

Demo for BS-SVRG

A demo for SVRG Boosted by Shifting Objective (BS-SVRG) proposed in "Boosting First-order Methods by Shifting Objective: New Schemes with Faster Worst Case Rates".

Usage

All algorithms are implemented in C++.

To run the demo in MATLAB, first run `mex_all` in the MATLAB terminal to generate the mex file. (Note that the compiler should support at least `c++11`)

Then, run `TEST` in the MATLAB terminal, a small demo training ℓ_2 -logistic regression ($\mu = 5 \times 10^{-8}$) using dataset `a9a` from [LIBSVM Data](#), to generate a plot shown as below.

Test environment: HP Z440 machine with single Intel Xeon E5-1630v4 with 3.70GHz cores, 16GB RAM, Ubuntu 18.04 LTS with GCC 4.8.0, MATLAB R2017b.

```
>> TEST
Building with 'g++'.
MEX completed successfully.
Model: L2-logistic
Algorithm: SAGA
Time: 11.582018 seconds
Algorithm: Katyusha
Time: 15.778917 seconds
Algorithm: BS_SVRG
Time: 8.186314 seconds
Algorithm: BS_SVRG
Time: 8.189970 seconds
```

