

Evolving fuzzy systems

Major assumptions in computational intelligence and machine learning consist of the availability of a historical dataset for model development, and that the resulting model will, to some extent, handle similar instances during its online operation. However, in many real-world applications, these assumptions may not hold as the amount of previously available data may be insufficient to represent the underlying system, and the environment and the system may change over time. As the amount of data increases, it is no longer feasible to process data efficiently using iterative algorithms, which typically require multiple passes over the same portions of data. Evolving modeling from data streams has emerged as a framework to address these issues properly by self-adaptation, single-pass learning steps and evolution as well as contraction of model components on demand and on the fly. This talk focuses on evolving fuzzy systems in online, real-time environments where learning and model development should be performed incrementally.