

Multi-class classification

One-against-rest

The rule for one-against-rest multi-class classification is:

For every sample we calculate $g_i(\mathbf{y}) = \mathbf{a}^t \mathbf{y}$, and the sample will be classified as class i when satisfies

$$\begin{cases} g_i(\mathbf{y}) \geq 0 \\ g_j(\mathbf{y}) < 0, \text{ for all other } j \neq i \end{cases} \quad (1)$$

Otherwise, the sample can't be classified.