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MIOM: A Mixed-Initiative Operational Model for Robots in Urban Search and Rescue

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Abstract : In this paper, we describe a Mixed-Initiative Operational Model (MIOM) which directly intervenes on the state of the functionalities embedded into a robot for Urban Search&Rescue (USAR) domain applications. MIOM extends the reasoning capabilities of the vehicle, i.e. mapping, path planning, visual perception and trajectory tracking, with operator knowledge. Especially in USAR scenarios, this coupled initiative has the main advantage of enhancing the overall performance of a rescue mission. In-field experiments with rescue responders have been carried out to evaluate the effectiveness of this operational model.

Keywords : mixed-initiative planning and control, operator control interfaces for rescue robotics, situation awareness, urban search, rescue robotics
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