

SPATIAL FILTERING ON DIGITAL IMAGES

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Digital filtering of spatial features has many applications upon digital images derived from Remote Sensors. The applications are as diverse as noise removal, smoothing techniques, restoration and evaluation of morphologic parameters of spatial patterns. As far as Remote Sensing is concerned, This kind of filtering has direct consequences on geomorphology related to tectonic modelling and natural resources exploration.

In this work, a formalization of spatial filtering and spatial correlation filtering, using a window without going into the frequency domain, is given. A comparison of this approximation with that filtering through the Fast Fourier Transform is established, giving in each case a computational performance and the explicit dependence of the cut-off frequency with the related parameters involved in the filtering. A set of possible applications in different areas of experimental research is also given.