

Machine Learning Homework 4: Linear Models for Classification

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1 Linear Discriminant Analysis: Maximum Class Separation

Show that maximization of the class separation criterion given by $m_2 - m_1 = \mathbf{w}^T(\mathbf{m}_2 - \mathbf{m}_1)$ with respect to \mathbf{w} , using a Lagrange multiplier to enforce the constraint $\mathbf{w}^T \mathbf{w} = 1$, leads to the result that $\mathbf{w} \propto (\mathbf{m}_2 - \mathbf{m}_1)$.

$x_{1:N}$ and

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