IR & IF for IoT Based Applications – A Survey

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Abstract –Present era is considered as internet of things and digital era, all type data (text, image and video) are stored in digital form. This data are retrieved from different sources (IoT, Cloud, so on) in various application fields medical, satellite to do analysis. To carry out analysis multiple views of object to be considered, Image Registration (IR) and Image Fusion (IF) are the process that can be initiated to do analysis. Image Registration (IR) is the process of combining two images taken at different views and Image Fusion (IF) is the process of combining multiple viewed images taken from different views. Internet of Things (IoT) is a system of inter-related devices having ability to compute and transfer the data over the network. IR and IF for IoT based applications is a challenging task and the combination of both is imaginary. This paper aims at studying the different methods in IR (like similarity methods, correlation methods, wavelet-based methods, soft computing methods and MI-based methods, etc.) and IF (like Principal component analysis, High pass filtering wavelet transforms, Artificial Neural Networks, and Discrete cosine transform) to produce better performance metrics - Peak Signal Noise Ratio (PSNR), Root Mean Square Error (RMSE), Entropy (E), and Mutual information (MI) by determining the best method for registration and fusion to improve the most important parameters like quality and accuracy which shall applicable for IoT based complex applications in the field of Image Processing (IP). Based on study still there is a need of using IR & IF methods to improve the quality of high resolution images and also to get better performance of space and time complexity.

Keywords- Image Registration (IR), Image Fusion (IF), Internet of Things (IoT), Image Processing (IP), Peak Signal Noise Ratio (PSNR), Root Mean Square Error (RMSE), Entropy (E), Mutual Information (MI).

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