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Facial Biometric Privacy Using Visual Cryptography: A Fundamental Approach to Enhance the Security of Facial Biometric Data

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Abstract : 'Biometrics' means 'life measurement' but the term is usually associated with the use of unique physiological characteristics to identify an individual. It is important to secure the privacy of digital face image that is stored in central database. To impart privacy to such biometric face images, first, the digital face image is split into two host face images such that, each of it gives no idea of existence of the original face image and, then each cover image is stored in two different databases geographically apart. When both the cover images are simultaneously available then only we can access that original image. This can be achieved by using the XM2VTS and IMM face database, an adaptive algorithm for spatial greyscale. The algorithm helps to select the appropriate host images which are most likely to be compatible with the secret image stored in the central database based on its geometry and appearance. The encryption is done using GEVCS which results in a reconstructed image identical to the original private image.

Keywords : adaptive algorithm, database, host images, privacy, visual cryptography
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