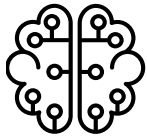# breeze.

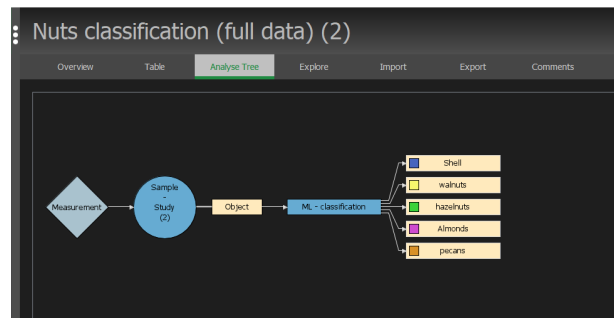## SOFTWARE FOR HYPERSPECTRAL IMAGE ANALYSIS

New machine learning methods

Machine learning is a core feature of Breeze for training models for classification and quantification applications. In this version we open up a new way of working with an extended number of machine learning algorithms through Microsoft's ML.NET which is an open source and cross-platform machine learning framework.

Algorithm auto selection
Automatically find the best algorithm for your data or use manual algorithm selection
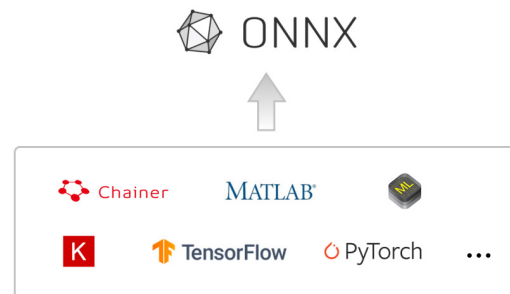

Fully integrated
with the Breeze and Breeze Runtime workflow

Improved accuracy
in many use-cases. For example multi-class problems and nonlinear data

Support for ONNX models
Import and run your models that are developed in external software using the Open Neural Network Exchange format. https://onnx.ai/

Prediktera.

MORE FEATURES

Images, Plots and Graphs

- Improved resolution and quality preview images
- Crop image into a new measurement (or replace existing)
- Export of confusion matrix (Classification table) to tab separated text file
- Real time visualisation in Play based on object class (or pixel class)

Modelling and data analysis

- Classify objects based on the number or % of pixels of a class in the object using the descriptor Classification by expression
- Sorting of objects that are positioned in a grid by using a row-wise or column-wise index descriptor
- Spectral pretreatment Logarithm and UV-scale
- USGS classification algorithm using spectral library for mineral analysis (Beta function, HySpex cameras only)
- Object identification (image segmentation) and classification using YOLOv4 or Faster R-CNN ONNX models
- Convert image data to reflectance or absorbance image

Data Import

- Choose area from image to use as white reference from imported image file or separate white reference file

Supported Hardware

- X-Ray. Connect to and acquire data from Detection Technology (https://www.de-etee.com/) X-Ray ethernet detector. Curve separation algorithm for classification using dual energy X-Ray data
- Simultaneous data acquisition from dual cameras (Beta function). HySpex cameras supported. Parallel (side by side) or sequential cameras.

Other

- Breeze Runtime can be run as a Windows Service
- Separate Java installation is no longer required for MacOS and Linux
- Synchronize workflows from folder when calling GetWorkflows command in Breeze Runtime
- Descriptor help section. A new help section providing more information on specific descriptors and segmentations.
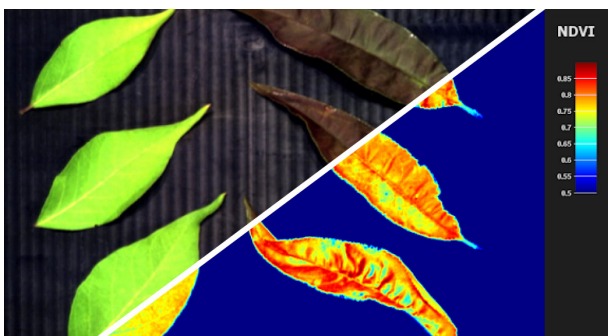
Vegetation Index

We now support Vegetation Index (VI) analysis using built in algorithms (e.g. NDVI), or write your own.
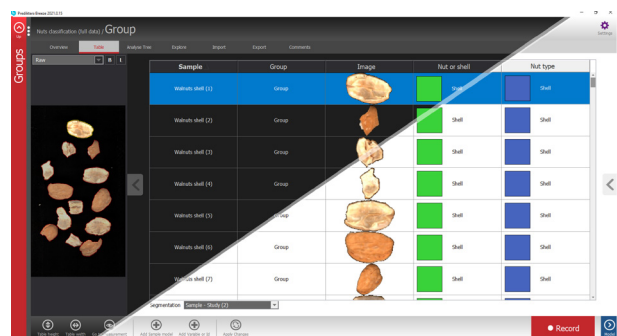
Dark mode

As you can see in several screenshots we now provide a dark theme in the Breeze UI. Great for minimizing the strain on your eyes.

www.prediktera.com/getting-started/

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