

ON THE CHOICE OF THE REGULARIZATION PARAMETER:
THE CASE OF BINARY IMAGES IN THE
BAYESIAN RESTORATION FRAMEWORK

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ABSTRACT

We study the problem of the influence and of the choice of the regularization parameter β in the Bayesian image restoration framework. Binary and geometrically regular images are examined. The noise degradation process which leads to the observed record can be either additive Gaussian or a binary symmetric channel noise of transmission. MAP is not robust with respect to β , MPM and ICM are more robust. For the three methods, a good choice of β depends strongly on the noise level. On the basis of the observed record, two possible choices of β are examined: if the statistical one seems reasonable at a low noise level, it isn't the case for higher noise for which the cross-validation criterion still gives good results.

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