
Notation

N	dimension of feature space
$y \in Y$	output and output space
$\mathbf{x} \in X$	input and input space
F	feature space
\mathcal{F}	general class of real-valued functions
\mathcal{L}	class of linear functions
$\langle \mathbf{x} \cdot \mathbf{z} \rangle$	inner product between \mathbf{x} and \mathbf{z}
$\phi : X \rightarrow F$	mapping to feature space
$K(\mathbf{x}, \mathbf{z})$	kernel $\langle \phi(\mathbf{x}) \cdot \phi(\mathbf{z}) \rangle$
$f(\mathbf{x})$	real-valued function before thresholding
n	dimension of input space
R	radius of the ball containing the data
ε -insensitive	loss function insensitive to errors less than ε
\mathbf{w}	weight vector
b	bias
α	dual variables or Lagrange multipliers
L	primal Lagrangian
W	dual Lagrangian
$\ \cdot\ _p$	p -norm
\ln	natural logarithm
e	base of the natural logarithm
\log	logarithm to the base 2
\mathbf{x}', \mathbf{X}'	transpose of vector, matrix
\mathbb{N}, \mathbb{R}	natural, real numbers
S	training sample
ℓ	training set size
η	learning rate
ε	error probability
δ	confidence
γ	margin
ξ	slack variables
d	VC dimension

