

Peer Review

Review of: "[Withdrawn] AirIO: Learning Inertial Odometry with Enhanced IMU Feature Observability — air-io.github.io"

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1. Independent researcher

The paper presents a novel learning-based approach to inertial odometry (IO) for UAVs, addressing key limitations of conventional global-frame IMU data representations. The study is well-structured, and the proposed AirIO framework is convincingly validated across multiple datasets. The integration of body-frame representation, explicit attitude encoding, and an uncertainty-aware EKF appears to significantly enhance accuracy and generalizability. The results are substantial, showing a 66.7% improvement in accuracy over existing methods and strong performance on unseen data. I enjoy reading this paper.

While AirIO achieves state-of-the-art accuracy, its computational efficiency is not explicitly discussed. If this method follows an offline training process, I wonder how fast the onboard system could run. It could also be beneficial to mention the onboard hardware as a reference.

The paper presents strong empirical results, a well-motivated methodology, and a meaningful contribution to UAV inertial odometry. I would recommend publication with minor revisions.

Declarations

Potential competing interests: No potential competing interests to declare.