



## **A METHOD FOR AUTOMATIC FUZZY SET GENERATION USING SENSOR DATA**

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**ABSTRACT**—This paper discusses a new generic method for automatically generating fuzzy sets from acquired sensor data, for monitoring purposes. The novel method, denoted Accumulated Step Deviation (ASD), was devised within the scope of a European Space Agency (ESA) project, which main objective was to develop two monitoring systems: one for monitoring a drill and another for terrain detection. This project included an automatic learning module, where the ASD method was used. The ASD method is based on the traditional data preparation process, which begins with data acquisition from sensors and ends with the automatic generation of fuzzy sets to be used as input variables by the monitoring system. An illustrative example is used to discuss the behaviour of the ASD method and perform a comparative study between the ASD method and a traditional Trapezoidal method.

**Key Words:** Fuzzy Logic, Automatic Generation of Fuzzy Sets, Data Acquisition, Monitoring