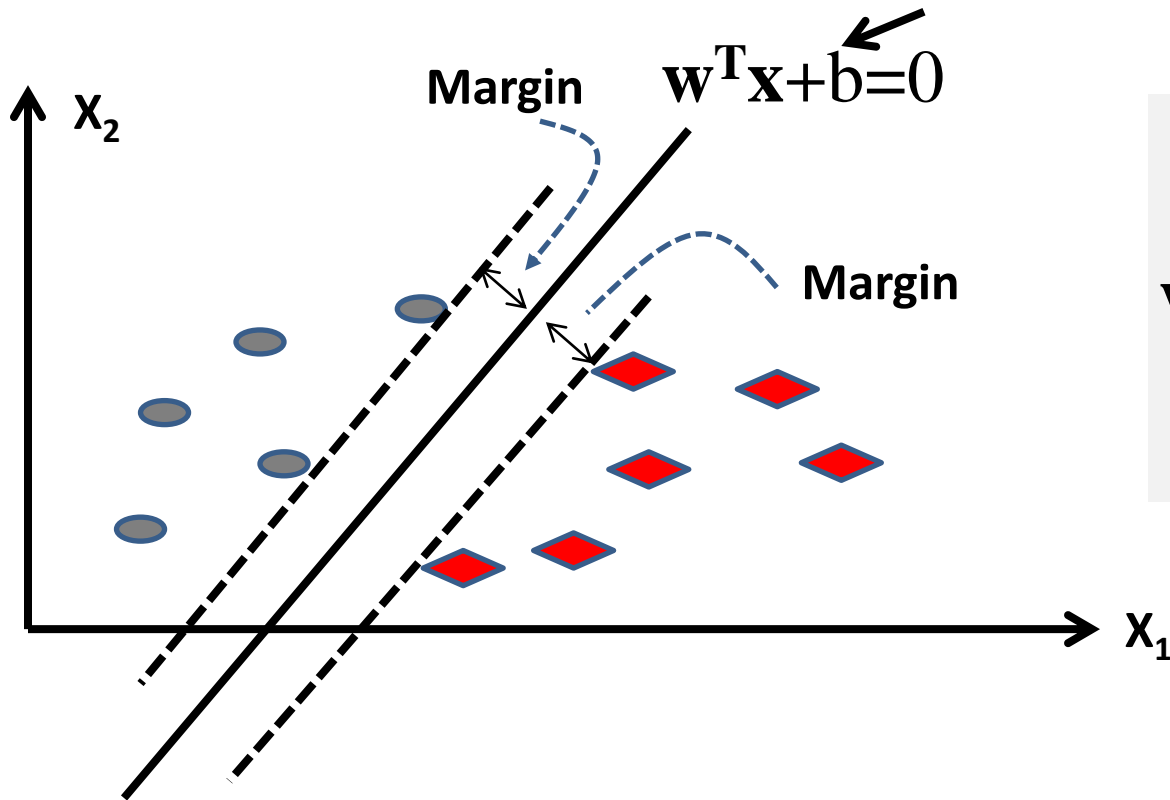# Best Separator = Maximize the Margin

Notation Change: $\beta \rightarrow \mathbf{w}$; $\beta_0 \rightarrow \mathrm{b}$

Bias constant

Feature Weights

Feature Vector (e.g., word counts)

$$\mathbf{w}^T\mathbf{x}+\mathrm{b}=0$$

Margin

Margin

X_2

X_1

$$\mathbf{w} = \begin{pmatrix} W_1 \\ W_2 \\ \dots \\ W_M \end{pmatrix}$$

$$\mathbf{x} = \begin{pmatrix} X_1 \\ X_2 \\ \dots \\ X_M \end{pmatrix}$$

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