EP3260: Machine Learning Over Networks
Computer Assignment 2
Instructors: Hossein S. Ghadikolaei, José Mairton B. da Silva Jr.
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Computer Assignment 2 - Deterministic/stochastic algorithms in practice

Let us consider the logistic ridge regression

$$f(\mathbf{w}) = \frac{1}{N} \sum_{i \in [N]} f_i(\mathbf{w}) + \lambda \|\mathbf{w}\|_2^2,$$

where $f_i(\mathbf{w}) = \log\left(1 + \exp\{-y_i \mathbf{w}^T \mathbf{x}_i\}\right)$ for the "Greenhouse gas observing network" dataset.

Then, address the following:

1) Solve the optimization problem using GD, stochastic GD, SVRG, and SAG;

2) Tune a bit the hyper-parameters (including λ);

3) Compare these solvers in terms of complexity the hyper-parameter tunning, convergence time, convergence rate (in terms of # outer-loop iterations), and memory requirement.