

Real-Time Face Tracking Under Illumination Variation

Student: Chung-Min Chou

Advisor: Dr. Kai-Tai Song

Department of Electrical and Control Engineering
National Chiao Tung University

ABSTRACT

Human-robot interaction is a key technology for a home service robot. In order to interact with family members, a home service robot should track faces under illumination variation and have fast response to face motion. Color is an efficient cue for face tracking, but skin color is easily suffered by illumination and can make face tracking out of work. In this thesis, we propose an adaptive skin searching for tracking faces under illumination variation stably and rapidly. We use skin color detection and attentional cascade to detect frontal faces in real time. The face tracking and detection procedures have been implemented on an embedded image system developed by our lab. This real-time image system had integrated with a industrial PC and head motion control card to track faces. The experimental results show that the proposed methods have real-time face tracking under illumination variation.