

A Companion Robot with Facial Expressions and Face Recognition

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Abstract

The purpose of this paper is to develop a companion robot, which can display facial expressions and recognize human faces. With the 12 degrees of freedom, the robot can generate various facial expressions. In addition, a face-recognition method is proposed based on combining two complementary matching algorithms (a single-image matching algorithm and a sequential-image matching algorithm). We have conducted several experiments to test the developed robot. Experiments showed that facial expressions generated by the robot can be identified well. In addition, the accuracy of the face-recognition is higher than 90%. The developed robot shows great potential to be applied for social interaction with the humans.

Keyword : companion robot; facial expression; face recognition