

## **A Novel Probabilistic Spatial Locality of Reference Technique for Automatic Cleansing of Digital Maps**

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**Abstract :** GIS (Geographic Information System) applications require geo-referenced data, this data could be available as databases or in the form of digital or hard-copy agro-meteorological maps. These parameter maps are color-coded with different regions corresponding to different parameter values, converting these maps into a database is not very difficult. However, text and different planimetric elements overlaid on these maps makes an accurate image to database conversion a challenging problem. The reason being, it is almost impossible to exactly replace what was underneath the text or icons; thus, pointing to the need for inpainting. In this paper, we propose a probabilistic inpainting approach that uses the probability of spatial locality of colors in the map for replacing overlaid elements with underlying color. We tested the limits of our proposed technique using non-textual simulated data and compared text removing results with a popular image editing tool using public domain data with promising results.

**Keywords :** noise, image, GIS, digital map, inpainting

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