

NEW ALGORITHMS IN INFORMATION SCIENCE**Stanley Osher**¹¹Mathematics Department, UCLA

The past few years have seen an incredible explosion of new (or revival of old) fast and effective algorithms for various imaging and information science applications. These include : nonlocal means, compressive sensing, graph cuts, Bregman iteration, as well as relatively old favorites such as the level set method and PDE based image restoration. I'll give my view of where we are, hopefully giving credit to all the creators of these new and exciting multiscale techniques. In particular : remarkably successful algorithms for L1 type minimizations have recently been developed. These include L1, TV, B1,1, nonlocal TV and combinations. Bregman iteration, in its various incarnations, turns out to be unreasonably effective. New applications include image segmentation, shape optimization, etc. I'll discuss this, which is joint work with many people.