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Comparing fiducial marker systems in the presence of occlusion

Sagitov A., Shabalina K., Lavrenov R., Magid E.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2017 IEEE. A fiducial marker system is a system of unique 2D (planar) marker, which is placed in an environment and automatically will be detected with a camera with a help of a corresponding detection algorithm. Application areas of these markers include industrial systems, augmented reality, robots navigation, human-robot interaction and others. Marker system designed for such different applications must be robust to such factors as view angles, occlusions, changing distances, etc. This paper compares three existing systems of markers: ARTag, AprilTag, and CALTag. As a benchmark, we use their reliability and detection rate in presence of occlusions of various types and intensity. The paper presents experimental comparison of these markers. The marker detection was performed with a simple inexpensive Web camera.

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Keywords

AprilTag, ARTag, CALTag, experimental comparison, fiducial marker, occlusion

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