

Fuzzy-Possibilistic Product Partition: the First Twelve Years

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The fuzzy-possibilistic product partition (FPPP) was introduced twelve years ago, as an alternative way of combining the probabilistic and possibilistic partitions in fuzzy clustering. Mixed c-means clustering models previously combined the two components as a linear combination and achieved a clustering model with improved properties. However, they were unable to totally reject the adverse effect of outliers. The mixed c-means clustering algorithm based on FPPP initially proved to be effective in the rejection of outlier data and to produce fine partitions. Further versions of the FPPPCM algorithm were elaborated for the detection of clusters of various shapes (e.g. spheroids, ellipsoids). The algorithm was successfully employed in applications, for example in blind speaker recognition. Several years after its introduction, the research community discovered the existence of the FPPP partition in the literature, and currently we may observe a sudden rise in its popularity, being cited more and more in highly ranked journal articles. This lecture focuses on the achievements of the FPPP partition, highlighting its advantages, but also revealing the difficulties of its use.



László Szilágyi received the M.Sc. degree in electrical engineering from Petru Maior University, Tirgu Mures, Romania, in 1998, and the Ph.D. degree in electrical engineering from Budapest University of Technology and Economics, Budapest, Hungary, in 2009. Currently he is full professor at Óbuda University, Budapest, Hungary and Sapiientia Hungarian University of Transylvania, Tirgu Mures, Romania. He is the founder of the Computational Intelligence Research Group (CIRG) at Sapiientia University, and consolidator researcher of Óbuda University. His research interests include artificial intelligence, pattern recognition, fuzzy systems, fuzzy clustering, bioinformatics, protein sequence and interaction networks, medical

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