Guaranteed SLAM—An interval approach

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Auteur	Mustafa, Mohamed [1], Stancu, Alexandru [2], Delanoue, Nicolas [3], Codres, Eduard [4]
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Résumé en anglais	This paper proposes a new approach, interval Simultaneous Localization and Mapping (i-SLAM), which addresses the robotic mapping problem in the context of interval methods, where the robot sensor noise is assumed bounded. With no prior knowledge about the noise distribution or its probability density function, we derive and present necessary conditions to guarantee the map convergence even in the presence of nonlinear observation and motion models. These conditions may require the presence of some anchoring landmarks with known locations. The performance of i-SLAM is compared with the probabilistic counterparts in terms of accuracy and efficiency.
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Liens

[1] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=27685
[2] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=27686
[3] http://okina.univ-angers.fr/nicolas.delanoue/publications
[4] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=27687
[5] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24043
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[7] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24041
[8] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24042

[9] http://okina.univ-angers.fr/publications/ua16584
[10] http://dx.doi.org/10.1016/j.robot.2017.11.009
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