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A STOCHASTIC DIFFERENTIAL EQUATION IN IMAGE PROCESSING

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Recently, the use of stochastic differential equations (SDEs) in image restoration has significantly grown and evolved. Various models have been proposed to solve this problem, we can cite the work by Borkowski et al (2016), who identified the diffusion term to 1 and neglected the drift term.

In this work, we propose to find a good choice for the drift and diffusion terms in order to get promising results in image restoration. In 1990 Perona-Malik (PM) used an anisotropic partial differential equation by exploring two diffusion functions to better handle contours of objects in images. In this proposed model, we exploit these functions in a model proposed by Nouri et al (2021). More precisely, we try to fix the drift and diffusion terms according to PM-functions to improve previous SDEs results. We show that the obtained numerical results are very encouraging and competetive compare to other SDEs models.

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