Uncertainty Measures for Sensor Management in a Survivability Application

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Abstract: When flying a mission, a fighter pilot is exposed to the risk of being hit by enemy fire. A tactical support system can aid the pilot by calculating the survivability of a given route, which is the probability that the fighter pilot can fly the route without being hit. The survivability estimate will be uncertain due to uncertainty in the information about threats in the area. In this paper, we investigate the uncertainty in the estimate of the survivability and compare two different measures of uncertainty; standard deviation and entropy. Furthermore, we discuss how these measures can be used for sensor management and discuss a few issues that need to be addressed in the design of a sensor management system in a fighter aircraft.

Keywords: Survivability, uncertainty, sensor management, fighter aircraft