

# Pointwise Learning to Rank

- Ideally perfect relevance prediction leads to perfect ranking
  - $f \rightarrow \mathbf{score} \rightarrow \text{order} \rightarrow \text{metric}$
- Reducing ranking problem to
  - Regression
    - $O(f(Q, D), Y) = -\sum_i ||f(q_i, d_i) - y_i||$
    - Subset Ranking using Regression, D.Cossock and T.Zhang, COLT 2006
  - (multi-)Classification
    - $O(f(Q, D), Y) = \sum_i \delta(f(q_i, d_i) = y_i)$
    - Ranking with Large Margin Principles, A. Shashua and A. Levin, NIPS 2002