1. Additional details for the experimental setup

The test functions of the benchmark are described in Table 1. Table 2 reports the the source of the implementations of the algorithms.

Problem	Objective function	Domain	Local max.
Auto MPG	$-\frac{1}{10}\sum_{k=1}^{10}\sum_{i\in D_k}(\hat{f}_k(X_i)-Y_i)^2$	$[-2,4]\times[-5,5]$	-
Breast Cancer	where: - $\hat{f}_k \in \underset{f\in\mathcal{H}_\sigma}{\operatorname{argmin}} \frac{1}{n-\lvert D_k\rvert}\sum_{i\notin\mathcal{D}_k}(f(X_i)-Y_i)^2+\lambda\lVert f\rVert_{\mathcal{H}_\sigma}$ - the data set $\{(X_i,Y_i)\}_{i=1}^n$ is split into 10 folds $D_1 \dots D_{10}$ - $\mathcal{H}_\sigma$ denotes the gaussian RKHS of bandwidth σ - $\lVert f\rVert_{\mathcal{H}_\sigma}$ is the corresponding norm - $\sigma = 10^{x_1}$ - $\lambda = 10^{x_2}$	$[-2,4]\times[-5,5]$	-
Concrete		$[-2,4]\times[-5,5]$	-
Yacht		$[-2,4]\times[-5,5]$	-
Housing		$[-2,4]\times[-5,5]$	-
Holder Table	$\lvert\sin(x_1)\rvert\times\lvert\cos(x_2)\rvert \times\exp(\lvert 1-(x_1^2+x_2^2)^{1/2}/\pi\rvert)$	$[-10,10]^2$	36
Rosenbrock	$-\sum_{i=1}^{2}[100(x_{i+1}-x_i^2)^2+(x_i-1)^2]$	$[-2.048,2.048]^3$	-
Sphere	$-\left(\sum_{i=1}^{4}(x_i-\pi/16)^2\right)^{1/2}$	$[0,1]^4$	1
Linear Slope	$\sum_{i=1}^{4}10^{(i-1)/4}(x_i-5)$	$[-5,5]^4$	1
Deb N.1	$\frac{1}{5}\sum_{i=1}^{5}\sin^6(5\pi x_i)$	$[-5,5]^5$	36

Table 1. Description of the test functions of the benchmark. Dash symbols are used when a value could not be calculated.

Library	Algorithms
The CMA 1.1.06 package (Hansen, 2011)	CMA-ES
NLOpt Library (Johnson, 2014)	CRS, DIRECT, MLSL
BayesOpt Library (Martinez-Cantin, 2014)	BayesOpt

Table 2. Source of the implementations of the algorithms used for comparison.

References

Hansen, Nikolaus. The cma evolution strategy: A tutorial. Retrieved May 15, 2016, from http://www.lri.fr/hansen/cmaesintro.html, 2011.

Johnson, Steven G. The NLopt nonlinear-optimization package. Retrieved May 15, 2016, from http://ab-initio.mit.edu/nlopt, 2014.

Martinez-Cantin, Ruben. Bayesopt: A bayesian optimization library for nonlinear optimization, experimental design and bandits. *The Journal of Machine Learning Research*, 15(1):3735–3739, 2014.