Adaptive Modeling of Digital Straightness Applied to Geometric Representation Enhancement

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Abstract

For representing of digitized straight line segments (DSLS), each of the available research techniques has its advantages and appropriate applications considering the complexities of real world scenarios. Based on adaptive finite automaton (AFA), we propose an alternative paradigm that is convenient for problems modeled by a set of rules. The main objective is to investigate the representation of DSLS through adaptivity, aiming to exploit the ability to represent tolerances, scalability, errors and deviations in angle or in length of the mentioned segments through a device called adaptive DSLS, for short ADSLS. Consequently, ADSLS is shown to be effective to represent segments; furthermore, it is able to adapt, reacting to circumstance stimuli in a single pass.

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