

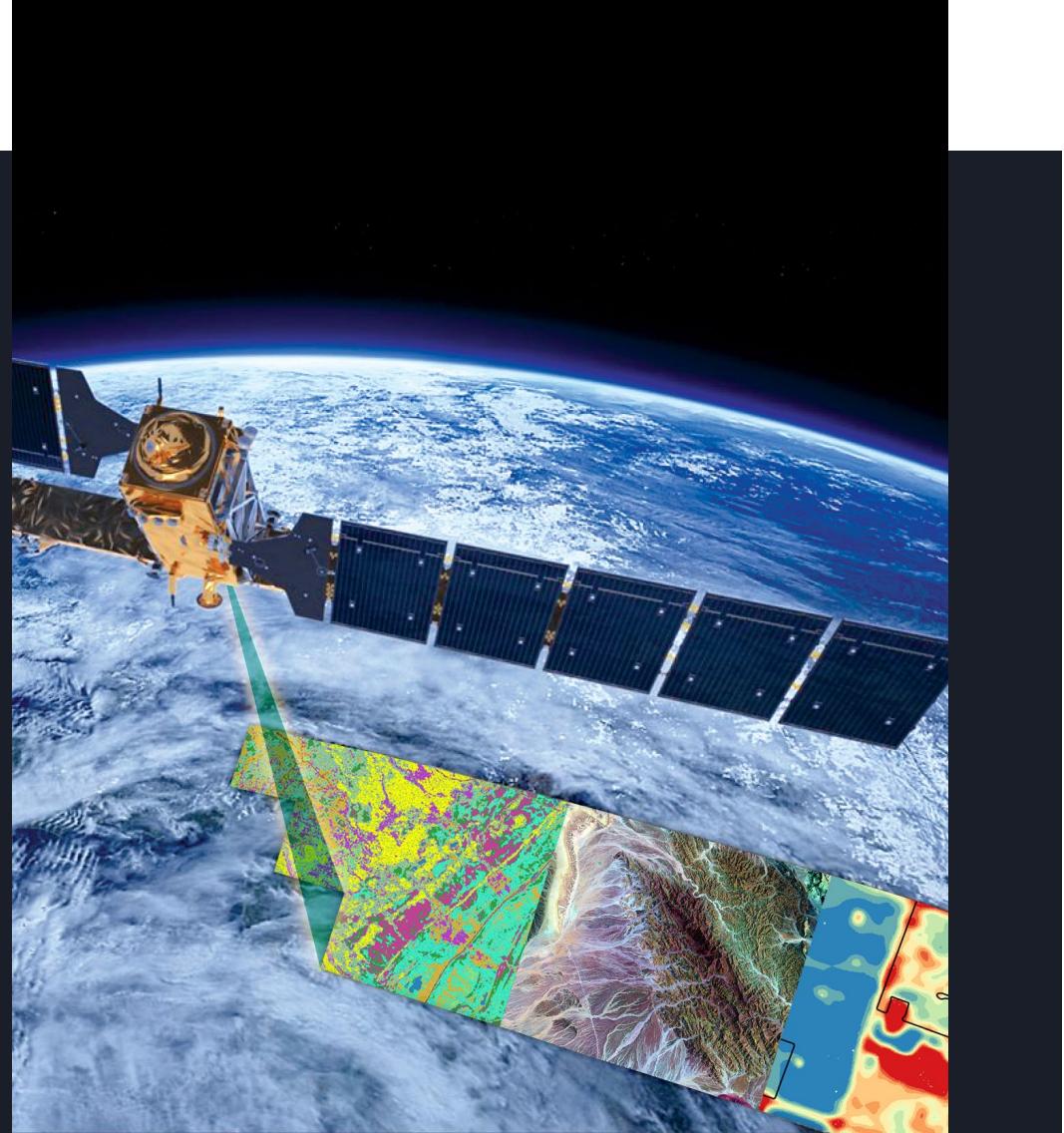
FOREST SPECIES INVENTORY REMOTE SENSING

Pieter du Plessis, VP Technology



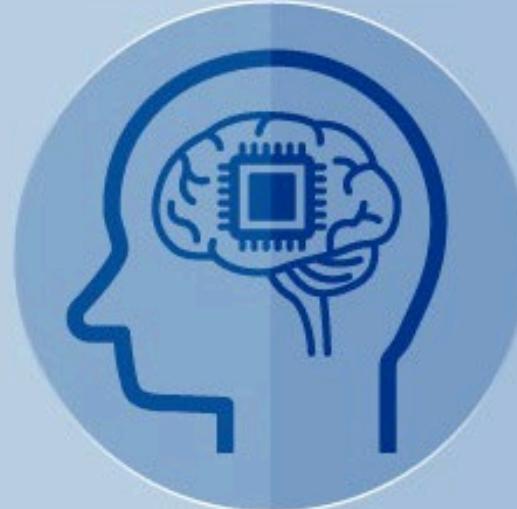
Value Proposition

- Predictive data analytics combining terrestrial, satellite, fixed wing, helicopter, drone and laboratory spectral and sample data, with machine and deep learning methodologies, to automate rapid change detection and predictive capabilities.
- Client and outcome focused approach, to create effective end-products.
- Innovative, cost effective and adaptable approach to clients' needs:
 - Custom built variety of automated solutions, covering large areas, that are better, faster and cheaper than competitors.



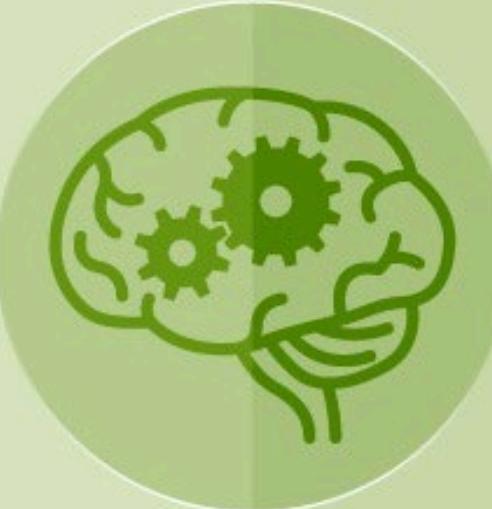
AI & AAA

Artificial Intelligence



Engineering of
making Intelligent
Machines and Programs

Machine Learning



Ability to learn
without being explicitly
programmed

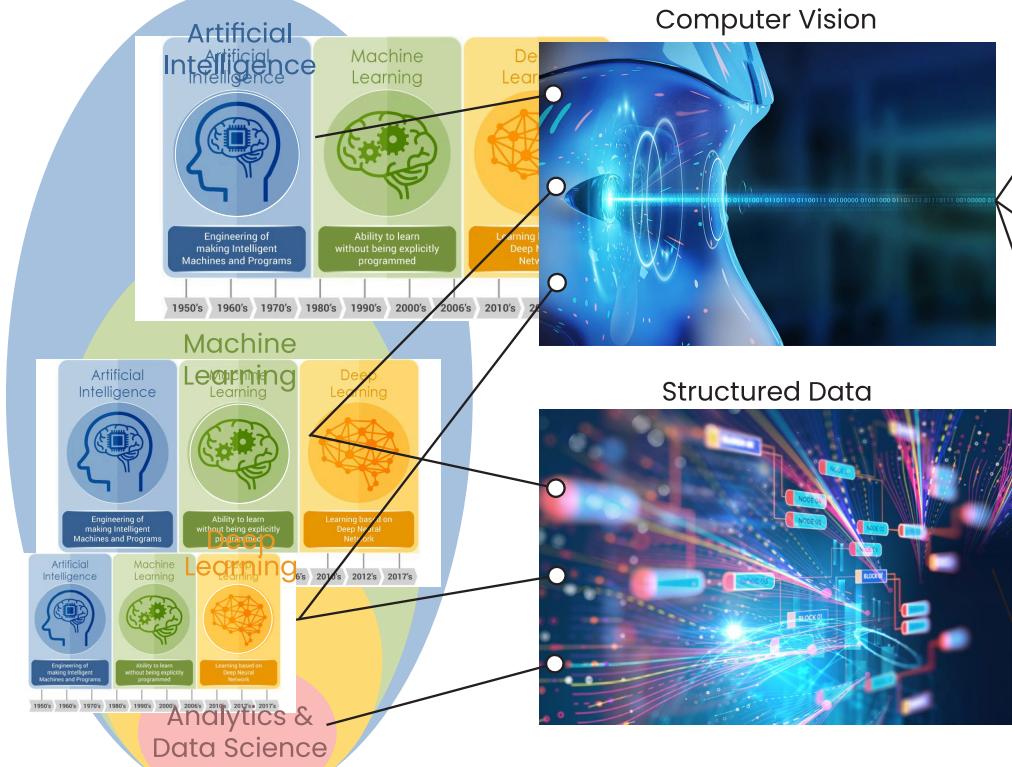
Deep Learning



Learning based on
Deep Neural
Network

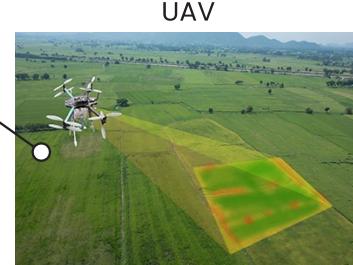
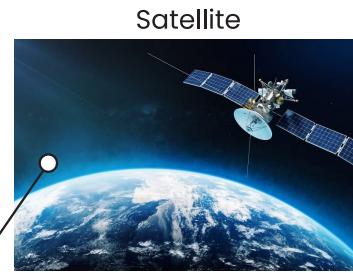


AI & AAA

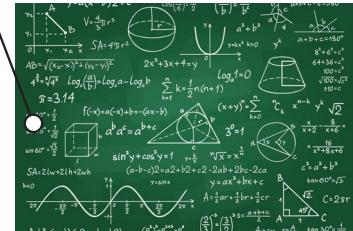


Computer Vision

Structured Data



High dimension non-linear Regression



Satellite
Hyperspectral
Multispectral
Radar

UAV
Hyperspectral
Multispectral

Camera
Hyperspectral
Multispectral
RGB

Data analysis &
quantification

Image classification

Image segmentation
Image denoising

Image super-resolution

Image regression

Image object detection

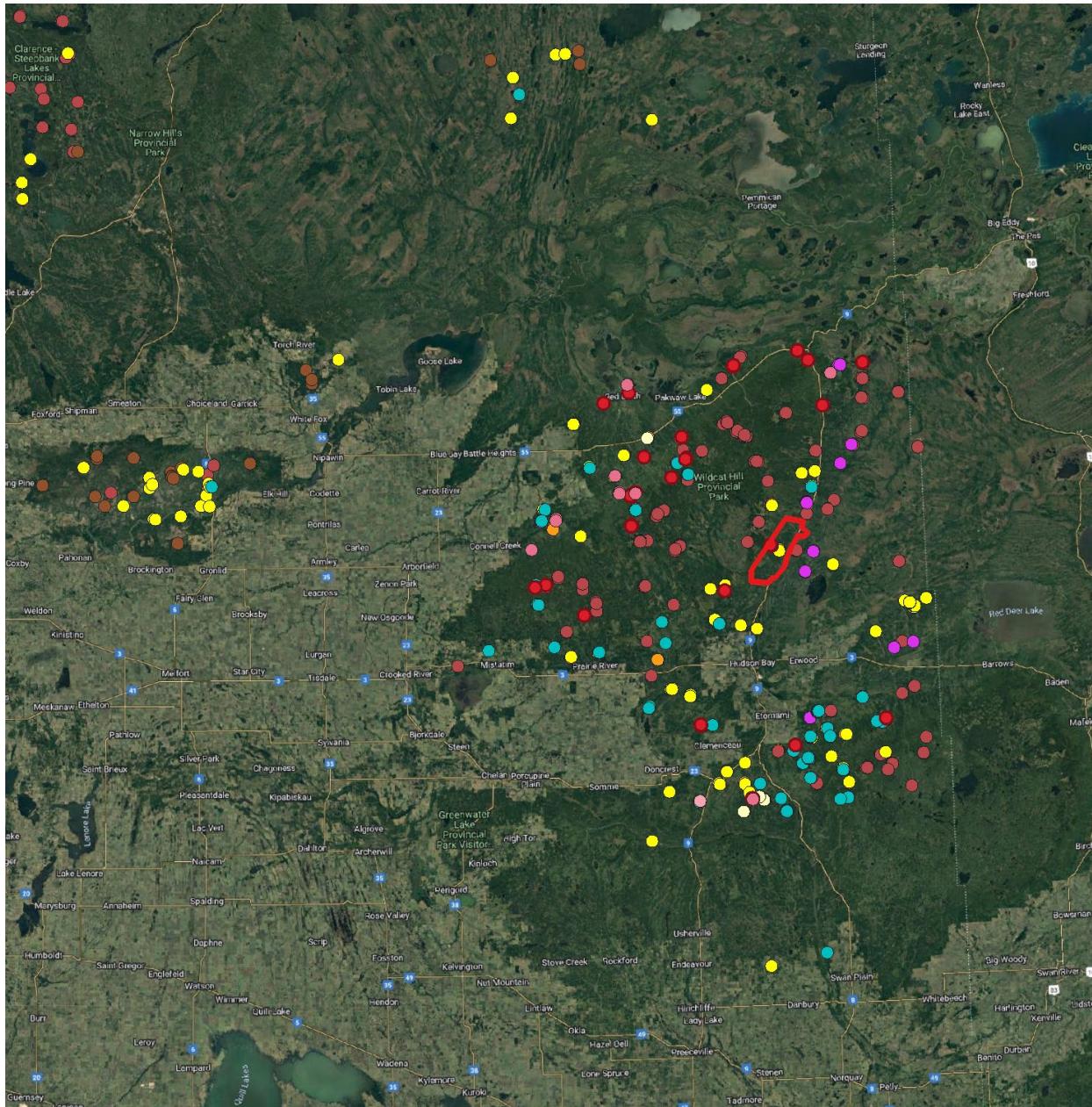
Image anomaly detection

Applications



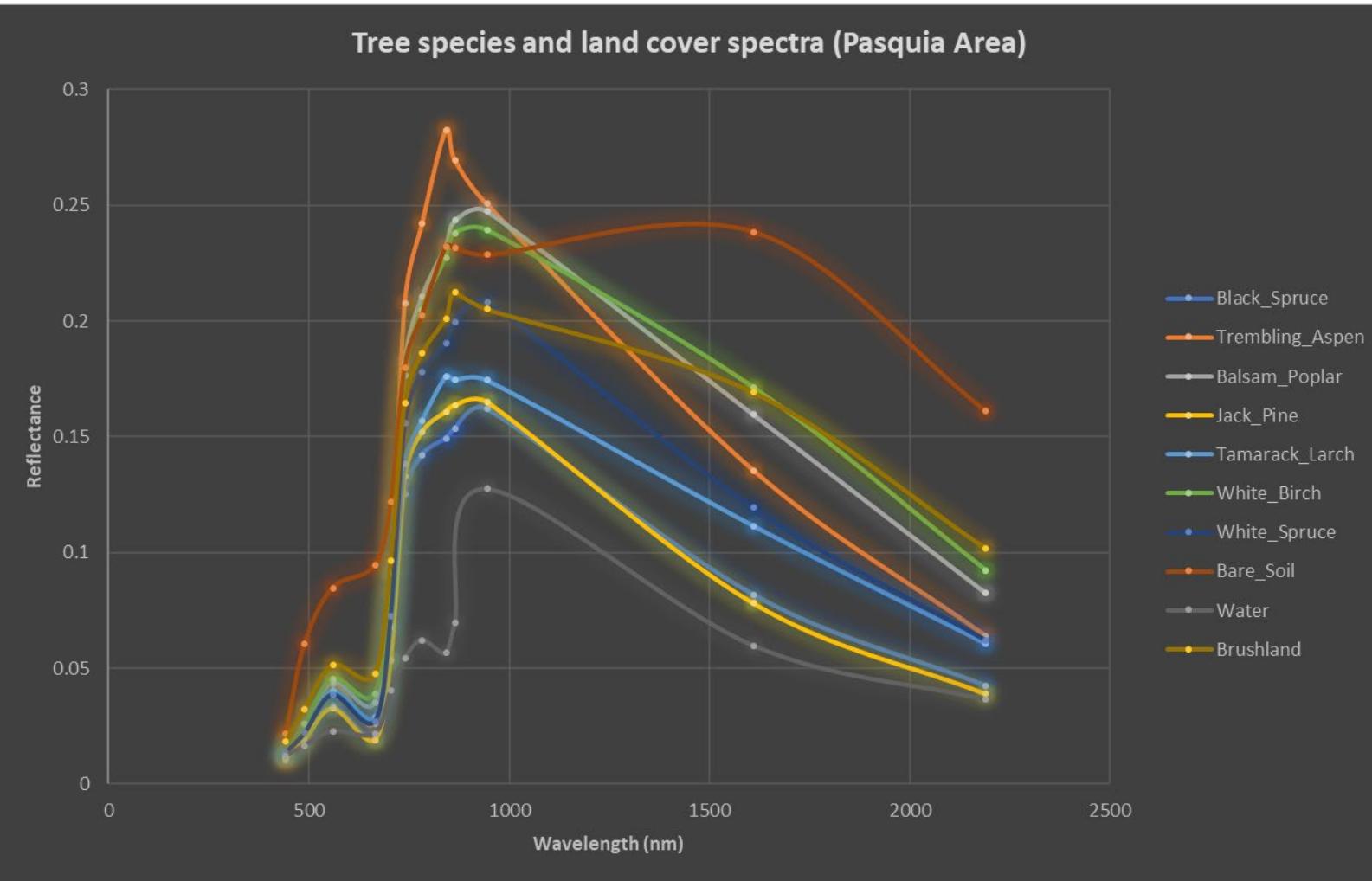
19.5 km

Satellite 10-m resolution vegetation analysis in the Pasquia Area, Saskatchewan, Canada. The brighter green indicates healthy vegetation.



- Manitoba Maple
- Green Ash
- White Elm
- White Birch
- Balsam Poplar
- Trembling Aspen
- Tamarack
- Balsam Fir
- Jack Pine
- Black Spruce
- White Spruce

Tree species data locations utilized for greater area as supplied by forestry.



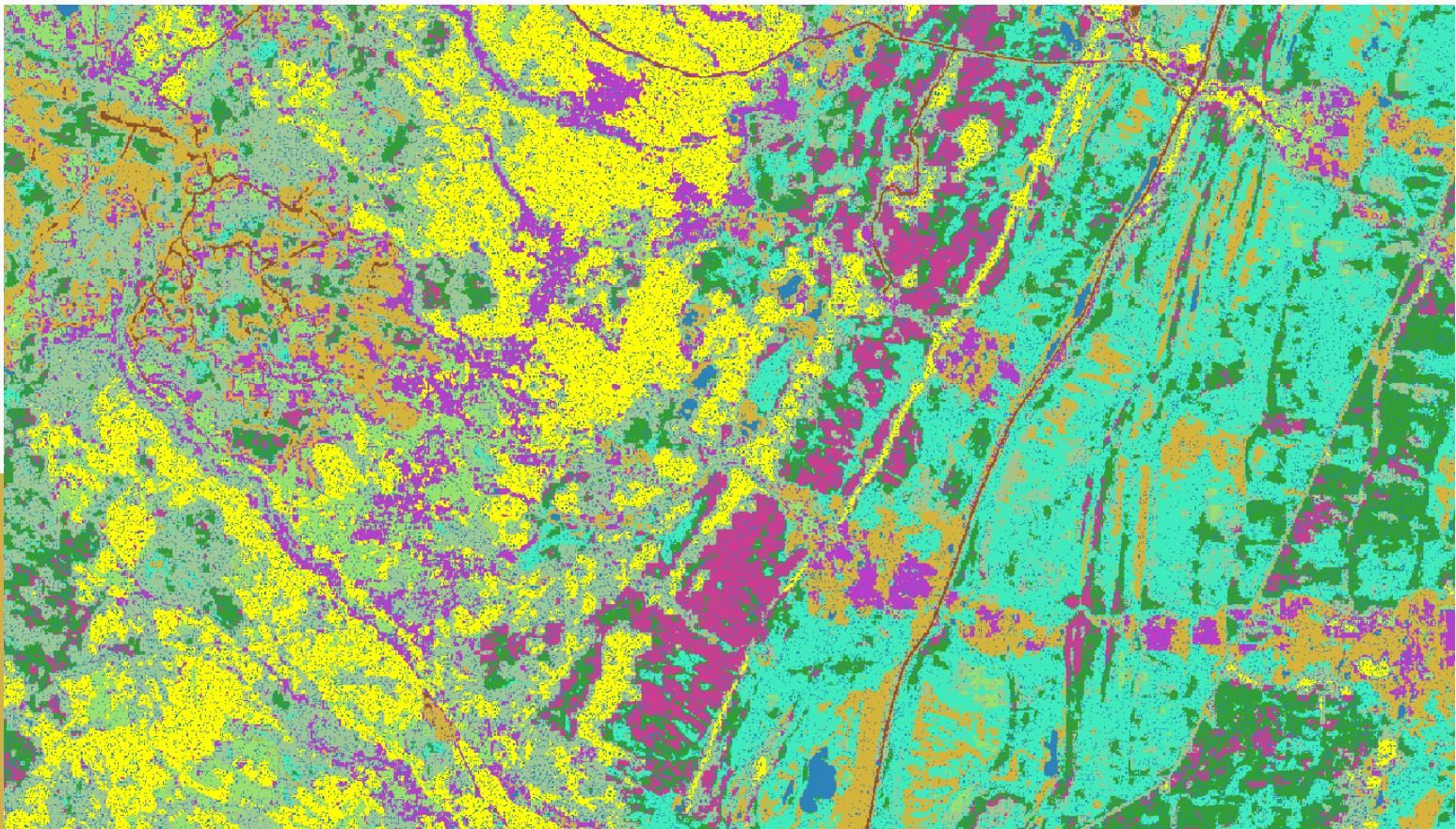
Tree species and other land cover spectral information extracted from multispectral satellite data.



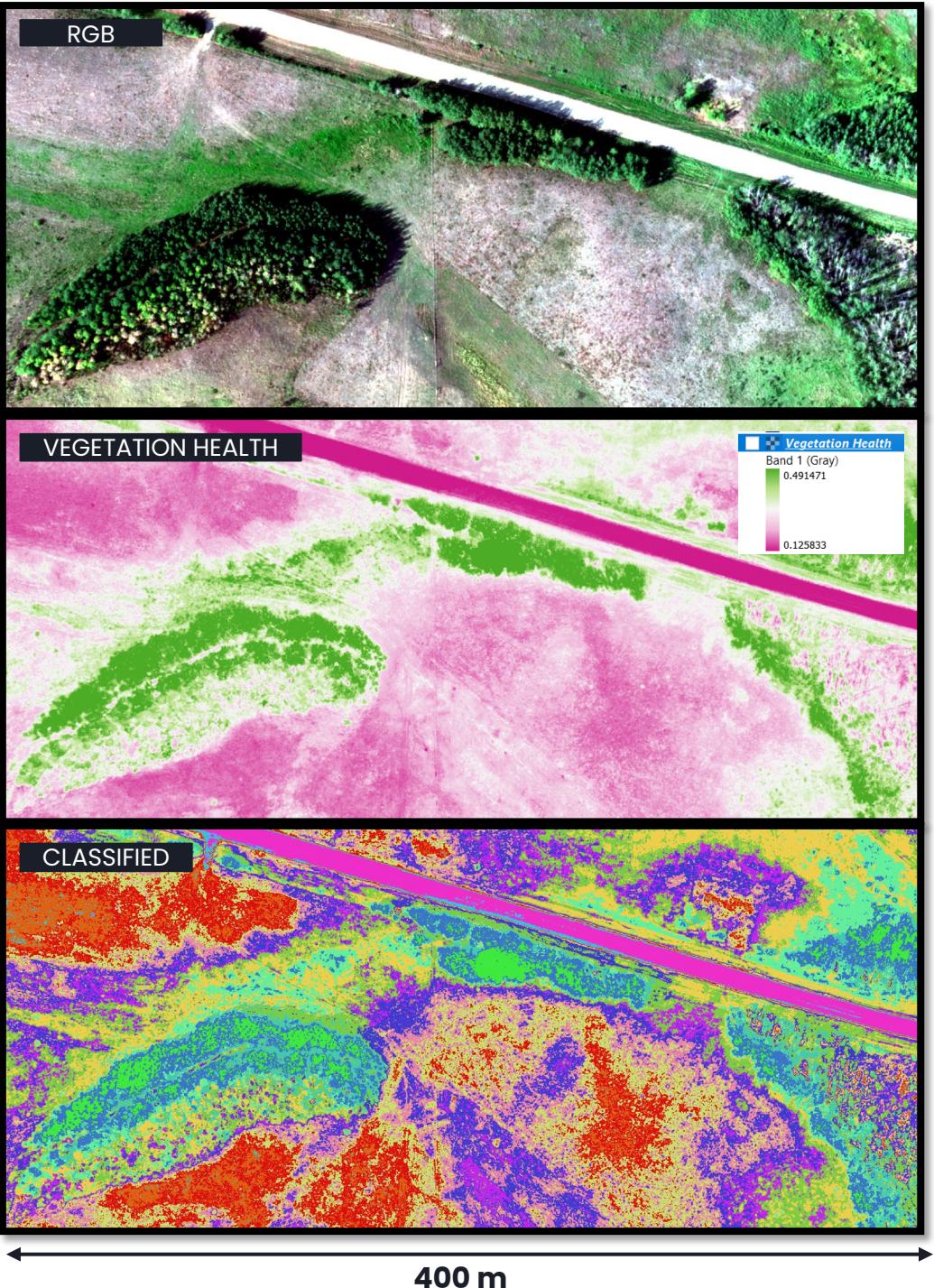
Satellite 10-m resolution digital elevation model constructed from satellite radar to distinguish different habitats in the Pasquia Area, Saskatchewan, Canada.



19.5 km



Tree species spectra, combined with multispectral, radar and DEM data used in machine learning algorithms to produce 10-m resolution tree identification for forestry applications. Cost effective and scalable.



Environmental: Helicopter survey multispectral 20-cm resolution data

High resolution for vegetation analysis, species identification and soil analysis using machine and deep learning. On and off right of way spectral classification for environmental applications.



COST EFFICIENT DATA ANALYTICS



Using data and applying machine and deep learning to it leads to efficiencies that saves time and money.



Applications developed in agriculture, environmental, forestry and mineral exploration areas to date.



Vast opportunities exist to leverage AI in the mineral exploration, mining, environmental, agriculture and forestry fields and several projects under development.



THANK YOU





TELL US HOW WE DID

