API Reference

This is the class and function reference of batman. Please refer to previous sections for further details, as the class and function raw specifications may not be enough to give full guidelines on their uses.

`batman.space`: Parameter space

`space.Sample` ([space, data, plabels, ...])	Container class for samples.
`space.Space` (corners[, sample, nrefine, ...])	Manages the space of parameters.
`space.gp_sampler.GpSampler` (reference[, ...])	GpSampler class.
`space.Doe` (n_samples, bounds, kind[, dists, ...])	DOE class.
`space.Refiner` (data, corners[, delta_space, ...])	Resampling the space of parameters.

`batman.surrogate`: Surrogate Modelling

`surrogate.SurrogateModel` (kind, corners, ...)	Surrogate model.
`surrogate.Kriging` (sample, data[, kernel, ...])	Kriging based on Gaussian Process.
`surrogate.PC` (strategy, degree, distributions)	Polynomial Chaos class.
`surrogate.RBFnet` (trainIn, trainOut[, ...])	RBF class.
`surrogate.SklearnRegressor` (sample, data, ...)	Interface to Scikit-learn regressors.
`surrogate.Evofusion` (sample, data)	Multifidelity algorithm using Evofusion.
`surrogate.Mixture` (samples, data, corners[, ...])	Mixture class.

`batman.uq`: Uncertainty Quantification

`uq.UQ` (surrogate[, dists, nsample, method, ...])	Uncertainty Quantification class.
`uq.cosi` (sample, data)	Cosine transformation sensitivity.

`batman.visualization`: Uncertainty Visualization

`visualization.Kiviat3D` (sample, data[, idx, ...])	3D version of the Kiviat plot.
`visualization.Tree` (sample, data[, bounds, ...])	Tree.
`visualization.HdrBoxplot` (data[, variance, ...])	High Density Region boxplot.
`visualization.doe` (sample[, plabels, ...])	Plot the space of parameters 2d-by-2d.
`visualization.response_surface` (bounds[, ...])	Response surface visualization in 2d (image), 3d (movie) or 4d (movies).
`visualization.sensitivity_indices` (indices[, ...])	Plot Sensitivity indices.
`visualization.cusunoro` (sample, data[, ...])	Cumulative sums of normalised reordered output.
`visualization.moment_independent` (sample, data)	Moment independent measures.
`visualization.corr_cov` (data, sample, xdata)	Correlation and covariance matrices.
`visualization.pdf` (data[, xdata, xlabel, ...])	Plot PDF in 1D or 2D.
`visualization.kernel_smoothing` (data[, optimize])	Create gaussian kernel.
`visualization.reshow` (fig)	Create a dummy figure and use its manager to display `fig`.
`visualization.mesh_2D` (fname[, var, flabels, ...])	Visualization of specific variable on a user provided 2D mesh.

`batman.pod`: Proper Orthogonal Decomposition

`pod.Pod` (corners[, tolerance, dim_max])	POD class.

`batman.functions`: Functions

`functions.data`	Data module
`functions.DbGeneric` ([space, data, fnames])	Generic database class.
`functions.analytical.SixHumpCamel` ()	SixHumpCamel class [Molga2005].

`functions.analytical.Branin` ()	Branin class [Forrester2008].
`functions.analytical.Michalewicz` ([d, m])	Michalewicz class [Molga2005].
`functions.analytical.Ishigami` ([a, b])	Ishigami class [Ishigami1990].
`functions.analytical.Rastrigin` ([d])	Rastrigin class [Molga2005].
`functions.analytical.G_Function` ([d, a])	G_Function class [Saltelli2000].
`functions.analytical.Forrester` ([fidelity])	Forrester class [Forrester2007].
`functions.analytical.ChemicalSpill` ([s, tstep])	Environmental Model class [Bliznyuk2008].
`functions.analytical.Channel_Flow` ([dx, ...])	Channel Flow class.
`functions.analytical.Manning` ([width, slope, ...])	Manning equation for rectangular channel class.
`functions.db_Mascaret` ([fname, multizone])	Mascaret class.
`functions.utils.multi_eval` (fun)	Detect space or unique point.
`functions.utils.output_to_sequence` (fun)	Convert float output to list.

`batman.tasks`: Tasks

`tasks.ProviderFunction` (plabels, flabels, ...)	Provides Snapshots built through an external python function.
`tasks.ProviderFile` (plabels, flabels, file_pairs)	Provides Snapshots loaded from a list of files.
`tasks.ProviderJob` (plabels, flabels, command, ...)	Provides Snapshots built through a 3rd-party program.

`batman.misc`: Misc

`misc.NestedPool` ([processes, initializer, ...])	NestedPool class.
`misc.ProgressBar` (total)	Print progress bar in console.
`misc.optimization` (bounds[, discrete])	Perform a discret or a continuous/discrete optimization.
`misc.import_config` (path_config, path_schema)	Import a configuration file.
`misc.check_yes_no` (prompt, default)	Ask user for delete confirmation.
`misc.ask_path` (prompt, default, root)	Ask user for a folder path.

`misc.abs_path` (value)	Get absolute path.
`misc.clean_path` (path)	Return an absolute and normalized path.

`batman.input_output`: Input Output

`input_output.available_formats` ()	Return the list of available format names.
`input_output.formater` (format_name)	Return a Formater.