Star matching Algorithms for High precision attitude determination

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Abstract

Star field recognition involves taking a image of stars and matching the stars in the image to a database of known stars. In order to do this one must first locate the stars in the image and then set up a correspondence between them and stars in the database . The aim of this paper is to introduce the new method for star matching based on correlation technique. We define the Satr matching problem as finding the maximum kernel correlation configuration of the two point sets to be matched. The techniques used in star field recognition may have applications in machine vision as well. Several tests are performed to validate the absolute and relative efficiency of the proposed methods.

Keyword: star tracker, attitude, correlation, matching