更高效的支持向量机算法实现及其在手写数字识别中的应用——04手动实现使用SMO的Kernel SVM

大数据机器学习课程第二次实验项目

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目录

本文是[更高效的支持向量机算法实现及其在手写数字识别中的应用](./00svm.html)系列文章第04篇——手动实现使用SMO的Kernel SVM。

[source](https://github.com/Open-Book-Studio/THU-Coursework-Machine-Learning-for-Big-Data/blob/main/thu_big_data_ml/svm/handy_crafted/kernel.py#L11)

### 0.1 KernelSupportVectorClassifier

KernelSupportVectorClassifier  
 (config:thu\_big\_data\_ml.svm.kernel\_hpo.Sup  
 portVectorClassifierConfig)

*自己实现的支持向量机分类器。需要支持多分类。*

from thu\_big\_data\_ml.svm.kernel\_hpo import SupportVectorClassifierConfig  
from fastcore.all import patch, store\_attr

/home/ye\_canming/repos/assignments/THU-Coursework-Machine-Learning-for-Big-Data/thu\_big\_data\_ml/svm/kernel\_hpo.py:225: ExperimentalWarning: QMCSampler is experimental (supported from v3.0.0). The interface can change in the future.  
 sampler=QMCSampler(seed=42), # 谷歌建议  
/home/ye\_canming/repos/assignments/THU-Coursework-Machine-Learning-for-Big-Data/thu\_big\_data\_ml/svm/kernel\_hpo.py:226: ExperimentalWarning: WilcoxonPruner is experimental (supported from v3.6.0). The interface can change in the future.  
 pruner=WilcoxonPruner(), # 对重复实验进行假设检验剪枝  
[I 2024-11-18 23:09:02,424] Using an existing study with name 'svm kernel hpo 11.17 3.0' instead of creating a new one.

class KernelSupportVectorClassifier:  
 """自己实现的支持向量机分类器。需要支持多分类。  
 """  
 def \_\_init\_\_(self, config:SupportVectorClassifierConfig):  
 store\_attr()

由于本次这次Project时间不足，而我们已经完美完成了项目的前4个要求，所以我们暂时没有时间探索这里如何实现。等我有时间了我将继续更新这里的[KernelSupportVectorClassifier](https://Open-Book-Studio.github.io/THU-Coursework-Machine-Learning-for-Big-Data/coding_projects/P2_SVM/handy_crafted_kernel.html#kernelsupportvectorclassifier) 敬请关注后续的实现，我将把完整代码开源到 [Open-Book-Studio/THU-Coursework-Machine-Learning-for-Big-Data 下的 svm\_handy\_crafted\_kernel 笔记本](https://github.com/Open-Book-Studio/THU-Coursework-Machine-Learning-for-Big-Data/blob/main/notebooks/coding_projects/P2_SVM/04svm_handy_crafted_kernel.ipynb)中。