REALITY AI TOOLS®

Create Edge AI software that runs in real-time, in firmware, on commodity hardware, and is fully explainable

Reality AI Tools® is used by engineers working with sensors to develop AI-based software that interprets sensor data, in real-time, on Renesas MCUs. Endpoint AI-based programs are automatically generated from the data, and can be deployed for embedded use in smart products.

Product Features

- Signal classification, anomaly detection, and regression (continuous value prediction).
- Fully automated feature discovery and AI model generation.
- Comprehensive model testing and validation tools.
- Data curation, parsing and sample list management.
- Compile for Renesas MCU of choice.
- Utilizes lowest processing footprint and memory in the industry. Supports all Renesas MCUs, scalable from 16-bit cores to 64-bit cores.
- Analyze which data channels data features are important for model predictions.
- Makes machine learning fully transparent and explainable.

Applications

Ideal for higher sample rate sensor applications, including sensor fusion.

Vibration | Sound | Accelerometer

Pressure | RF/Radar | Proprietary Sensor | Electric Signal

What's different about Reality AI Tools®?

Learns optimized features directly from the data

Features are not pre-determined, but are generated from the data using advanced signal processing mathematics guided by machine learning.

Links features to optimized machine learning models

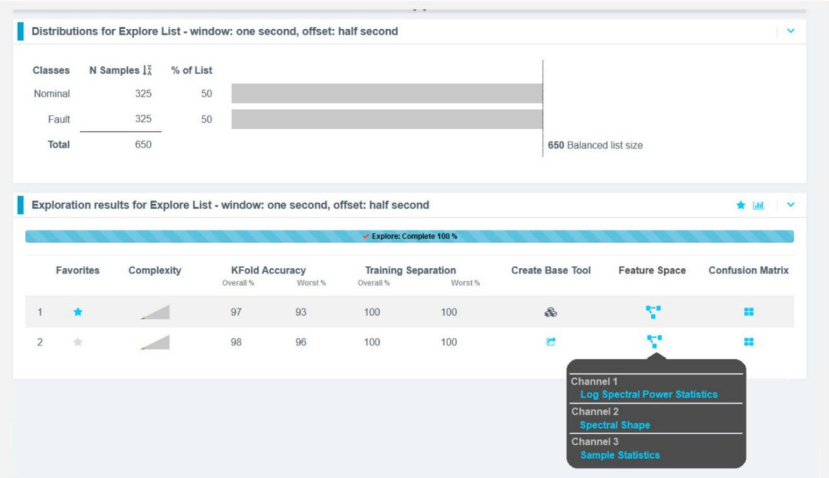
Automatically tunes parameters of machine learning algorithm based on discovered features. This leads to better accuracy and much greater computational efficiency.

Fully automated feature and model generation, with explainability

Our AI Explore™ process automatically converges on combinations of features and classifier types with guidance from complexity cost functions to produce models optimized for small MCUs.

Direct export of efficient binaries for Renesas MCUs

Automated generation of embedded code targeted to a range of MCU targets, including Cortex M-series. Furnishes a compact binary that the user can link and include in their build, containing only functions and data required for model execution - no bulky libraries.

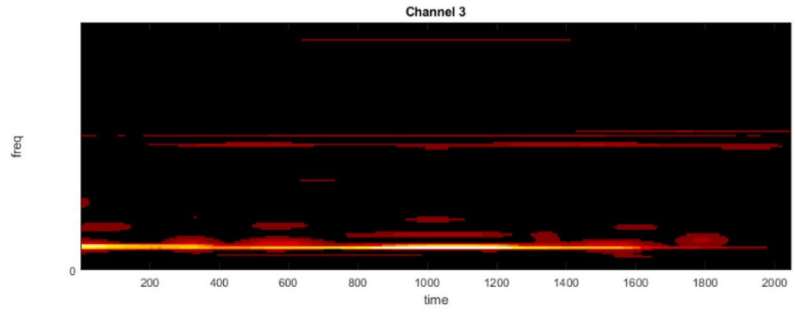


Reality AI Tools® uses a machine learning guided process to explore the data and create a set of custom transformations (feature spaces) that defines anomalies, or maximize separation of classes/correlation to a target variable.

The user can inspect these feature spaces and generate a time-frequency heatmap showing the structure that is most important for model accuracy.

For more info visit:
renesas.com/reality-ai

Time-Frequency Heatmap for: Fault Detection 1Khz, 1sec window v1.1



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