Automatic Landmark Selection Based on Feature Clustering for Visual Autonomous Unmanned Aerial Vehicle Navigation

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Abstract : The selection of specific landmarks for an Unmanned Aerial Vehicles' Visual Navigation systems based on Automatic Landmark Recognition has significant influence on the precision of the system's estimated position. At the same time, manual selection of the landmarks does not guarantee a high recognition rate, which would also result on a poor precision. This work aims to develop an automatic landmark selection that will take the image of the flight area and identify the best landmarks to be recognized by the Visual Navigation Landmark Recognition System. The criterion to select a landmark is based on features detected by ORB or AKAZE and edges information on each possible landmark. Results have shown that disposition of possible landmarks is quite different from the human perception.
Keywords : clustering, edges, feature points, landmark selection, X-means

Conference Title : ICUAS 2018 : International Conference on Unmanned Aircraft Systems
Conference Location : Amsterdam, Netherlands
Conference Dates : May 10-11, 2018