

# HIERARCHICAL SUPER RESOLUTION IMAGE INPAINTING

## ABSTRACT

This paper introduces a novel framework for example-based inpainting. It consists in performing first the inpainting on a coarse version of the input image. A hierarchical super-resolution algorithm is then used to recover details on the missing areas. The advantage of this approach is that it is easier to inpaint low-resolution pictures than high resolution ones. The gain is both in terms of computational complexity and visual quality. However, to be less sensitive to the parameter setting of the inpainting method, the low-resolution input picture is inpainted several times with different configurations. Results are efficiently combined with loopy belief propagation and details are recovered by a single image super-resolution algorithm. Experimental results in a context of image editing and texture synthesis demonstrate the effectiveness of the proposed method. Results are compared to five state-of-the-art inpainting methods.

## **EXISTING SYSTEM**

In this system, we focus on techniques for vector-valued image regularization, based on variational methods and PDEs. Starting from the study of PDE-based formalisms previously proposed in the literature for the regularization of scalar and vector-valued data, we propose a unifying expression that gathers the majority of these previous frameworks into a single generic anisotropic diffusion equation. On one hand, the resulting expression provides a simple interpretation of the regularization process in terms of local filtering with spatially adaptive Gaussian kernels. On the other hand, it naturally disassembles any regularization scheme into the smoothing process itself and the underlying geometry that drives the smoothing. Thus, we can easily specialize our generic expression into different regularization PDEs that fulfill desired smoothing behaviors, depending on the considered application: image restoration, inpainting, magnification, flow visualization, etc. Specific numerical schemes are also proposed, allowing us to implement our regularization framework with accuracy by taking the local filtering properties of the proposed equations into account. Finally, we illustrate the wide range of applications handled by our selected anisotropic diffusion equations with application results on color images.

## **DISADVANTAGES**

- Display and plotting can be expensive
- Particularly for high quality C
- Color and cross-hatching.
- Spatial analysis and filtering within polygons are impossible.

## **PROPOSED SYSTEM**

A novel inpainting approach has been presented in this paper. The input picture is first down sampled and several inpaintings are performed. The low-resolution inpainted pictures are combined by globally minimizing an energy term. Once the combination is completed, a hierarchical single image super resolution method is applied to recover details at the native resolution. Experimental results on a wide variety of images have demonstrated the effectiveness of the proposed method

## **ADVANTAGES**

- Provides higher-level information such as scene semantics in order to improve the visual relevance.
- Effectiveness was provided by variety of images

➤ **SYSTEM REQUIREMENT:**

**HARDWARE REQUIREMENTS:**

Processor	:	Intel
Ram	:	2 GB (Minimum)
Monitor	:	15" COLOR
Hard Disk	:	500 GB
Keyboard	:	STANDARD 102 KEYS
Mouse	:	3 BUTTONS

**SOFTWARE CONFIGURATION:**

Operating System	:	Windows 7 / 10
Environment	:	MATLAB
Matlab	:	Version 18a

## REFERENCES

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