

Improved Detection and Tracking of Difficult Targets in a Cluttered Environment

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ABSTRACT

This paper describes a self organising spatio-temporal CFAR system that uses a self organising system of multiple intelligent software agents to detect and adapt the processing to features in the environment. The agent system detects features in the environment and modifies the areas over which the statistics gathering processes are performed accordingly such that the spatio-temporal data gathering is more effective.

By combining both temporal and spatial data gathering sufficient samples can be collected to allow both the first and second order moments of the clutter distribution to be approximated for each cell. By gathering higher order statistics to a useful accuracy, more stable thresholds may be produced.

The system has been further coupled to an agent-based pre-tracker which allows a depressed threshold to be used and therefore low-observable targets to be detected and tracked in a complex clutter environment, whilst also extracting information on the location of fixed targets etc.



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