

1062-42-213

Robert Azencott (razencot@math.uh.edu), Department of Mathematics, University of Houston, Houston, TX 77204-3008, **Saurabh Jain** (sjain@math.uh.edu), Department of Mathematics, University of Houston, Houston, TX 77204-3008, and **Manos Papadakis*** (mpapadak@math.uh.edu), Department of Mathematics, University of Houston, Houston, TX 77204-3008. *3D-rigid motion invariant texture discrimination.*

We introduce the concept of 3D-texture rotation. We provide the mathematical concepts for a novel algorithm to define and implement rotationally invariant multiscale discrimination of 3D-textures. We develop a concept of texture divergence that allows to classify two 3D-textures as the same or as different. We show how to numerically implement our method. We have numerically tested our rotationally invariant multiscale classification scheme on a set of 100 synthetic 3D-textures, which were generated by 100 arbitrarily selected, 3D co-occurrence matrices. Our numerical results show that the rotational invariance of the proposed 3D-texture classification scheme is achieved with very high accuracy. (Received August 09, 2010)