STATISTICAL UNBIASED BACKGROUND MODELING FOR MOVING PLATFORMS

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ABSTRACT:

Statistical background modeling is a standard technique for the detection of moving objects in a static scene. Nevertheless, the state-of-the-art approaches have several lacks for short sequences or quasi-stationary scenes. Quasi-static means that the ego-motion of the sensor is compensated by image processing. Our focus of attention goes back to the modeling of the pixel process, as it was introduced by Stauffer and Grimson. For quasi-stationary scenes the assignment of a pixel to an origin is uncertain. This assignment is an independent random process that contributes to the gray value. Since the typical update schemes are biased we introduce a novel update scheme based on the join mean and join variance of two independent distributions. The presented method can be seen as an update for the initial guess for more sophisticated algorithms that optimize the spatial distribution.

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