

## Crater Detection Using PCA from Captured CMOS Camera Data

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**Abstract :** We propose a method of detecting the craters from the image of the lunar surface. This proposal assumes that it is applied to SLIM (Smart Lander for Investigating Moon) working group aiming at the pinpoint landing on the lunar surface and investigating scientific research. It is difficult to equip and use high-performance computers for the small space probe. So, it is necessary to use a small computer with an exclusive hardware such as FPGA. We have studied the crater detection using principal component analysis (PCA). In this paper, We implement detection algorithm into the FPGA, and the detection is performed on the data that was captured from the CMOS camera.

**Keywords :** crater detection, PCA, FPGA, image processing

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