

## Documents

Khattab, M.M.<sup>a b</sup>, Zeki, A.M.<sup>a</sup>, Alwan, A.A.<sup>a</sup>, Badawy, A.S.<sup>b</sup>

**Regularization-based multi-frame super-resolution: A systematic review**

(2020) *Journal of King Saud University - Computer and Information Sciences*, 32 (7), pp. 755-762. Cited 12 times.

DOI: 10.1016/j.jksuci.2018.11.010

<sup>a</sup> Department of Computer Science, International Islamic University Malaysia, Kuala Lumpur, Malaysia

<sup>b</sup> Department of Computer Engineering, King Khalid University, Abha, Saudi Arabia

**Abstract**

High-resolution is generally required and preferred for producing more detailed information inside the digital images; therefore, this leads to improve the pictorial information for human analysis and interpretation and to enhance the automatic machine perception. However, the real imaging systems may introduce some degradation or artifacts in the digital images. These distortions in the images are caused by a variety of factors such as blurring, aliasing, and noise, which may affect the resolution of imaging systems and produce low-resolution images. Numerous strategies like frequency and spatial domain approaches have been proposed in the literature. Spatial domain approaches are classified as one of the most popular approaches and split into interpolation-based approaches and regularization-based approaches. Nevertheless, these techniques still suffer from artifacts. Regularization-based approaches are a challenging in image super-resolution in the last decade. This paper attempts to investigate the current regularization-based super-resolution approaches which are commonly used for reconstructing the high-resolution image in the last decade. Furthermore, the focus is given on highlighting the strengths and limitations of these approaches aiming at determining their effectiveness and quality in reconstructing high-resolution images. © 2018 The Authors

**Author Keywords**

Multi-frame; Regularized framework; Resolution enhancement; Super-resolution

**Correspondence Address**

Khattab M.M.; Department of Computer Science, Malaysia; email: mmkhattab2000@gmail.com

**Publisher:** King Saud bin Abdulaziz University

**ISSN:** 13191578

**Language of Original Document:** English

**Abbreviated Source Title:** J. King Saud Univ. - Comput. Inform. Sci.

2-s2.0-85056808599

**Document Type:** Review

**Publication Stage:** Final

**Source:** Scopus