

# WAVELET DECOMPOSITIONS OF RANDOM FORESTS

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In the talk we will review how Approximation Theory can be applied to solve some of the challenges of Machine Learning. Tools such as the tree-based Random Forest and the Gradient Boosting Machine are popular and powerful machine learning algorithms that are also employed as part of 'Deep Learning' systems. Constructing the right form of wavelet decomposition of these tools allows establishing ordering of their decision nodes: from 'significant' features to 'less significant' to 'insignificant' noise. Consequently, simple wavelet techniques can be used to overcome the presence of noise and misclassifications in the training sets and compress large scale neural networks.