

Planar-Target-Based Structured Light Calibration Method for Flexible Large-Scale 3D Vision Measurement

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The calibration of a structured light plane is the key technique in structured light 3D vision measurement. In this paper, a novel method of structured light plane calibration is presented. A simple 2D planar target is used, which can be freely moved to different positions in the visible space of a camera when the target and the structured light plane intersect with each other. The corresponding world coordinate is set for each target in different positions. With data processing, the equations of intersecting lines obtained at different positions are unified at the camera coordinate system automatically. The least squares method is used to fit the equation of the structured light plane. An indoor experiment under a large-scale measurement situation has been performed. The experimental results show that the proposed method is simple, universal, and of high efficiency.

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