Zoom-dependent Image Point Refinement

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ABSTRACT: Non-metric digital cameras have recently gained their increasing popularity in photogrammetric applications. To achieve quality performance, the interior camera parameters, among others, are of great concern. Camera calibration is designed to determine interior orientation parameters for effectively refining the image point so that object-to-image correspondence under collinearity property can be well justified. There are, however, some situations where camera calibration, especially for zoom-dependent cameras, is hard or impossible to operate. Therefore, alternative ways of supplying interior orientation parameters must be considered. This study employed correction models, instead of actual calibration, to determine the general interior orientation parameters. The recorded calibrated data sets of the very same camera on different principal distances would serve as database and the parameters of correction models that fit the camera information of metadata to equivalent or nearly equivalent calibration are to be determined. The alternative way of offering image point refinement developed in this study would actually support more photogrammetric mapping tasks that were once considered troublesome to tackle.

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