

A COOPERATIVE OBJECT TRACKING SYSTEM WITH FUZZY-BASED ADAPTIVE CAMERA SELECTION

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Abstract- The intelligent environments, built upon many distributed sensors, are promising technology for ubiquitous interaction between robots and human beings. Especially, it is important to track target objects and get the positional information of them in such environments. This paper focuses on adapting camera selection for target tracking in multi-camera system. In this paper, a fuzzy automaton based camera selection method is introduced. In the proposed method, the camera selection decision is driven by fuzzy automaton based on the previously selected camera (previous camera state) and the tracking level of the object in each available camera. Simulations for evaluation of the proposed method and comparison with the previous method are presented. The results show that the proposed method is efficient for adaptive camera selection in multi-camera environment and helps easy construction of multi-camera placement. An actual multi-camera system with the proposed camera selection method was developed for checking tracking performance in the real environment. Experiments in the constructed system show that the proposed method suits well the camera selection task for tracking a moving object in the real intelligent environment.

Index terms: intelligent environment, object tracking, camera selection, fuzzy automaton