GUEST EDITORIAL PREFACE

Special Issue on Emotional Intelligence for Online Learning

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The detection of affect from multimodal channels and emotion generation bring research from different disciplines (such as cognitive, social, computer, mathematical and biological science) together. Various artificial intelligence techniques and bio-inspired approaches are used to interpret affect from verbal and non-verbal communications.

Emotions play an important role when users engage in career training, or learning situations. Such research is significantly beneficial to the development of intelligent tutoring systems which are capable of interpreting social relationships, contexts, general mood and emotion, sensing or reasonably predicating others' interconversion, identifying its role and participating intelligently in open-ended interactions.

Many intelligent tutoring systems have been developed and used to support students' learning. Good online learning systems require emotional communications happened in-between the tutors and the learners. Emotion is one of the most important factors that influence how people making decision. How to develop a system which can identify user's emotion and/or present its feelings to the user according to user's words, behaviors, and performance in online learning is definitely an important, a very helpful as well an interesting research topic.

The purpose of this special issue is to explore how models, theories, and solutions of emotion intelligence can be used in online learning and what benefits users can receive from such emotion intelligence-embedded systems and agents. This issue covers two aspects of emotion intelligence for learning: emotion recognition methods and applications.

For emotion recognition methods, first of all, Ms. Azcarraga and Dr. Suarez propose the use of Brainwaves (EEG signals) and mouse behavior together while doing emotion recognition. They find combining the accuracy in predicting academic emotions substantially increases if the extracted features from EEG

signals and mouse click behaviors are taken into consideration at the same time. Dr. Ptaszynski and colleagues at the second article propose a new method for doing contextual affect analysis. They develop two systems, ML-Ask and CAO, for enhancing human-computer interactions with human-agent based dialogs. Dr. Zhang and Prof. Barnden at the third article propose a method to detect emotions from open-ended virtual improvisational contexts. They employ latent semantic analysis to find the hidden semantics from emotional expressions to improve the performance of emotion recognition results. The results show that the proposed method performs fair when compared with the results annotated by human grader.

For emotion recognition applications, Dr. Mackinnon and colleagues at the fourth article use a behavioral modeling component to detect the stress levels of the trainees as well as to impose variable stress on trainees, so their decision-making, behavior and performance can be done and assessed under stress. Dr. Ekanayake and colleagues compare users' reacting emotions measured from galvanic skin responses when they are watching films with real actors based scenarios and animated characters based scenarios. They find that no significant difference between the mean skin conductance responses (SCR) scores of the two groups, which means both types of scenarios are equally capable of triggering psychophysiological activity of subjects. This finding is important for us to consider the use of animated characters in simulation-based tutoring systems. The last article, Mr. Weninger and colleagues use 843 transcripts of TED talks and ask participants to rate the lectures by with predefined emotion tags. They identify ten most discriminative words for each predefined emotion tags at the end. These words may be very useful for learning systems to recognize the posts of student discussions.

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