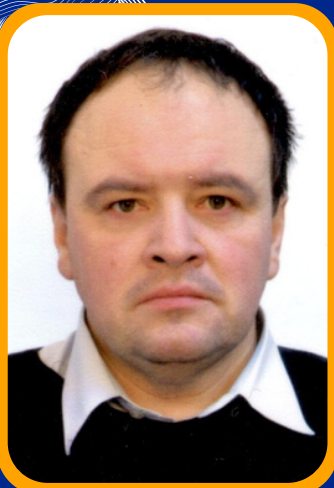


MINI SYMPOSIUM

2026



László Szilágyi received his M.S. degree in electrical engineering from Petru Maior University, Tîrgu Mures, Romania, in 1998; his Ph.D. degree in electrical engineering from Budapest University of Technology and Economics, Budapest, Hungary, in 2009; and his Habilitation degree from Babes-Bolyai University of Cluj-Napoca, Romania. Currently, he is a Full Professor at Sapiientia Hungarian University of Transylvania, Tîrgu Mures, Romania, and at Obuda University, Budapest, Hungary.

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MINI SYMPOSIUM 2026

A family of adaptive fuzzy clustering models

A fundamental challenge in pattern recognition is handling data ambiguity, a problem effectively addressed by fuzzy clustering algorithms. This lecture presents a family of mixed-partition fuzzy c-means clustering algorithms that combine probabilistic and possibilistic fuzzy membership functions. In possibilistic c-means clustering, an important question is how to set the value of the so-called possibilistic penalty terms, which deeply affects the outcome of clusters since they are treated as constants. The family of methods introduced here are able to change their behavior, to self-tune the penalty terms during the alternating optimization of the objective function and thus they achieve better robustness and slightly finer partitions.