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MONOCULAR DEPTH ESTIMATION USING DEEP LEARNING FOR LUNAR LANDING

Abstract

Relative Space Navigation is a very technical field, where small errors can produce catastrophic results. Reducing those errors can be achieved with techniques which fuse information from multiple sensors, requiring a lot of computational power. However, due to the high price of a launch we try to limit, in number and size, the devices embedded in order to reduce the final weight of the payload. With these constraints, we consider the problem of lunar landing using a single monocular camera. Monocular visual odometry algorithms mainly suffer from the impossibility to estimate the distance between the lens and the obstacle. In this paper we propose a deep neural network architecture to estimate the depth of images obtained from a mounted camera during lunar landing procedure.