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## Intelligent automation and soft computing

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Since Prof. Lotfi Zadeh initiated, Soft Computing (SC) techniques have been used as a suitable approach for developing intelligent systems. SC is a collection of methodologies that are trying to cope with the main disadvantage of the conventional (hard) computing: The poor performances when working in uncertain conditions. The fundamental idea of soft computing is to emulate the human like reasoning. The SC systems are tolerant to imprecision, uncertainty, and partial truth. Due to this nature SC is exploited as a good approach to achieve the goal of developing intelligent systems. At the same time SC is a major developing vector of the Artificial Intelligence. Control systems are at the core of industrial applications. These include manufacturing systems, transportation applications, instrumentation, renewable energy and many other applications. In the last decade, our team proposed some research projects using soft computing methods for highly nonlinear processes. We developed many reasoning-based designs of intelligent systems and practical applications. This talk is focused on the conception, development and implementation of SC methodologies and presents a wide domain of applications.

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## Multimedia applications have enriched teaching and learning

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Due to technological advancements learning activities have changed radically. Multimedia applications have enriched teaching and learning stimulating a variety of human senses for immersive learning. This paper introduces to an action - based and long - term research project, which is based on the BobbeKins story. The BobbeKins project extends learning opportunities for young children, which were born as Digital Natives. The behavior and expectations of Digital Natives are different than those of Digital Immigrants, which is expected to have implications with reference to how learning content is presented and consumed. In this paper we discuss theoretical backgrounds and also ambiguous definitions of multimedia and e-books. We conclude that multimedia may be better defined by rich media and those borderlines between, e.g., books and movies are blurring. In the BobbeKins research project technological advancements like 3-D and other rich media applications are embedded for testing children's reactions, interactions and acceptance of contemporarily presented content. A further expected result is that rich media application may intensify the stimuli for improved learning outcomes. This may not only be helpful by combining different learning styles in one media concept, but also support children with learning difficulties.

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