

# 98 symbols glossary

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## Contents

1	API Symbols Glossary	1
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## 1 API Symbols Glossary

This glossary is auto-generated from the public API in `src/` by `repo_utilities/generate_glossary.py`.

Module	Name	Kind	Summary
data_generator	generate_classification_dataset	function	Generate classification dataset.
data_generator	generate_correlated_data	function	Generate correlated multivariate data.
data_generator	generate_synthetic_data	function	Generate synthetic data with specified distribution.
data_generator	generate_time_series	function	Generate time series data.
data_generator	inject_noise	function	Inject noise into data.
data_generator	validate_data	function	Validate data quality.
data_processing	clean_data	function	Clean data by removing or filling invalid values.
data_processing	create_validation_pipeline	function	Create a data validation pipeline.
data_processing	detect_outliers	function	Detect outliers in data.
data_processing	extract_features	function	Extract features from data.
data_processing	normalize_data	function	Normalize data using specified method.

Module	Name	Kind	Summary
data_processing	remove_outliers	function	Remove outliers from data.
data_processing	standardize_data	function	Standardize data to zero mean and unit variance.
data_processing	transform_data	function	Apply transformation to data.
example	add_numbers	function	Add two numbers together.
example	calculate_average	function	Calculate the average of a list of numbers.
example	find_maximum	function	Find the maximum value in a list of numbers.
example	find_minimum	function	Find the minimum value in a list of numbers.
example	is_even	function	Check if a number is even.
example	is_odd	function	Check if a number is odd.
example	multiply_numbers	function	Multiply two numbers together.
metrics	CustomMetric	class	Framework for custom metrics.
metrics	calculate_accuracy	function	Calculate accuracy for classification.
metrics	calculate_all_metrics	function	Calculate all applicable metrics.
metrics	calculate_convergence	function	Calculate convergence metrics.
metrics	calculate_effect_size	function	Calculate effect size (Cohen's d).
metrics	calculate_p_value_approximation	function	Approximate p-value from test statistic.
metrics	calculate_precision_recall_f1	function	Calculate precision, recall, and F1 score.
metrics	calculate_psnr	function	Calculate Peak Signal-to-Noise Ratio (PSNR).
metrics	calculate_snr	function	Calculate Signal-to-Noise Ratio (SNR).

Module	Name	Kind	Summary
metrics	calculate_ssim	function	Calculate Structural Similarity Index (SSIM).
parameters	ParameterConstraint	class	Constraint for parameter validation.
parameters	ParameterSet	class	A set of parameters with validation.
parameters	ParameterSweep	class	Configuration for parameter sweeps.
performance	ConvergenceMetrics	class	Metrics for convergence analysis.
performance	ScalabilityMetrics	class	Metrics for scalability analysis.
performance	analyze_convergence	function	Analyze convergence of a sequence.
performance	analyze_scalability	function	Analyze scalability of an algorithm.
performance	benchmark_comparison	function	Compare multiple methods on benchmarks.
performance	calculate_efficiency	function	Calculate efficiency (speedup / resource_ratio).
performance	calculate_speedup	function	Calculate speedup relative to baseline.
performance	check_statistical_significance	function	Test statistical significance between two groups.
plots	plot_3d_surface	function	Create a 3D surface plot.
plots	plot_bar	function	Create a bar chart.
plots	plot_comparison	function	Plot comparison of methods.
plots	plot_contour	function	Create a contour plot.
plots	plot_convergence	function	Plot convergence curve.
plots	plot_heatmap	function	Create a heatmap.
plots	plot_line	function	Create a line plot.
plots	plot_scatter	function	Create a scatter plot.

Module	Name	Kind	Summary
reporting	ReportGenerator	class	Generate reports from simulation and analysis results.
simulation	SimpleSimulation	class	Simple example simulation for testing.
simulation	SimulationBase	class	Base class for scientific simulations.
simulation	SimulationState	class	Represents the state of a simulation run.
statistics	DescriptiveStats	class	Descriptive statistics for a dataset.
statistics	anova_test	function	Perform one-way ANOVA test.
statistics	calculate_confidence_interval	function	Calculate confidence interval for mean.
statistics	calculate_correlation	function	Calculate correlation between two variables.
statistics	calculate_descriptive_stats	function	Calculate descriptive statistics.
statistics	fit_distribution	function	Fit a distribution to data.
statistics	t_test	function	Perform t-test.
validation	ValidationFramework	class	Framework for validating simulation and analysis results.
validation	ValidationResult	class	Result of a validation check.
visualization	VisualizationEngine	class	Engine for generating publication-quality figures.
visualization	create_multi_panel_figure	function	Create a multi-panel figure.