

Multi-Agent Cooperative Inspection in Unknown Aera With Temporal Logic Specifications

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In this benchmark challenge, we focus on the problem of multi-agent cooperative inspection problem in an unknown environment. A multi-agent system with 5 unmanned aerial vehicles is deployed in the environments without priori information. The primary goal for these agents is to capture images and point cloud data of the surface of the structures within the environments at the best possible quality. We first abstract the specifications for the inspection to a signal temporal logic formula. Then, the performance index and safety constraints are given in a cost function. With our designed algorithm, the optimal trajectories will be synthesized

correct-by-construction based on the different system models of each agent. Finally, our algorithm has been tested with the provided simulation environment, and the result is of satisfactory.

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