LIBLINEAR是一个用来解决大规模规范化的数据集上分类和回归问题的工具包。它目前支持：

——L2正则化的逻辑斯蒂回归/L2损失函数的支持向量机分类/L1损失函数的支持向量机分类

——L1正则化和L2损失函数的支持向量机分类/L1正则化的逻辑斯蒂回归

——L2正则化和L2损失函数的支持向量机回归/L1损失函数的支持向量机回归

下面介绍这个工具包的使用。

Train Usage

Usage: train [options] training\_set\_file [model\_file]

options:

-s type : set type of solver (default 1)

for multi-class classification

0 -- L2-regularized logistic regression (primal)

1 -- L2-regularized L2-loss support vector classification (dual)

2 -- L2-regularized L2-loss support vector classification (primal)

3 -- L2-regularized L1-loss support vector classification (dual)

4 -- support vector classification by Crammer and Singer

5 -- L1-regularized L2-loss support vector classification

6 -- L1-regularized logistic regression

7 -- L2-regularized logistic regression (dual)

for regression

11 -- L2-regularized L2-loss support vector regression (primal)

12 -- L2-regularized L2-loss support vector regression (dual)

13 -- L2-regularized L1-loss support vector regression (dual)

-c cost : set the parameter C (default 1)

-p epsilon : set the epsilon in loss function of epsilon-SVR (default 0.1)

-e epsilon : set tolerance of termination criterion

-s 0 and 2

|f'(w)|\_2 <= eps\*min(pos,neg)/l\*|f'(w0)|\_2,

where f is the primal function and pos/neg are # of

positive/negative data (default 0.01)

-s 11

|f'(w)|\_2 <= eps\*|f'(w0)|\_2 (default 0.001)

-s 1, 3, 4 and 7

Dual maximal violation <= eps; similar to libsvm (default 0.1)

-s 5 and 6

|f'(w)|\_1 <= eps\*min(pos,neg)/l\*|f'(w0)|\_1,

where f is the primal function (default 0.01)

-s 12 and 13\n"

|f'(alpha)|\_1 <= eps |f'(alpha0)|,

where f is the dual function (default 0.1)

-B bias : if bias >= 0, instance x becomes [x; bias]; if < 0, no bias term added (default -1)

-wi weight: weights adjust the parameter C of different classes (see README for details)

-v n: n-fold cross validation mode

-C : find parameter C (only for -s 0 and 2)

-q : quiet mode (no outputs)

Option -v randomly splits the data into n parts and calculates cross

validation accuracy on them.

Option -C conducts cross validation under different C values and finds

the best one. This options is supported only by -s 0 and -s 2. If

the solver is not specified, -s 2 is used.