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Department of Mathematics, University of Houston, 4800 Calhoun Rd., Houston, TX 77204, and
Manos Papadakis. *Multi-scale 3-D texture segmentation: Isotropic Representations.*

We discuss the problem of data representation for 3-D texture segmentation. In medical data, such as those from X-ray CT or MRI, different types of tissues give rise to 3-D textures. The goal is to identify the presence of certain tissue types and this can be viewed as a 3-D texture segmentation problem. The problem and the data impose certain design requirements on the segmentation algorithm, such as, invariance/co-variance under 3-D rigid motions, a multi-scale structure, robustness to local variations in orientation, noise, amongst others. Data representations that address these issues are introduced with particular attention to the concept of co-variance under 3-D rigid motions or steerability. We discuss examples of representations, arising from isotropic wavelet frames and other multi-scale families. (Received February 01, 2008)