Pointwise manifold regularization for semi-supervised learning

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Problems & Ideas

- Problems of semi-supervised MR
  - built on the pairwise smoothness over the manifold graph, i.e., the smoothness constraint is implemented over all instance pairs and actually considers each instance pair as a single operator
- Ideas: pointwise manifold regularization（PW_MR）
  - concentrate on the pointwise smoothness and consider each local instance with the smoothness around it
  - further introduce the attributes of instances and exploit the importance of individual instances

$$\min_{f \in H_K} \frac{1}{l}\sum_{i=1}^{l} V(x_i, y_i, f) + C_1 \|f\|_K^2 + \frac{C_2}{(l+u)^2}\sum_{i=1}^{n} p(x_i)\left(f(x_i) - \sum_{x_j \in N(x_i)} w_{ij} f(x_j)\right)^2$$

Main Contributions