Week 6 – Homework

Requirements:

1. Implement Sequential Minimal Optimization (SMO) for Support Vector Machine (SVM).
2. Employ your implementation on Series GSE3494 (expression signature for breast cancer) and compare with the well-developed toolboxes like scikit-learn (sklearn), libsvm, or superlearner. Use glp96 as training set and gpl97 as testing set.
3. Evaluate the results (by your implementation and the selected toolbox) and make discussion. You can choose statistical test or other methods that you deem as reasonable for evaluations.

Description:

1. Source code of your implementation of SMO.
2. A report that evaluates your implementation and the selected toolbox. The report should NOT EXCEED 2 pages. The report is recommended to include Title, Author(s), Methods, Experimental Settings, and Results & Discussion. It can be written in English or Chinese. Please use the IEEE template for journal/transactions to format the report. In general, the report is required to be formatted using double columns, a font size of 10pt and single line space.

i) Title.

ii) Author(s): This homework can be finished by one individual OR a team of two. If you choose to team with others, please specify your respective contributions in the report.

iii) Methods: Your formulation of SVM (e.g., linear/kernel trick and what kernel you choose) and Algorithmic description of SMO.

iv) Experimental settings: Your training and test set, training strategy, and platform/environment.

v) Results & Discussion.

Submission:

Please submit the source code and report *via Canvas NO LATER THAN April 14, 2021 (11:59 PM UTC +8)*. Pack the report and source code into a *zip* or *rar* file with filename "your name(s)_your ID(s)".

Important Notice:

Please do not duplicate complete sentence(s)/paragraph(s), figures, and tables from publicly available sources without citation, which would cause a potential risk of plagiarism. If it is necessary to do so, please mark the duplication and cite the source.