Train In Data

Scikit-Optimize

Scikit-optimize

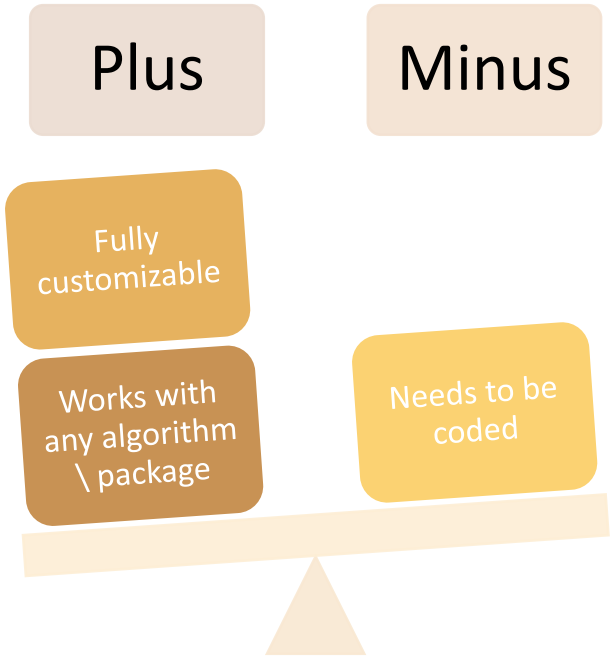
- Docs: https://scikit-optimize.github.io/stable/index.html
- Github: https://github.com/scikit-optimize/scikit-optimize/

Scikit-optimize – Search algorithms

- Bayesian Optimization with Gaussian Processes
  - gp_minimize
- Bayesian Optimization with Random Forests and Extra trees
  - forest_minimize
- Bayesian Optimization with Gradient Boosting Trees
  - gbrt_minimize
- Random Search
  - dummy_minimize

Scikit-optimize – objective function

Objective function created by user



Scikit-optimize – Sklearn

Provides wrapper to streamline the search for Scikit-learn models

- BayesSearchCV

Scikit-optimize – Search Space

Built-in module to create hyperparameter spaces to sample from

- Samples Reals, Integers and Categories
- For Reals and Integers samples with uniform and log-uniform

Scikit-optimize – Acquisition Function

Built-in Acquisition functions

- Expected Improvement (EI)
- Probability of Improvement (PI)
- Lower Confidence Bound (LCB)
- EI and PI per second, to account for compute time
- Hedge optimization of all acquisition functions

Scikit-optimize – Analysis

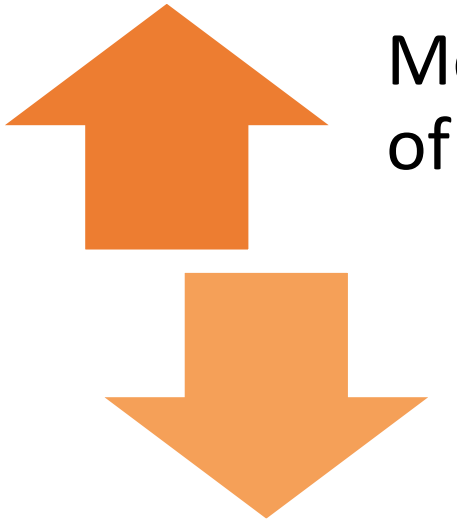
Built-in functions to explore the results of the search

- plot_convergence
- plot_evaluations
- plot_objective

- Returns the parameters sampled at each iteration and the optimization function value

Scikit-optimize – parallelization

Allows search in parallel.



More evaluations of f(x) needed

Less wall clock time

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THANK YOU

www.trainindata.com