Classification of Realisations of Random Sets

Bogdan Radović[1], Kateřina Helisová[1], Vesna Gotovac Đogaš[2]

[1]Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Technická 2, 166 27 Prague 6, Czech Republic

[2]University of Split, Faculty of Science, Department of Mathematics, Ruđera Boškovića 33, 21000 Split, Croatia

Abstract

This contribution concerns methods for classification of realisations of random sets. The methods combine functional data analysis and spatial statistics procedures derived for random sets. We focus on functional characteristics evaluated from individual components in the realisations based on their shapes. The functional data obtained in such a way is then used for nonparametric classification using both supervised and unsupervised approach. The proposed methods have been justified through a simulation study and applied to real medical data.