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Experience Representation of Artificial Cognitive System in Interaction with Real World

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Abstract: In this paper, we propose a novel experience representation approach for artificial cognitive system (such as a robot). The artificial cognitive system with the ability to store experiences and to adapt plans and behavior according to experiences will be beneficial for understanding the human representation of experience and be useful for developing practical service robot. Here an artificial cognitive system experience is defined as a record about the events occurred in the past. Three kinds of experiences (ontology, robot activities and environment activities) are introduced. In this work, we demonstrate the mobile cognitive system with a PR2 platform in a restaurant environment and a corresponding simulation environment. Four different scenarios (Serve-A-Coffee, Deal-with-Obstacles, Clear-Table and Well-set-Table) have been set to demonstrate the performance and collect the corresponding experiences.