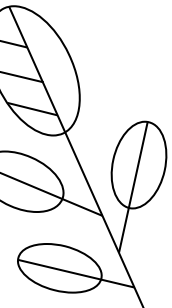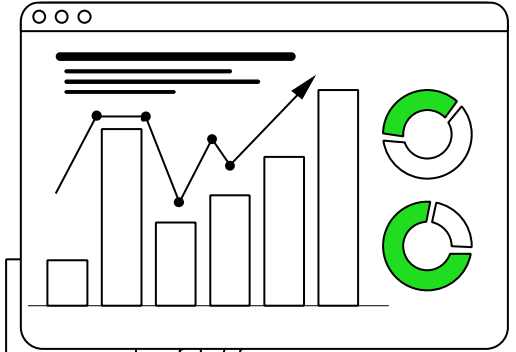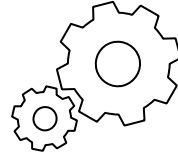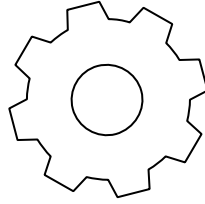# ITU GEOAI
CROPLAND MAPPING
CHALLENGE

MDMJ Team Solution

Diaa Abuhani – Jowaria Khan – Maya Haj – Mohamed Elmohandes
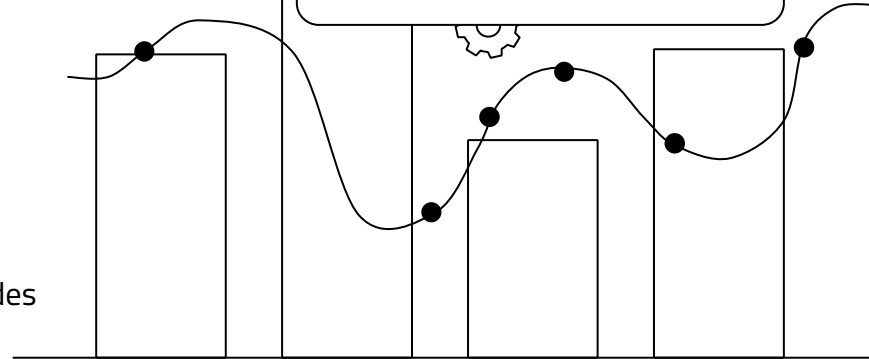
TABLE OF CONTENTS

DATA COLLECTION
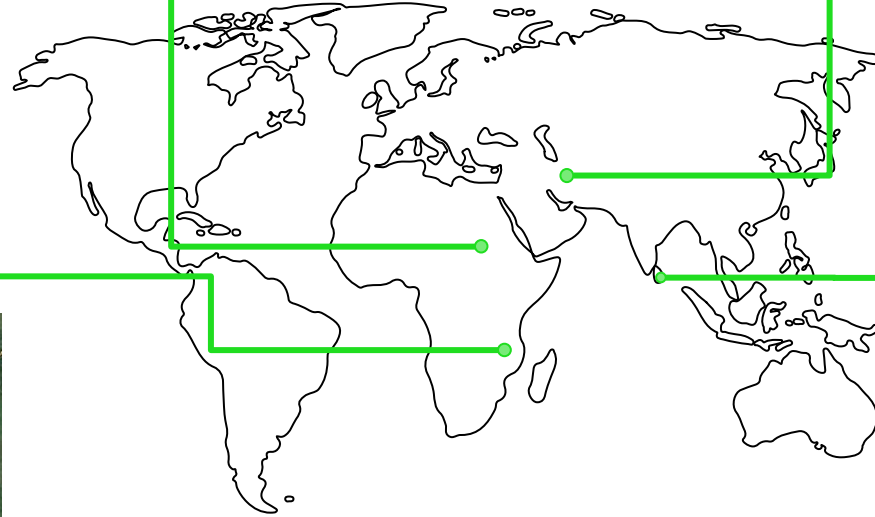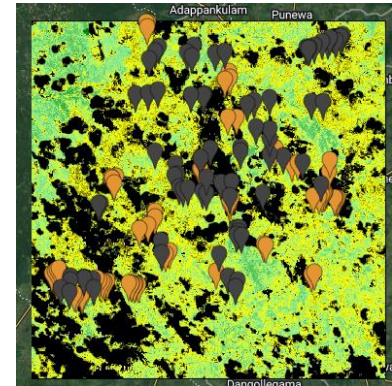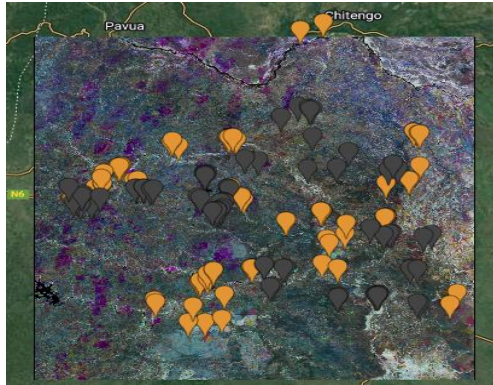
Fig. 10 NDVI Series before reconstruction
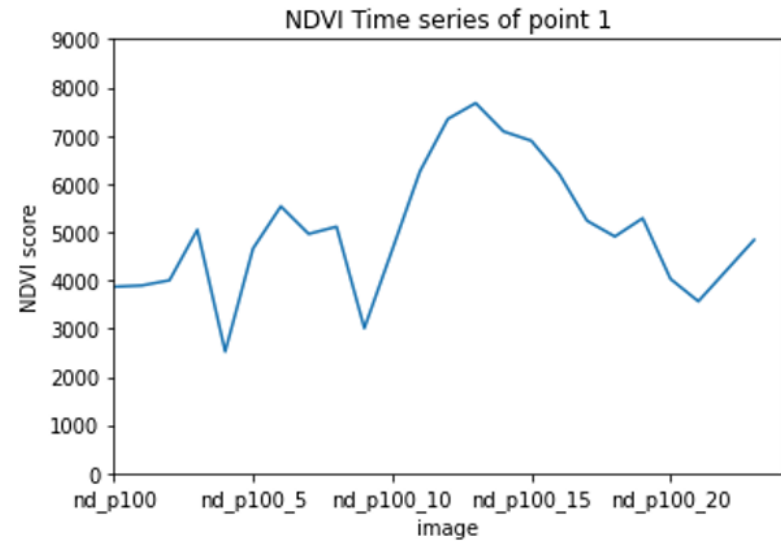
Fig. 11 NDVI Series after reconstruction

Cropland

Noncropland

Fig. 15 Mozambique Cropland Extent

Fig. 16 Sudan Cropland Extent

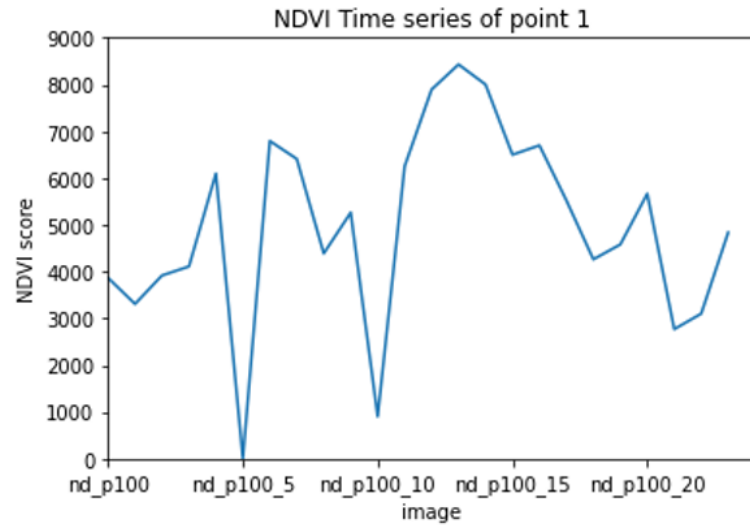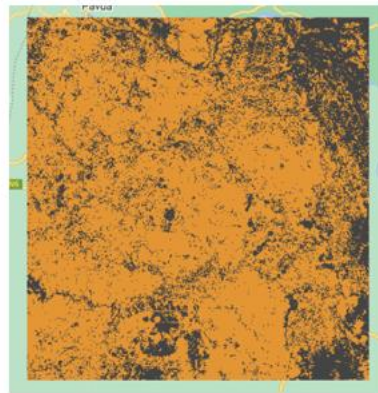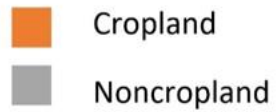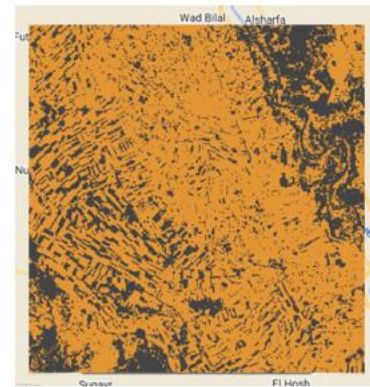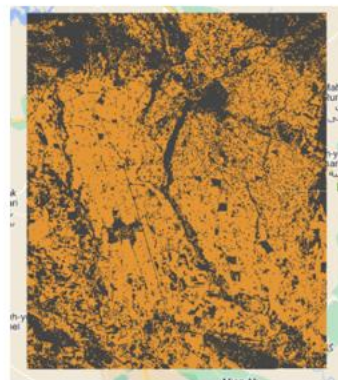

Fig. 17 Iran Cropland Extent

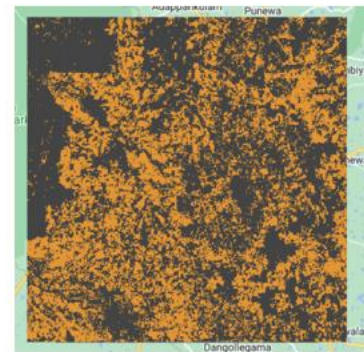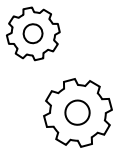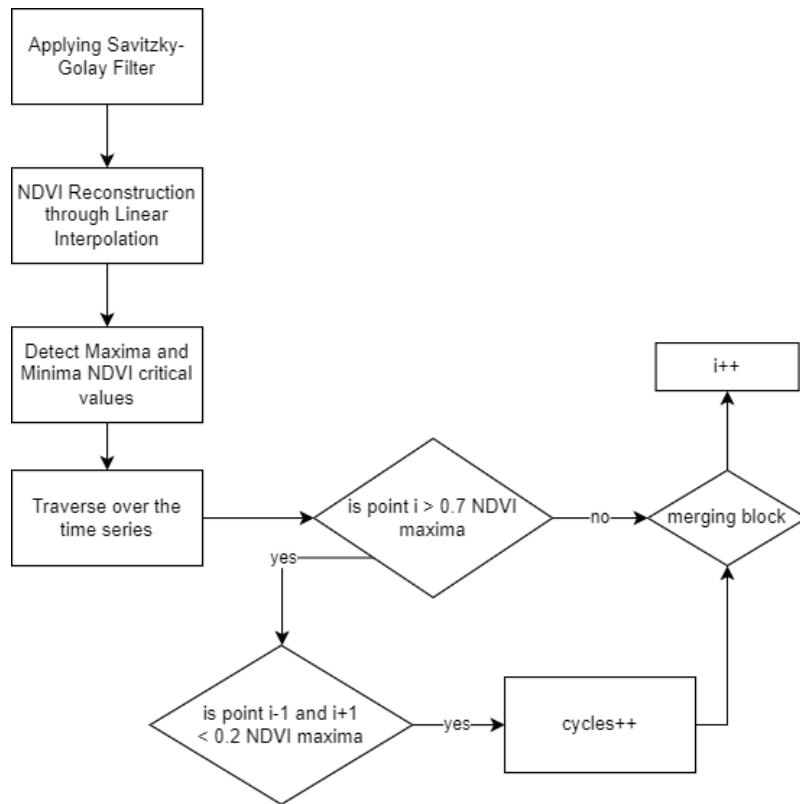Fig. 18 Sri Lanka Cropland Extent

Adaptive threshold approach for intensity cycles detection
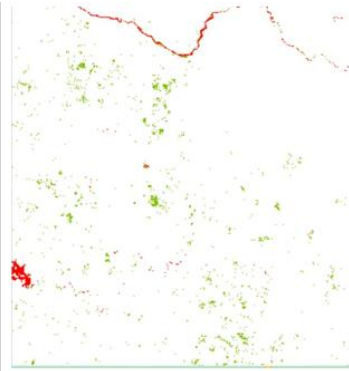
Non-Crop
Single
Double
Triple

Fig. 19 Mozambique Cropland Intensity

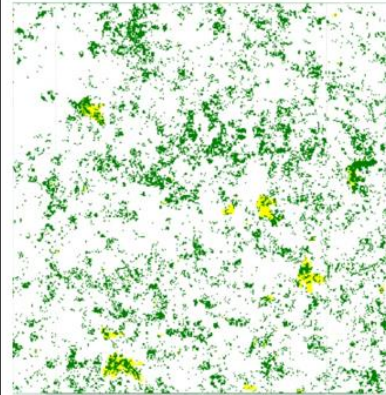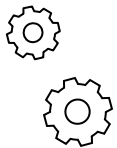Fig. 20 Sudan Cropland Intensity

Fig. 21 Iran Cropland Intensity

Fig. 22 Sri Lanka Cropland Intensity

Results

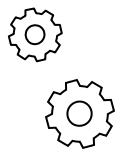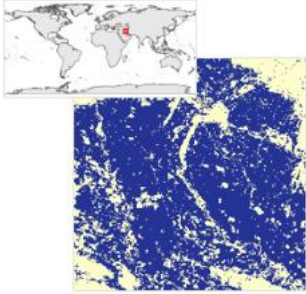| Cropland extent				
	Mozambique	**Sudan**	**Iran**	**Sri Lanka**
Models	Accuracy			
Random Forest	0.74	0.84	0.92	0.86
XGBoost	0.82	0.92	0.92	0.88
LSTM	0.82	0.84	0.96	0.90
Bidirectional LSTM	0.80	0.90	0.98	0.80
Crop Intensity				
	Mozambique	**Sudan**	**Iran**	**Sri Lanka**
Models	Accuracy			
Random Forest	0.87	0.86	0.803	0.95
XGBoost	0.92	0.83	0.803	0.94
KNN DTW	0.75	0.92	0.80	0.92

Image: Cropland_extent_Iran
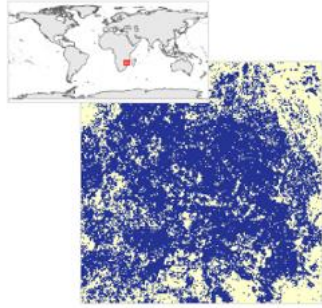
Fig. 23 Iran Cropland Extent

Image: Cropland_extent_MZB

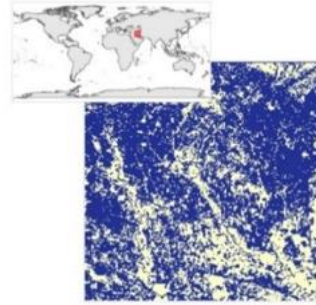Fig. 24 MZB Cropland Extent

Image: Cropland_intensity_Iran

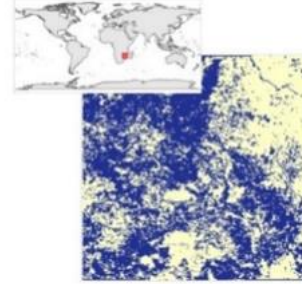Fig. 25 Iran Cropland Intensity

Image: Cropland_MZ_intensity_smooth

Fig. 26 Mozambique Cropland Intensity

Image: Cropland_extent_SriLanka

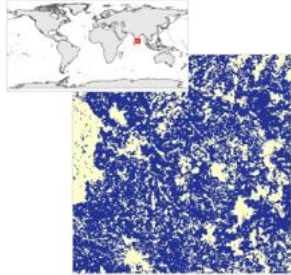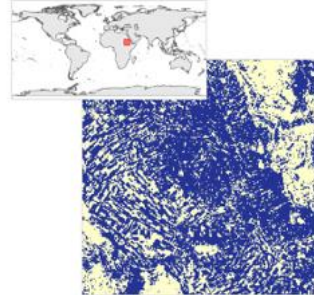Fig. 27 Sri Lanka Cropland Extent

Image: Cropland_extent_Sudan

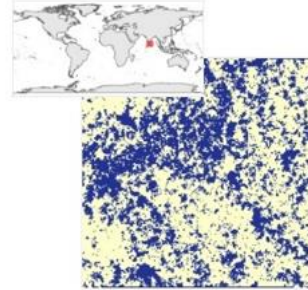Fig. 28 Sudan Cropland Extent

Image: Crop_intensity_SR_Final

Fig. 29 Sri Lanka Cropland Intensity

Image: Cropland_Sudan_intensity_smooth

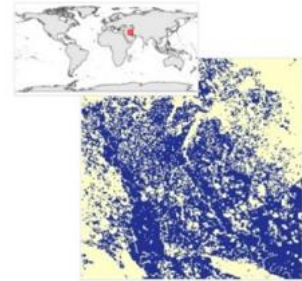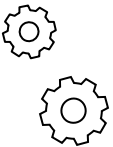Fig. 30 Sudan Cropland Intensity

THANK YOU!