

Most Influential Paper over the Decade Award

This award is given to the authors of papers appearing in IAPR MVA'96 which have been recognized as having had the most significant influence on machine vision technology over the subsequent decade.

Visual Tracking Using Active Search for Color

Vinod Vasudevan and Hiroshi Murase

Abstract: A novel technique for tracking arbitrary colored objects in complex environments is proposed in this paper. Active search and prediction of search area is used for improving speed. The system is capable of accurately tracking at the rate of around 10 frames per second without any special hardware.

A System for Non-Intrusive Human Iris Acquisition and Identification

Keith J. Hanna, Robert Mandelbaum, Deepam Mishra, Vince Paragano, and Lambert E. Wixson

Abstract: An automated system for the non-intrusive acquisition of images of human irises for the purpose of identity verification is described. This system uses active machine vision techniques, and does not require the user to make any physical contact with the system, or to assume any particular pose except that he stand with his head within a designated calibrated volume.

The system integrates a broad range of vision and control algorithms, and hence represents a major achievement in system integration. Currently, the system has been developed to the level of a robust prototype. It has been tested on over 600 people, and the results are impressive. A proposed use of the system is for identity verification at automatic teller machines to reduce the frequency of fraud.

In this paper, the overall control structure of the system is delineated, and each of the algorithmic modules is described. Preliminary test results are reported and discussed.

Using Computer Vision in Real Applications: Two Success Stories

Gérard Medioni

Abstract: We present two systems which are used today in industrial applications. While they are very different, and the two domains have no overlap, they share the properties that the problems they address were considered very hard to solve, and the requirements were very constraining, especially complete automation. We first present a system which automatically registers two sets of halftone color separations used to produce color pictures. The challenges involve accuracy, speed of processing, and consistency with human operators. The second system substitutes, in real-time, a given billboard in a video stream, with another, synthetically generated billboard. The challenges involve real-time performance and photo-realism. For each of the two systems, we provide some background, describe the requirements and the issues, then the implemented solution.