4712099

Structured Receptive Field in CNN

1. The structured receptive field network(RFNN) perform filter learning as a linear decomposition onto a filter basis by unifying CNNs and multiscale image analysis in a learnable model. This process in RFNN does using

    a. Weighted Gaussian Derivative filters that form a fixed filter basis of multiple increasing scales to decompose locally any image (as a after fourth derivative there is no information meaningful for visual perception)
    b. Spatial Coherence by treating the kernel images as functions in scale space and Steerability property by arbitrary rotations of gaussian derivative kernels instead of rotating the basis itself provides seamless integration of the "Scattering concept" for fixed angles, scales and pooling operation
    c. Learning the Gaussian derivative basis function ϕ, weights that combine to a convolutional kernel function (linear combination of limited filter set yielding arbitrary number of effective filters) and finally update the parameter α to be learnt.
    d. All the above

    Answer: d. All the above

Point Net: Deep Learning on Point Sets for 3D Classification and Segmentation

1. The "Point Net" network architecture is inspired by the properties of point sets. The important property (ies) of the Point set are
    a. The inputs which are points in Euclidean space are set of unordered points and are invariant to N! (N is the number of samples).
    b. The interaction between the neighboring input points help capture local structures
    c. The learned representation of the point sets are invariant to rotation and translation of all points.
    d. All the above

    Answer: d. All the above