סמינר מחלקתי

Evaluating moving objects detection in a long distance imaging through turbulent medium

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Atmospheric turbulence, caused by temperature gradients along the imaging path, causes blur and false movements in video signals recorded through long distances.

Detecting and tracking moving objects in such video signals is a very challenging task, mainly due to the turbulence-induced movements. There are various ways to detect and track moving objects such as walking persons and moving cars. All of these methods are required to overcome the turbulence movements while detecting the real moving objects. In order to evaluate the different methods and specifically to evaluate a method that was developed by our group [E. Chen, O. Haik and Y. Yitzhaky (2014) "Detecting and tracking moving objects in long-distance imaging through turbulent medium", Appl. Opt. 53(6)], an evaluation tool was found to examine the algorithm, and can be applied to any algorithm using a ground truth.

In this work I review main methods for detecting moving objects, developed in recent years. Challenging turbulence-affected video signals were created and were the input for the algorithm that was examined by the evaluation tool. I will describe the challenges and will show some comparison results between the various methods. Upon detection a new challenge arrives: action feature classification like crawling, climbing etc. Once implemented can create an automatic alarm for certain suspicious behavior.

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