

Dynamic Thresholding For Linear Binary Classifiers. ISSN 1751-3030

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Abstract

In this research investigation, the author has detailed a novel method of finding the Thresholding for Linear Binary Classifiers.

Theory

If y_i (for $i = 1$ to n) are the points, that have to be divided using a linear binary classifier, we can select the Threshold value y_t using the equation

$$\sum_{i=1}^m (y_i - y_t) y_i = \sum_{j=1}^{n-m} |(y_j - y_t)| y_j \quad \text{Equation 1}$$

with $i \neq j$, $y_i > y_t$ and $y_j < y_t$. But since we do not know y_t , we first order all the y_i in increasing order and choose y_t to be in between the y_i values, i.e., $y_i < y_t < y_{i+1}$ (for $i = 1$ to $n - 1$). That is for n number of points, we need to choose $(n - 1)$ number of domains of y_t . Values of y_t within one of these domains gives us the best y_t , the best being the one which satisfies the above stated equation 1 best.

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