

Erratum Sheet

Zhifu Xu, Kim Saïdi, Tsuyoshi Migita and Norikazu Takahashi, “Distributed Sequential Minimal Optimization Algorithm for Linear Support Vector Machines”, IEICE Technical Report, vol.124, no.208, pp.16–20, October 2024.

1. The objective function of (3) is not correct. It should be replaced with

$$\alpha_1 + \alpha_2 - \frac{1}{2}\alpha_1^2\|\mathbf{x}_1\|^2 - \frac{1}{2}\alpha_2^2\|\mathbf{x}_2\|^2 - y_1y_2\alpha_1\alpha_2\mathbf{x}_1^\top\mathbf{x}_2 - \left(y_1\alpha_1\mathbf{x}_1^\top + y_2\alpha_2\mathbf{x}_2^\top\right)\sum_{j=3}^{\ell}y_j\alpha_j^{\text{old}}\mathbf{x}_j.$$

2. The second equation from the bottom of the right column on Page 17 is not correct. It should be replaced with

$$\alpha_2^* = \begin{cases} L, & \text{if } \alpha_2^{\min} < L, \\ \alpha_2^{\min}, & \text{if } L \leq \alpha_2^{\min} \leq H, \\ H, & \text{if } \alpha_2^{\min} > H. \end{cases}$$

3. Equation (6) is not correct. It should be replaced with

$$F_i(\boldsymbol{\alpha}) = y_i \left(\sum_{j=1}^{\ell} y_j \alpha_j \mathbf{x}_i^\top \mathbf{x}_j - 1 \right) = \sum_{j=1}^{\ell} y_j \alpha_j \mathbf{x}_i^\top \mathbf{x}_j - y_i.$$

4. The formulae $\mathbf{s}_k = \sum_{i=1}^{\ell_k} \mathbf{x}_{ki} \alpha_{ki}$ and

$$F_{ki} = y_{ki} \left(\mathbf{x}_i^\top \sum_{r=1}^m \mathbf{s}_r - 1 \right) \quad (i = 1, 2, \dots, \ell_k)$$

in the third paragraph of Section 4.2 are not correct. They should be replaced with $\mathbf{s}_k = \sum_{i=1}^{\ell_k} y_{ki} \alpha_{ki} \mathbf{x}_{ki}$ and

$$F_{ki} = \mathbf{x}_{ki}^\top \sum_{r=1}^m \mathbf{s}_r - y_{ki} \quad (i = 1, 2, \dots, \ell_k)$$

respectively.

(Last updated: October 19, 2024)