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How to use Gaussian mixture models on patches for solving image inverse problems

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Most patch-based methods used in image processing involve Gaussian models or Gaussian mixture models. All theses methods can be seen through the same statistical framework. The most challenging part is the parameters estimation in the high dimensional patches space. After a brief introduction on image restoration, I will present the High-Dimensional Mixture model we introduced for image denoising [HDMI], which overcomes the curse of dimensionality by estimating intrinsic dimensions for each group of the mixture model. Finally, I will present some image restoration results obtained with this method.

References :
[HDMI] Antoine Houdard, Charles Bouveyron, Julie Delon. High-Dimensional Mixture Models For Unsupervised Image Denoising (HDMI). 2018.

Web page:
houdard.wp.imt.fr.

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Classification de Session: Mixture modelling and applications