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HVS MODEL BASED 3-D OBJECTS RECOGNITION

CHETAN P. BARHATE AND KANAK SAXENA

Abstract

This paper presents a novel computational model of 3D object recognition based on human visual system. Conventional schemes have feed forward structure based on the bottom-up process of human vision. However, psychological and physiological evidence suggests that top-down process and feature binding by visual attention are also important. So, we propose a method to integrate these facts under statistical framework, Markov Chain Monte Carlo. In this scheme, 3-D object recognition is regarded as parameter optimization problem. The bottom-up process is used to initialize parameters and top-down process is used to optimize them. On both processes, feature map binding is performed by spatial attention mechanism. Experimental results show that the proposed computational model is feasible for 3D object recognition.