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Motion detection and estimation of multiple moving objects in an image sequence using the cosine area transform (CAT)

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Abstract: A new technique for estimating the velocities of moving objects is presented. This technique is based on applying the cosine area transform (CAT) to the image sequence. The analysis of the CAT domain indicates that the velocities of the moving objects are related to the locations of the peaks in the CAT spectrum. The method of applying the CAT to an image sequence of multiple moving objects is presented. Experimental results are included to demonstrate the applicability of this technique. The technique is simple and gives accurate estimation of the velocities of moving objects. There are no limitations regarding size or velocity of the moving objects.