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Short Paper

# Improving accuracy of VI-SLAM with fish-eye camera based on biases of map points

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## ABSTRACT

This paper aims to correct camera pose estimation results acquired by bundle adjustment (BA) optimization in visual-inertial SLAM (VI-SLAM) approaches. By deriving the relationship between the pose estimation error and the map point biases, the pose estimation error can be further reduced after BA optimization. We then propose a correction algorithm based on a statistical bias calculation method. The method is integrated into a state-of-the-art VI-SLAM framework, and the performance of the modified system is compared with the original system on public datasets. The comparison results confirm that our approach achieves considerable improvements over the original system for absolute pose estimation.