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Titel des Beitrags: Increased Accuracy Orientation Estimation from Omnidirectional Images using the Spherical Fourier Transform

Abstract: Orientation estimation based on image data is a key technique in many applications and robust estimates are possible in case of omnidirectional images. A very efficient technique is to solve the problem in Fourier space. In this paper we present a fast and simple method to overcome one of the main drawbacks of this approach, namely the large quantization steps. Due to high memory demands, the Fourier-based solution can be computed on low-resolution input only and the resulting rotation estimate is given on an equiangular grid. We estimate the mode of the likelihood density based on the grid values in order to obtain a rotation estimate of increased accuracy. We show results on data captured with a spherical video camera and validate the approach comparing the orientation estimates of the real data to the ground-truth values.

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