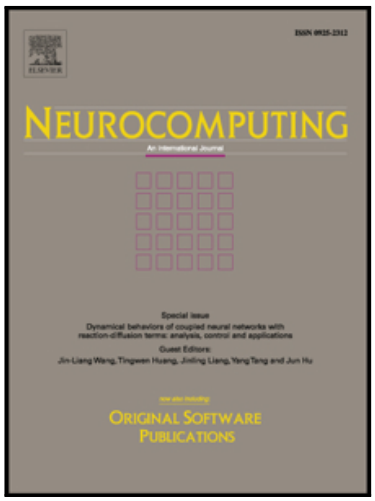

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Characterizing Attentive Behavior in Intelligent Environments

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Abstract. Learning styles are strongly connected with learning and when it comes to acquiring new knowledge, attention is one the most important mechanisms. The learner's attention affects learning results and can define the success or failure of a student. When students are carrying out learning activities using new technologies, it is extremely important that the teacher has some feedback from the students' work in order to detect potential learning problems at an early stage and then to choose the appropriate teaching methods. In this paper we present a nonintrusive distributed system for monitoring the attention level in students. It is especially suited for classes working at the computer. The presented system is able to provide real-time information about each student as well as information about the class, and make predictions about the best learning style for a student using an ensemble of neural networks. It can be very useful for teachers to identify potentially distracting events and this system might be very useful to the teacher to implement more suited teaching strategies.

Keywords: Ambient Intelligent, Machine Learning, Learning Activities, Attentiveness, Learning Styles.

1 Introduction

Education, training, skills development, and learning are processes that are continuously performed since we are born. These characteristics and the ability to learn and teach, allow us to grow up as a person. Besides, learning is inevitably linked to the History of Humanity, to its construction as a social being capable of adapting to new situations. Learning can be defined as the act of acquiring knowledge, behaviors, abilities, standards or preferences and the study of learning has been closely linked to the development of psychology as a science [1].

In a traditional learning environment the student and the teacher are the key elements in the classroom. In environments in which technologies exist, the teacher plays an essential role in providing an engaging learning and teaching environment.