

SCATTERING HIDDEN MARKOV TREE

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ABSTRACT

Scattering convolutional hidden Markov tree proposes a new inference mechanism for high-dimensional signals by combining the interesting signal representation created by the scattering transform to a powerful probabilistic graphical model.

A wavelet scattering network computes a signal translation invariant and stable to deformations representation that still preserves the informative content of the signal. Such properties are acquired by cascading wavelet transform convolutions with nonlinear modulus and averaging operators.

The network's structure and its distributions are described using a hidden Markov tree. This yield a generative model for high-dimensional inference. It offers a mean for performing several inference tasks among which are predictions. The scattering convolutional hidden Markov tree displays promising results on both classification and segmentation tasks of complex images.

Index Terms— Scattering network, Deep network, Hidden Markov Model, Classification

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(a) Result 1

(b) Results 3

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Fig. 1. Example of placing a figure with experimental results.

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