

1098-41-314

Julia Dobrosotskaya* (jxd365@case.edu). *Variational imaging methods based on sparse representations.*

Replacing differential operators with the diffusive operators based on multiscale sparse representation systems, such as wavelets or composite wavelets (including shearlets), leads to the design of a new class of adaptively anisotropic operators.

Such operators are not meant to approximate the differential operators directly, but rather replace them in a variety of applied signal processing settings, such as diffuse interface approximations to the Total Variation functional - in such applications as inpainting, superresolution and more. Discrete transforms has been successfully used in this context as well.

This ongoing research aims at merging the knowledge and experience of the sparse systems, compressive sensing and PDE communities to create qualitatively new and highly adaptable methods for image analysis and reconstruction. (Received January 28, 2014)