# Edge Detection using Open and Asynchronous Cellular Learning Automata

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***Abstract:*** *Cellular Learning Automata is a model for systems that consist of simple elements. These simple elements improve their actions based on theirs neighbors behavior and last experiences. Nevertheless, they can expose complex behavior based on their interactions. Open and asynchronous Cellular Learning Automata are like CLA except the process of cell updating executes asynchronously and each cell behavior, besides its neighbor's actions, depends on extra global factors. In this paper, a new method for edge detection based on Open and asynchronous CLA is proposed and compared with one of the classic Edge Detection methods called Canny Operator. The proposed method is less sensitive to noise and find more continuous edges than Canny method does. Experiments show that proposed method has good performance and is less sensitive to noises and textures.*

***Keywords:*** *Learning Automata, Cellular Learning Automata, Open and asynchronous Cellular Learning Automata, Image Processing, Edge Detection.*