
Evaluation of the videonavigation algorithm accuracy

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The article considers the evaluation of videonavigation algorithm accuracy on close relative distances in space. The algorithm characteristic is the use of intelligent algorithms providing the operation speed and dynamic models, which are the means of algorithm correction. The results of accuracy estimation for the two numerical experiments are presented. According to the results of the first experiment where nano-satellite separation from the orbiter was simulated and the inverse problem was solved using videonavigation algorithm, i.e. determination of the relative angular velocity of the orbiter, angular velocity error distribution diagram was obtained. The results of the second numerical experiment in which the separation of the two nano-satellites was simulated and the camera was installed on one of them fixing reference marks on top of another nano-satellite, show good working efficiency of the algorithm in solving various problems in the field of satellite navigation.

Keywords: nano-satellite, videonavigation, motion model, orientation, accuracy, orbiter.

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