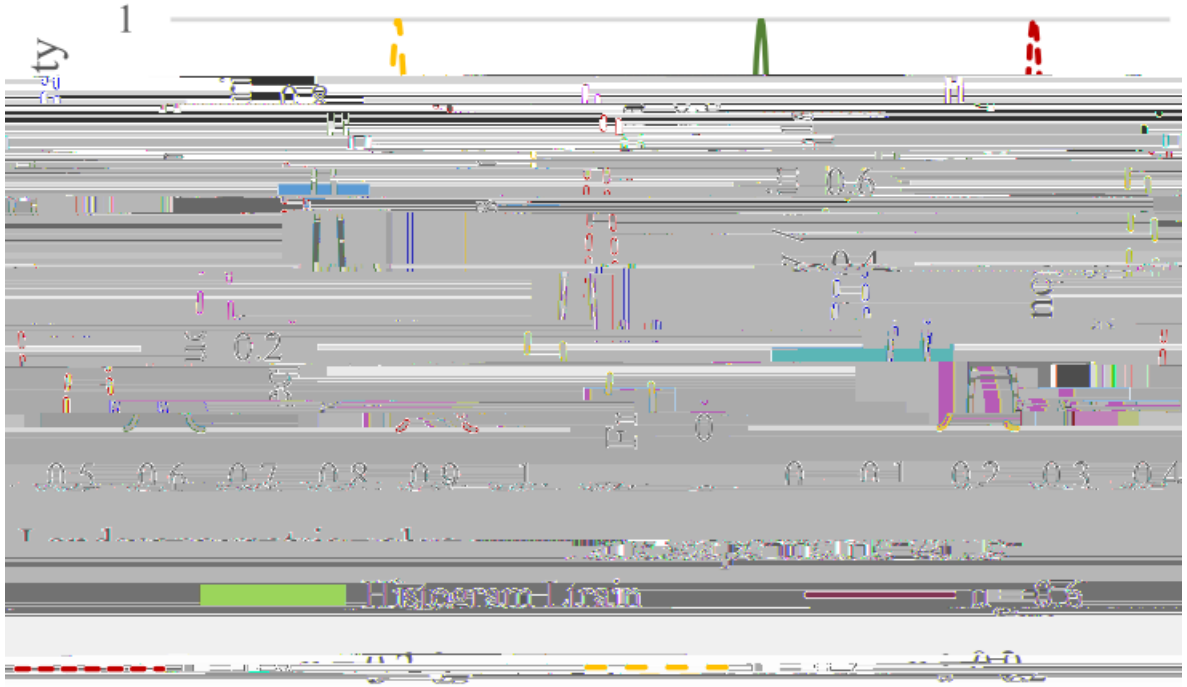
ZANZIBAR

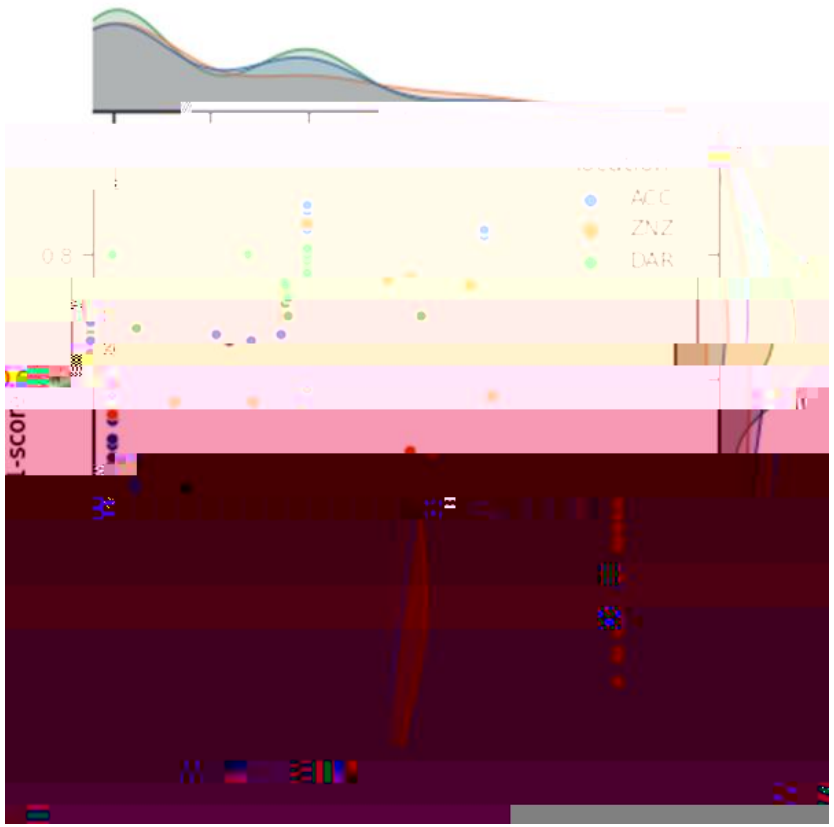



urban area A
patches
Clustering
Clusters
Calculate
landscape metrics
Landscape
metrics array



SIMILARITY SCORE

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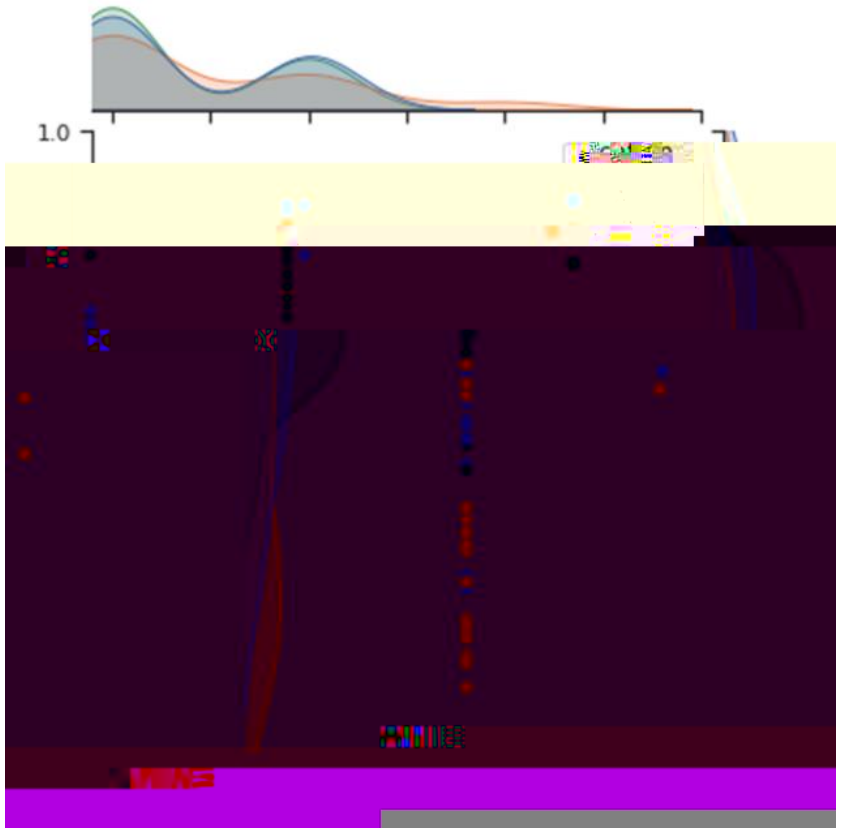
1.0

CONCLUSIONS

Biases

challenge is identifying the sensitive attributes

methods to predict generalizability

interpretable

technical audience

Lack of testing