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.

Index Terms

Computer Science  Fuzzy System

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