



SELF-MOTIVATED AUTONOMOUS ROBOT WITH A TRAINABLE SELECTIVE ATTENTION MODEL

WOONG JAE WON¹, SANG-WOO BAN² AND MINHO LEE³

*¹Division of Advanced Industrial Sci. & Tech.
Daegu Gyeongbuk Institute of Sci. & Tech.
Korea*

*²Dept. of Information & Communication Eng.
Dongguk University
Korea*

*³School of Electrical Eng. and Computer Sci.
Kyungpook National University
Korea*

ABSTRACT—In this paper, we propose a novel autonomous robot vision system that is applied to develop an intelligent artificial officemate. In order to operate as an officemate, it is very important for the officemate to be able to adapt to an environmental changes that can occur in an office. Novelty detection is one of essential functions for the officemate which adapts to changing environments. The proposed system can indicate a novel scene and a scene change based on a visual selective attention module. Moreover, it can acquire new information based on object perception at interesting region in a novel scene. In order to implement an on-line officemate system, we suggest an efficient model simplification and optimization methods which can reduce the computation time dramatically. Experimental results show that the developed system successfully identifies a change of natural scenes in an office environment, and it can also extend its knowledge through interaction with human supervisor

Key Words: Autonomous robot, selective attention, novelty detection, object perception, officemate.