Abstract

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Using Fuzzy Techniques to Model Students in Web-Based Learning Environments

The paper illustrates how fuzzy techniques can be applied to address problems experienced in widespread computing systems for distance learning. Many educational organizations use Web Course Management Systems (WCMS) to run distance courses. In such environments, facilitators often face difficulties in monitoring and understanding problems experienced by distance learners. An approach is proposed here where artificial advisors are built to offer distance-learning facilitators informed advice of what the problems/needs of individuals and groups may be, as well as to suggest appropriate actions when possible. We have developed the TADV (Teacher ADVisor) framework, which builds student, group, and class models based on the tracking information generated by WCMS, and uses these models to generate advice to the course instructors. This paper introduces TADV and describes the fuzzy approach used for extracting individual, group and class models. TADV is currently exemplified in a Discrete Mathematics course run at the Arab Academy for Science and Technology and Maritime Transport, Alexandria, Egypt.