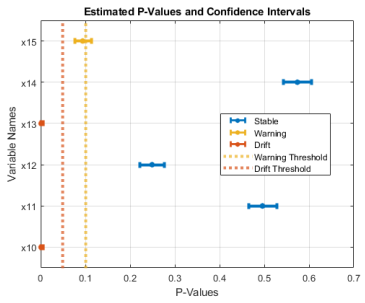
What's New in MATLAB R2022a for Machine Learning?

Statistics

Data processing

Data Drift Detection

Detect drifts between baseline and target data using permutation testing.

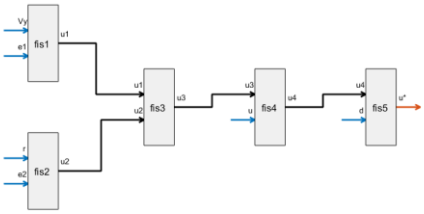


Explainability

Fuzzy Logic

Explain Black-Box Model Using Fuzzy Logic

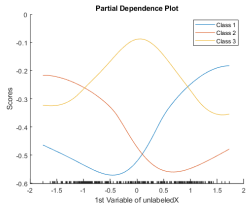
Develop a fuzzy inference support system that explains the behavior of a black-box model.



Partial Dependency Plot

Partial Dependencies for custom models

The functions `partialDependence` and `plotPartialDependence` now support a custom model, specified as a function handle.

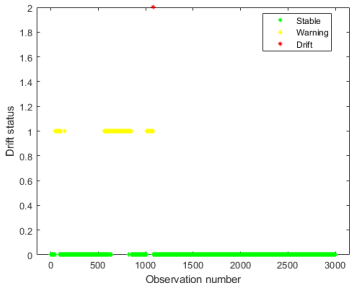


Predictive Modelling

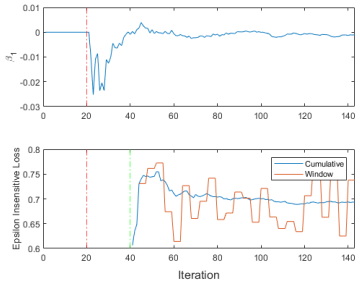
Drifting

Concept Drift Detection

Update drift detector states and drift status with new data.



Incremental Learning



Reset models

Reset incremental models and compute the per observation loss.

Streaming Data

Train kernel regression, binary classification or multiclass ECOC models on incoming observations from streaming data and assess performance in real time.

GPU Support

GPU Support: `fitrensemble` and `fitensemble` now accept `gpuArray` inputs
(requires Parallel Computing Toolbox)

Apps

Classification Learner App

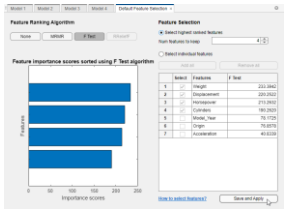
Anomaly detection example for industrial machinery and manufacturing processes

The example covers new app features introduced in R2022a, including saving and opening app sessions, reserving a percentage of the imported data for testing, and using feature ranking algorithms to select predictors.

Machine Learning Apps

Use feature ranking algorithms to select predictors

Features such as MRMR (minimum redundancy maximum relevance), Chi2, ReliefF, or ANOVA.



Deployment

Simulink

Gaussian Process Prediction Block

You can now integrate the `predict` function of a Gaussian process (GP) regression object into Simulink® using the new prediction block `RegressionGPPredict` instead of a MATLAB® function block

C/C++ code generation

Generate C/C++ code for prediction using neural network classification and regression models