Robust Multi-loop Airborne SLAM in Unknown Wind Environments

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- Fusing air data information (speed and direction) into 6DoF airborne SLAM.

- Wind speed and direction is unknown a-priori and so is estimated within the SLAM filter.

- A multi-loop filter is formulated and derived from Bayes.

- Simulation results with a constant wind model showed improved robustness & performance with a low density of features.

- Real flight data suggests a geographical wind mapping to cope with the correlation between the wind and underlying terrain.

Estimated Vehicle and Landmark Position

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