



Robust scheduling of wireless sensor networks for target tracking under uncertainty

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Mots-clés	Robustness [4], stability radius [5], target tracking [6], Uncertainty [7], wireless sensor networks [8]
Résumé en anglais	<p>An object tracking sensor network (OTSN) is a wireless sensor network designed to track moving objects in its sensing area. It is made of static sensors deployed in a region for tracking moving targets. Usually, these sensors are equipped of a sensing unit and a non-rechargeable battery. The investigated mission involves a moving target with a known trajectory, such as a train on a railway or a plane in an airline route. In order to save energy, the target must be monitored by exactly one sensor at any time. In our context, the sensors may be not accessible during the mission and the target can be subject to earliness or tardiness. Therefore, our aim is to build a static schedule of sensing activities that resists to these perturbations. A pseudo-polynomial two-step algorithm is proposed. First, a discretization step processes the input data, and a mathematical formulation of the scheduling problem is proposed. Then, a dichotomy approach that solves a transportation problem at every iteration is introduced; the very last step is addressed by solving a linear program.</p>
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