

# A nonlocal nonconvex approach to saliency detection.

Eduardo Alcaín<sup>1</sup>, [Ana I. Muñoz](#)<sup>1</sup>, Iván Ramírez<sup>1</sup> and Emanuele Schiavi<sup>1</sup>.

1. Dpto. de Matemática Aplicada, ESCET, Univ. Rey Juan Carlos.  
c/ Tulipán s/n, 28933, Móstoles, Madrid, Spain.  
e-mail: e.alcain@alumnos.urjc.es, anaisabel.munoz@urjc.es,  
i.ramirez@alumnos.urjc.es and emanuele.schiavi@urjc.es

## Abstract

Visual saliency detection models simulate the human visual system to perceive the scene. A number of different computational approaches for visual saliency estimation has recently appeared in Computer and Artificial Vision. We consider a variational setting for automatic saliency detection in digital images. In fact, we propose a variational model on a manifold generated from the segmentation of the image into superpixels and the subsequent generation of a weight graph based on some characteristics of the image. We exploit the suitable properties of operators such as the nonlocal total variation and nonconvex operators regarding the preservation of edges and enhancement of the sparsity of gradients of saliency maps. Finally, we present our numerical schemes of resolution and some results.