A Fuzzy Logic Approach for Stereo Matching Suited for Real-Time Processing

Abstract

In this paper, a novel method that uses both area and feature based information as similarity measures for stereo matching is proposed. Area-based information is suited for non-homogeneous regions while feature information helps in homogeneous areas. In order to define a conjugate pair, a fuzzy logic approach that combines the similarity information is used. The proposed method preserves discontinuities while reducing matching errors in homogeneous regions. This proposal is suited for real-time processing using dedicated hardware. We demonstrate and discuss performance using synthetic stereo pairs.

References


**Index Terms**

Computer Science

Fuzzy System

**Keywords**

fuzzy logic; dense stereo vision; real-time processing; dedicated hardware; feature-based