Abstract

Technological development in the fields of electrical and mechanical engineering as well as computer and communication sciences in the last decade, have dramatically increased the popularity and fields of application of Unmanned Aerial Vehicles (UAVs). Despite the technological advancements, there are still very important challenges related to the operation of UAVs. One of the main challenging task for UAVs is to accurately determine their attitude during the flight, using the onboard sensors. This paper presents a framework for attitude determination of an UAV from single camera vector observations in a known environment. The framework has been experimentally evaluated. The results from the conducted evaluation suggest that the proposed method is appropriate and that it can be used in the control process.

References

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Index Terms

Computer Science
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Keywords

Attitude estimation, Unmanned Aerial Vehicle, Camera vector, Gauss-Newton, Levenberg-Markart.