

Visual Tracking using SIFT to Solve Time-Delay Problem in Remote Operation

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This paper proposes and describes a method to solve a time-delay problem when a direction of a camera in the wide angle fovea vision system (WAFVS) equipped on a lunar exploring rover is controlled remotely from the ground control station on the earth. That is, we need to control the camera view direction accurately in order to obtain visible ray band images of a target in detail using WAFVS, but the time-delay often causes WAFVS to fail to capture the target in the central field of view of the input image when the rover is moving around. The authors achieve correct camera view direction control by applying SIFT operator to track a target candidate from past images to future images stored temporarily in the computer on the rover. Experimental results show this implementation is successfully done and indicate how to apply WAFVS for this task.

Keywords: Exploring Rover, Remote Operation, Visual Tracking, SIFT, Wide Angle Fovea Sensor, Time Delay