

On Selecting the Best Features in a Noisy Environment.

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Abstract: This paper introduces a novel method for selecting a feature subset yielding an optimal trade-off between class separability and feature space dimensionality. We assume the following feature properties: (a) the features are ordered into a sequence, (b) robustness of the features decreases with an increasing order and (c) higher-order features supply more detailed information about the objects. We present a general algorithm how to find under those assumptions the optimal feature subset. Its performance is demonstrated experimentally in the space of moment-based descriptors of 1-D signals, which are invariant to linear filtering.

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