Interval based cooperative pose domain characterization from images and ranges

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Résumé

An interval-based approach to cooperative localization for a group of unmanned aerial vehicles (UAVs) is proposed. It computes a pose uncertainty domain for each robot, i.e a set that contains the true robot pose, assuming bounded error measurements. It combines distances measurements to the ground station and between UAVs, with the tracking of known landmarks in camera images. Pose uncertainty domains are computed using interval constraint propagation techniques, in a branch and bound algorithm. Results are presented for simulated two-robots configurations and with experimental data.

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