

BLOCK LEVEL DETECTION WITH PIXEL RECOVERY OF MEDDLED IMAGES USING SHAMIR SCHEME

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Abstract-An image authentication method based on the (k, n) -threshold secret sharing scheme with pixel level self recovery is proposed. The source image is converted into a greyscale image and binarization is applied. An authentication signal is generated for each block of a gray scale image. The authentication signals then are embedded randomly into the image pixels for the double purposes of tampering localization and data repairing in the image authentication process. Several shares of the binarized image are generated using Shamir's (k, n) threshold scheme and embedded into an alpha channel plane. The alpha plane is then combined with the original image thus forms a stego-image. During authentication, an image block is marked as tampered if the authentication signal of the current block content does not match that extracted from the shares embedded in the alpha channel plane. Data repairing is then applied to each tampered block by a reverse Shamir scheme after collecting enough shares from unmarked blocks.

Index Terms-Data hiding, data repair, greyscale image, alpha channel plane, PNG image, secret sharing.