



Distinguished Lecture Series

Invariant Image Classification by Multiscale Scattering



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Auditorium 106 at New IIS Building

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Abstract

Adapting the representation of high dimensional data to classification is an outstanding mathematical problem. For images, invariance to global transformations such as translations, rotations or scaling is needed, but stability to local deformations is even more important. We introduce a scattering transform providing multiscale and multi-orientation co-occurrence information, satisfying these invariance properties. It is computed with cascades of wavelet decompositions and non-linear modulus operators. Relations with SIFT descriptors and convolution networks will be explained. A supervised classification is introduced with affine models computed with a PCA in the scattering domain. State of the art results are obtained for texture discrimination and handwritten digit recognition, with few training samples.

For more information: <http://www.iis.sinica.edu.tw/>

