

List of Abbreviations and Symbols

\( \mathbf{X} \) \hspace{1cm} a sample of instances, or data points (vectors)
\( M \) \hspace{1cm} number of instances
\( N \) \hspace{1cm} number of features or variables
\( C \) \hspace{1cm} number of classes
\( x_k \) \hspace{1cm} \( k \)th instance, \( k = 1 \ldots M \)
\( x_{k,i} \) \hspace{1cm} the \( i \)th feature value of instance \( x_k \), \( i = 1 \ldots N \)
\( \mathbf{Y} \) \hspace{1cm} a sample of output or class labels (predictions)
\( y_k \) \hspace{1cm} target values, or class values, \( k = 1 \ldots M \)
\( \mathbf{X}_L, \mathbf{X}_U \) \hspace{1cm} samples of labeled and unlabeled instances
\( \mathbf{F} \) \hspace{1cm} feature space
\( F_i \) \hspace{1cm} the \( i \)th feature in the feature space
\( \mathbf{w} \) \hspace{1cm} input weight vector or feature weight vector
\( w_i \) \hspace{1cm} weight vector elements of \( \mathbf{w} \), \( i = 1 \ldots N \)
\( \mathbf{A} \) \hspace{1cm} a matrix (use capital letters for matrices)
\( \phi \) \hspace{1cm} a kernel mapping
\( \mathbf{K} \) \hspace{1cm} matrix of kernel function values
\( G(V, E) \) \hspace{1cm} a graph with \( V \) as the vertices set and \( E \) as the edge set
\( \mathbf{W} \) \hspace{1cm} the adjacency matrix of graph \( G \)
\( \mathbf{L} \) \hspace{1cm} the Laplacian matrix of graph \( G \)
\( x^T y \) \hspace{1cm} inner product between column vectors \( x \) and \( y \)
\( \| . \| \) \hspace{1cm} Euclidean norm
\( d(x, y) \) \hspace{1cm} distance between vectors \( x \) and \( y \)
\( \mathcal{H} \) \hspace{1cm} the hypothesis space
\( \mathcal{F} \) \hspace{1cm} a concept space
\( l(\cdot) \) \hspace{1cm} a concept or target function
\( l(x; y; f(x)) \) \hspace{1cm} loss function
\( CM_{2	imes2} \) \hspace{1cm} \( 2 \times 2 \) confusion matrix, \( tp, fp, fn, tn \) where \( t \) - true, \( f \) - false, \( p \) - positive, \( n \) - negative; \( pos = tp + fn \) and \( neg = fp + tn \)