A
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On

ROBUST TRACKING USING MULTIPLE FEATURES

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DECLARATION BY THE CANDIDATE

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I hereby declare that the work presented in this dissertation entitled **"Robust tracking using multiple features"** has been carried out by me under the guidance of **Mr. Rajesh Rohilla**,Associate Professor, Department of Electronics & Communication Engineering, DelhiTechnological University, Delhi.

I further undertake that the work embodied in this major project has not been submitted for theaward of any other degree to the best of my knowledge.

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CERTIFICATE

It is to certify that the above statement made by the candidate is true to the best of my knowledge and belief.

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Abstract

Mean shift is a kernel based widely used algorithm for tracking the location of object robustly. Classical mean shift uses color histogram to represent the object. However, the use of only color restricts the algorithm to track the object only in simple cases and it fails in complex situations like illumination changes, occlusion, and abrupt changes in the location of object. To improve the performance of mean shift, some authors have added some features to basic mean shift. As color based target representation is combined with texture-based target representation, based on spatial dependencies and co-occurrence distribution within interesttarget region for invariant target description, which is computed through so-scaled Haralick texture features, is an efficient mean shift for target tracking in some real world complex conditions. But it still fails, if there are some abrupt changes in the location of object. So a novel algorithm is presented in this thesis work, which is robust to track the object in above mentioned complex situations. It is the combination of color and gray level co-occurrence matrix based texture features along with the use of frame differencing for abrupt motion changing target detection.

Many experimental results demonstrate the successful of target tracking using the proposed algorithm in many complex situations, where the basic mean shift tracker obviously fails. The performance of the proposed adaptive mean shift tracker is evaluated using the VISOR video Dataset, creative common dataset and also some proprietary videos.

Keywords Visual tracking, Mean shift tracker, Color histogram,Haralick texture features, Co-occurrence matrix, Frame differencing, Abrupt motion changingobject extraction.

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