

Landscape Mapping MAV using Single Image Perspective Cues

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Abstract-We consider the problem of mapping with Miniature Aerial Vehicles (MAVs) in outdoor sites with distinguishable landscapes. The primary long range sensor in these MAVs is a miniature camera. While previous approaches first try to build a 3D model in order to do mapping, our method does not require a 3D model. Instead, our method first classifies the type of site the MAV is in, and then uses vision algorithms based on perspective cues to estimate the landscape location and then do mapping. We tested our method on a number of sites with different landscapes. Our experiments show that our vision algorithms are reliable, and they enable the MAV to identify landscapes and map them.