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ELECTRONIC MODELLING OF NEUROMORPHIC RETINA

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Abstract

This paper describes a circuit level model of Neuromorphic Retina, which is a crude electronic model of biologically inspired smart visual sensors. These visual sensors have integrated image acquisition and parallel processing. Having these features neuromorphic retina mimics the neural circuitry of bionic eye. The proposed electronic model contains adaptive photoreceptors as light sensors and other neural firing circuits etc at junction to sense brightness, size, orientation and shape to distinguish objects in closer proximity. Although, image processing features are available with modern robots but most of the issues related to image processing are taken care by software resources. Whereas, machine vision with the help of neuromorphic retina is empowered with image processing at the front end. In this paper it has been shown that with added hardware resources, processing at the front end it can reduce a lot of engineering resources as well as time for making electronic devices with sense of vision**.**

Keywords : Visual Sensors, Parallel Processing, Machine Vision, Neuro-Morphology, Silicon Retina, Multisim 8.0, Visual Sensors, Image Acquisition, Adaptive Photoreceptors.