

Your Benefits of ML-Powered Data Analysis



Detect anomalies in complex test data

Automatically identify outliers in scalar and high-dimensional datasets



Quantify key drivers

Apply nonlinear sensitivity analysis (Sobol-based) to reveal cause-effect relationships



Build predictive models

Develop surrogate and forecasting models using TensorFlow based ML-models



Explore multidimensional relationships

Analyze dependencies using scatter plots, response surfaces, and parallel coordinate plots



Visualize test data with interactive tools

Use interactive 3D plots, correlation and distribution analysis, anthill plots, and parallel coordinates



Unify data and analysis workflows

Combine both simulation and test data in one single analysis

TAKE THE NEXT STEP

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Data Analysis

Accelerate Development

Value: Turn uncertain test data into reliable insights





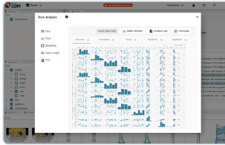

Data Analysis

Accelerate Development

Unlock the Value of Your Results

Integrating Artificial Intelligence (AI) and Machine Learning (ML) into engineering workflows remains challenging due to domain-specific methods and fragmented toolchains. SCALE Result addresses this by combining post data management with integrated ML-based analytics in one single environment.

Engineering data are often complex and high-dimensional. SCALE Result structures, analyzes, and visualizes this data to enable systematic comparison, cause-effect analysis, and reliable prediction integrated in one platform.



Result Dashboard with seamlessly integrated data analysis capabilities.

Your Benefits of ML-Powered Data Analysis

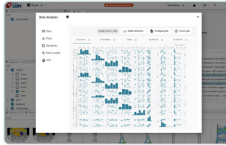
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Engineering Example Design Optimization

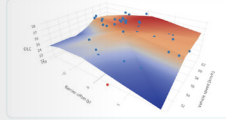
Challenge
 An engineering team struggled to understand which input parameters most strongly influenced crash performance.

Solution
 Using nonlinear Sobol-based sensitivity analysis, the team quantified the impact of each parameter based on a small DOE.

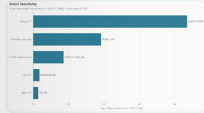
Result

- » Reduced design iterations by 30%
- » Identified 3 key parameters driving 80% of performance
- » Faster decision-making in early development

Value: Focus on what really matters



3D visualizations and plots with integrated TensorFlow based response surfaces.



Non-linear sensitivity analysis results with clear ranking of input parameter importance.

Engineering Example Resolving Uncertainty in Testing

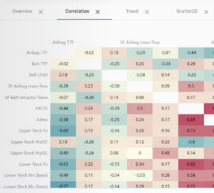
Challenge
 Significant scatter in test results made it difficult to separate real physical effects from outliers and measurement noise.

Solution
 By combining outlier detection, correlation analysis, and 3D visualization, hidden patterns and nonlinear relationships were revealed.

Result

- » Clear distinction between outliers, noise, and real effects
- » Identification of key influencing parameters
- » Reduced uncertainty by up to 35%
- » More reliable and reproducible test results

Value: Turn uncertain test data into reliable insights



Identify relationships between input and output variables through linear correlation analysis.

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