Ranking with Large Margin Principles

A. Shashua and A. Levin, NIPS 2002

- Goal: correctly placing the documents in the corresponding category and maximize the margin

$$\mathbf{w} \cdot \mathbf{x}_i^j - b_j \leq -1 + \epsilon_i^j,$$
$$\mathbf{w} \cdot \mathbf{x}_i^{j+1} - b_j \geq 1 - \epsilon_i^{*j+1},$$
$$\epsilon_i^j \geq 0, \epsilon_i^{*j} \geq 0$$

Reduce the violations