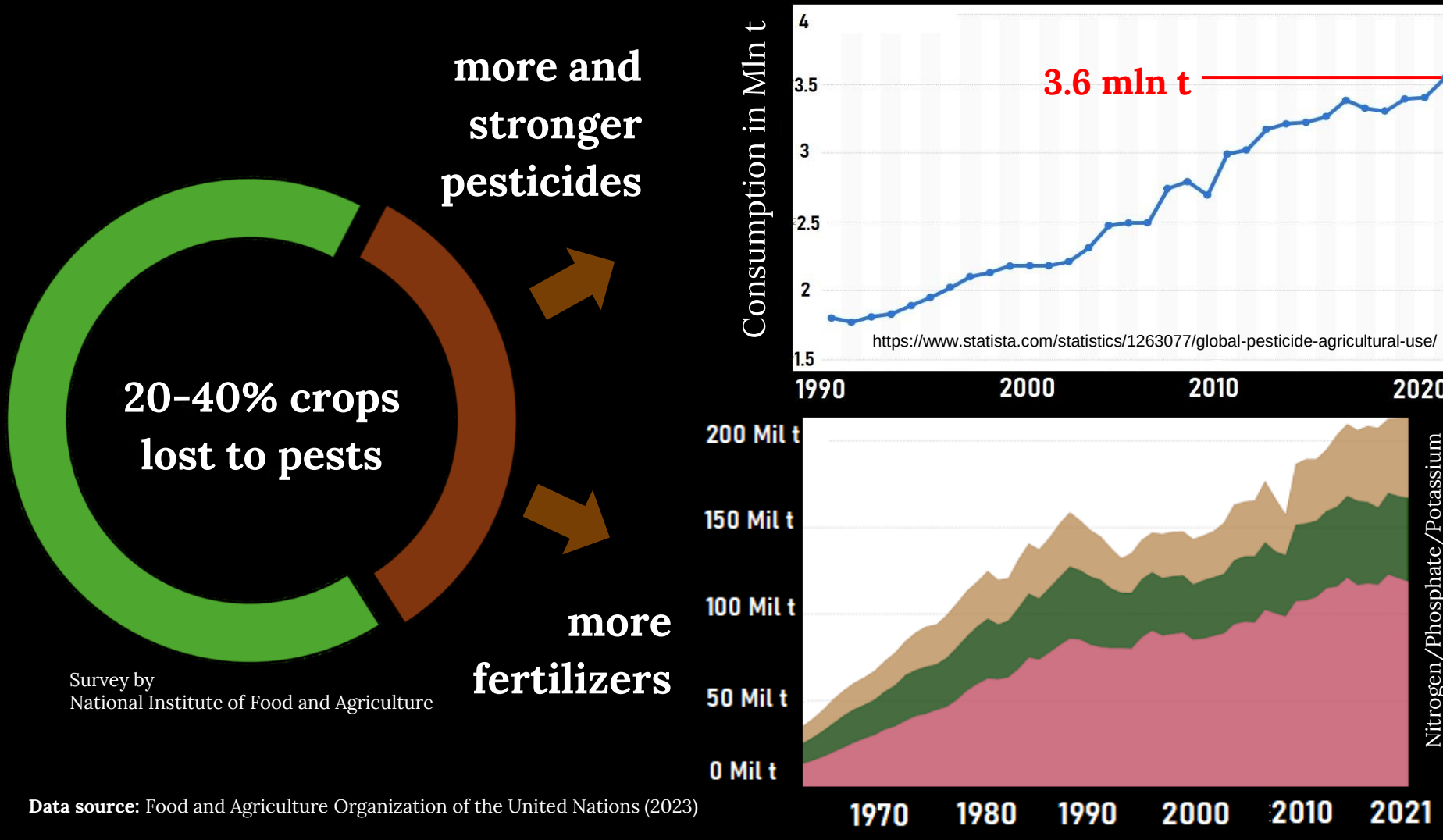
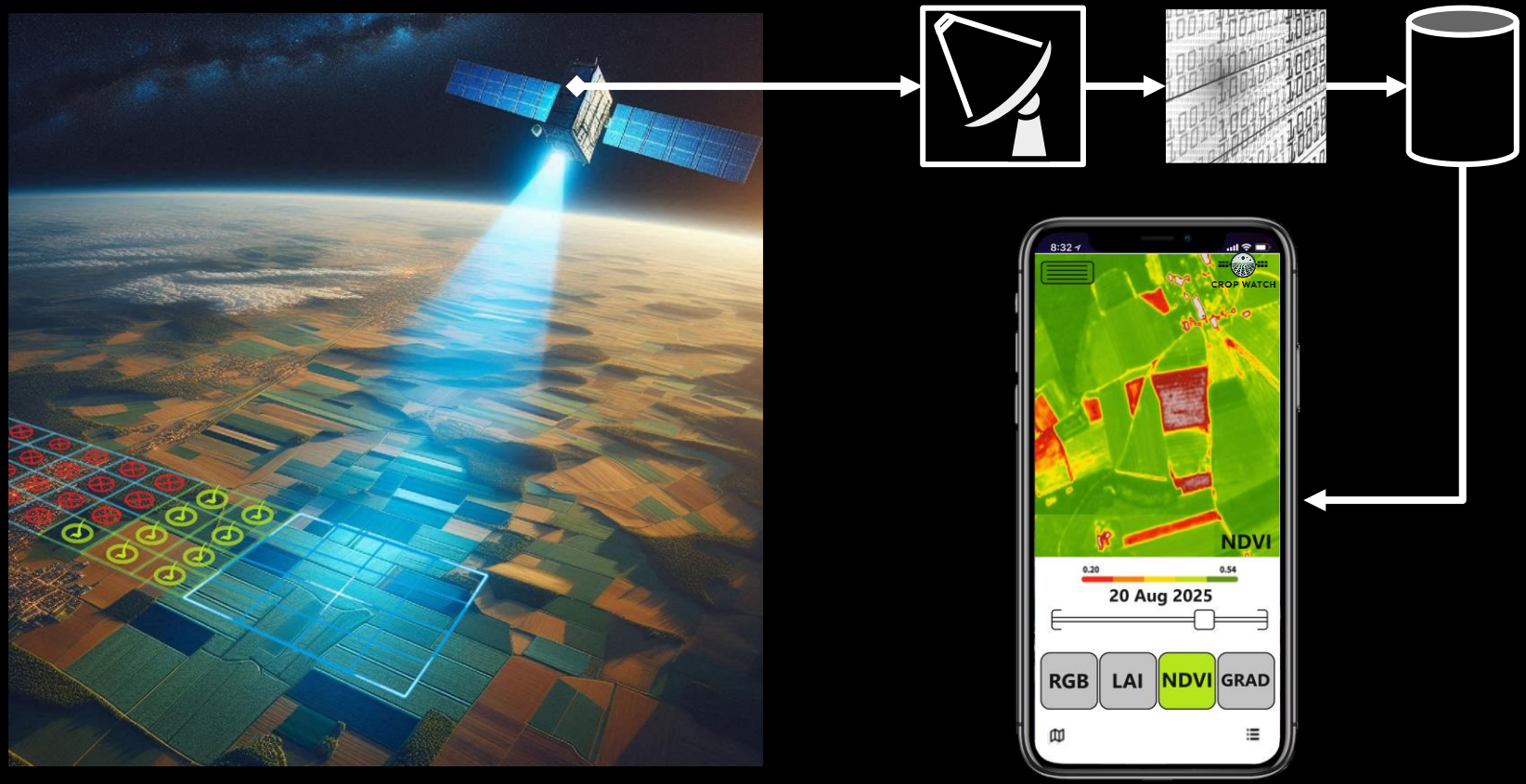
CROP WATCH

Alexandra Kobakova, Abinash Dhakal, Pedro Perez Hita, Yavor Tsokov, Yavor Yordanov, Oskar Grudziński



Data source: Food and Agriculture Organization of the United Nations (2023)

Data Analysis for Healthy, Sustainable Farming



In-Orbit Processing

Raw

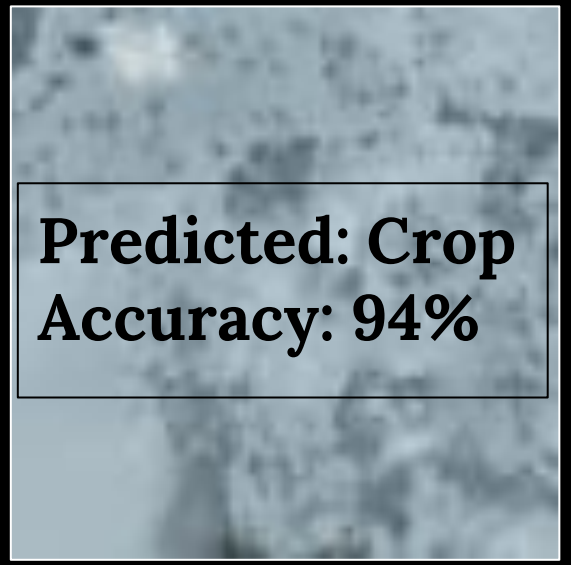
Tiled

Filtered

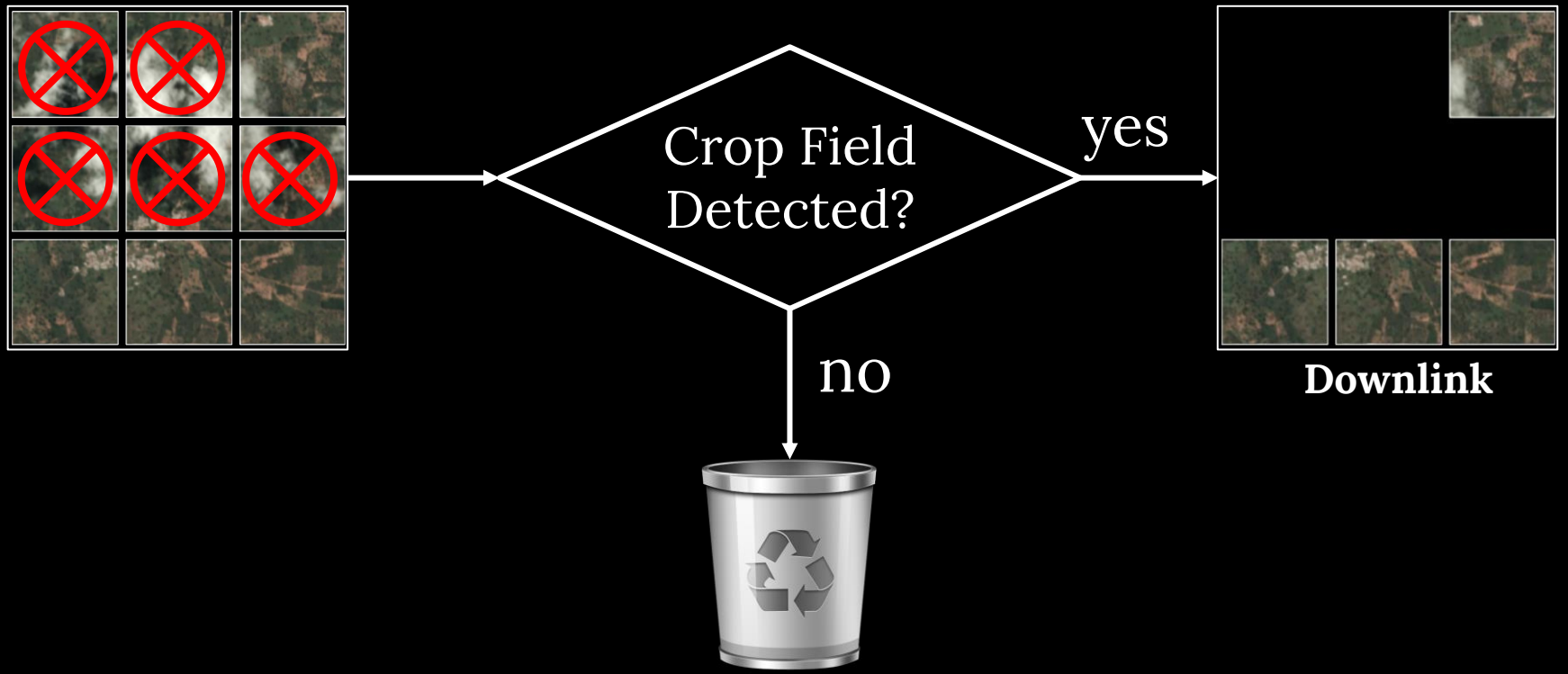
In-Orbit Processing

Tile

ML Biome Classification



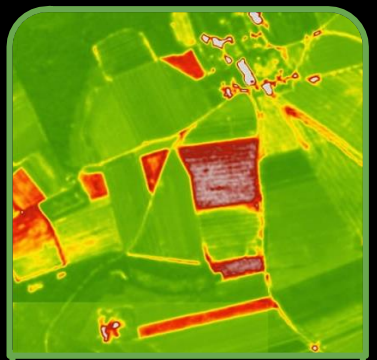
In-Orbit Processing



On-Ground Processing

RGB + NIR DATA

ML MODEL



LAI, Chlorophyll

On-Ground Processing

Data Preparation

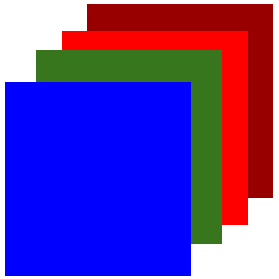
Chlorophyll

LAI

Other Parameters

PROSAIL Model

R, G, B, NIR

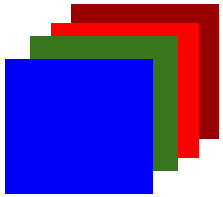


24 million data points!

On-Ground Processing

Model Inversion

R, G, B, NIR



24 million
data points

Neural Network

Output

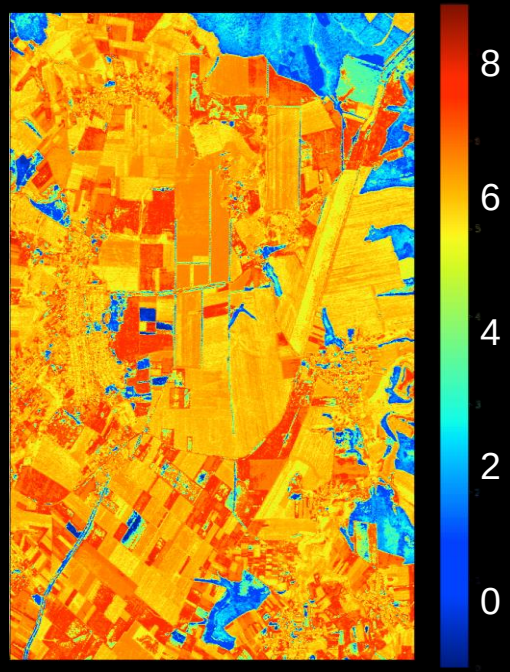
- LAI
- Chlorophyll
- NDVI
- MSAVI

On-Ground Processing

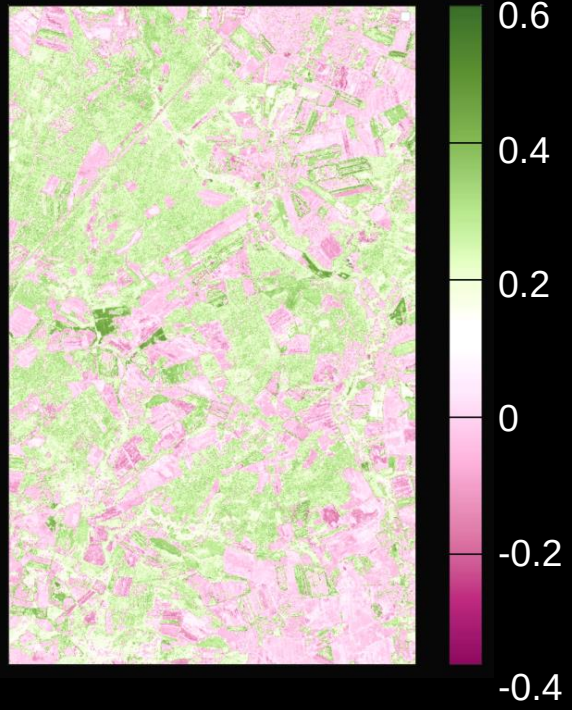
Data Visualization

True Color Image

LAI Heat Map

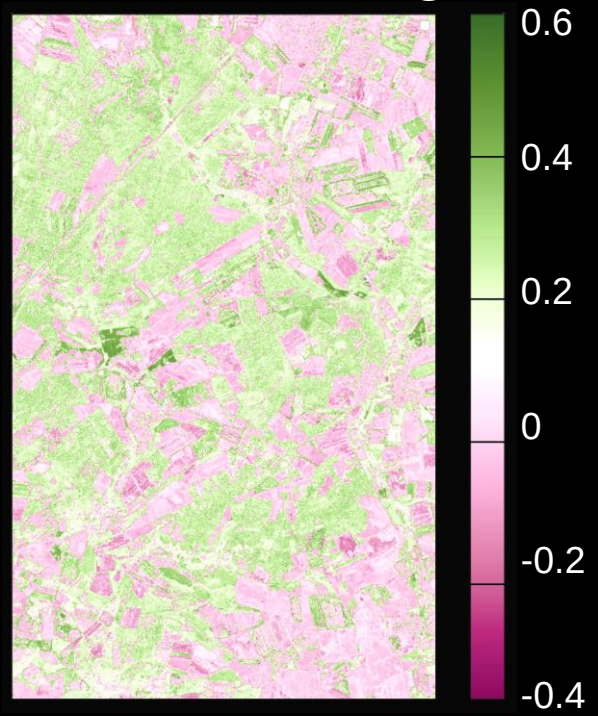


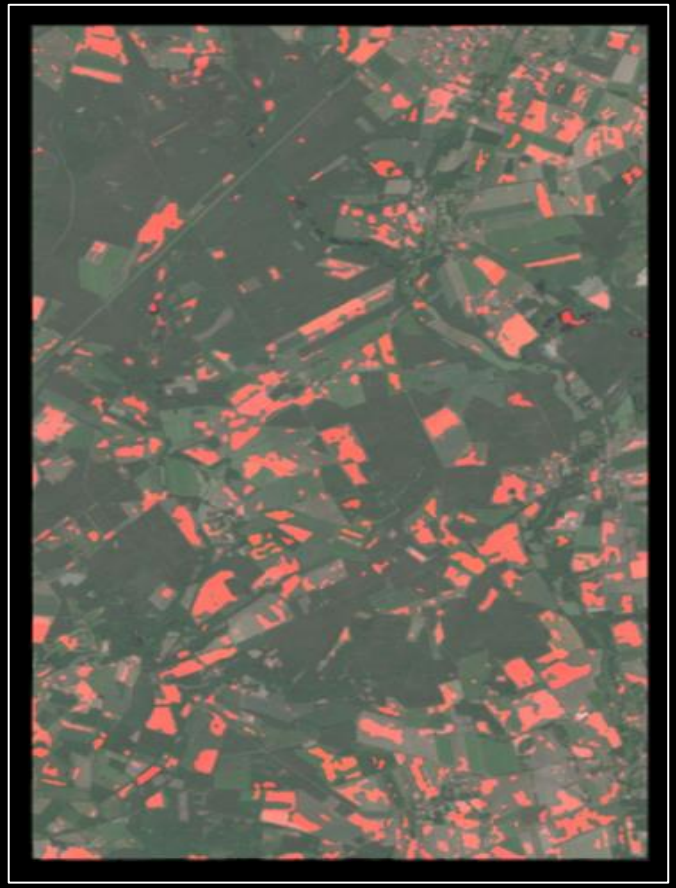
LAI Rate of Change



Illness Indicator

LAI Rate of Change





Everybody Wins

-20% Fertilizers

-20% Pesticides

-10% Irrigation

-120 €/ha

Farmer's Savings:

60 €/ha

Yearly Revenue:

60€/ha

Data Analysis for Healthy, Sustainable Farming

HEALTHIER FOOD

FARMERS' SAVINGS

LOWER POLLUTION

Oskar Filip Grudziński
Team Captain
& Business Strategist

Alexandra Kobakova
Literature Research
& Data Visualisation

Pedro Perez Hita
Machine Learning
& Image Recognition
Specialist

Yavor Yordanov
Hardware Integration
& Data Scientist

Abinash Dhakal
Lead Programmer
& Data Scientist

CROP WATCH

Yavor Tsokov
Machine Learning
& Documentation

CROP WATCH