Exam Cheat Sheet

Discriminative Functions for Classifiers

Fisher's Linear Discriminant Analysis

$$w = S_W^{-1}(\mu_1 - \mu_2) \tag{1}$$

Logistic Regression

$$\sigma(z) = \frac{1}{1 + e^{-z}} \tag{2}$$

$$J(\theta) = -\frac{1}{m}[y^T \log(\sigma(X\theta)) + (1-y)^T \log(1 - \sigma(X\theta))] \tag{3}$$

Perceptron Algorithm

$$w^{(t+1)} = w^{(t)} + \eta(y - \hat{y})x \tag{4}$$

Gradient Descent

$$\theta := \theta - \alpha \nabla_\theta J(\theta) \tag{5}$$

Kernel Machine

Kernel Function

$$K(x, x') = \exp\left(-\frac{\|x - x'\|^2}{2\sigma^2}\right) \tag{6}$$