Establishing the straightness of a line for radial distortion correction through conic fitting

Abstract

Establishing straight lines in plumb-line based radial distortion correction is very important as the straight-line will determine the success of distortion correction operation. Various researches have been made to describe the line using linear fitting or polynomial fitting assuming that these fittings will augur well for distortion correction operation. However linear or polynomial fitting may not work in certain situation such as in vertical line. This research proposes a conic fitting method for establishing a straight-line. Fitting to a conic is more robust in a sense it can accommodate lines of different orientation.

Keyword: Radial distortion; Conic fitting; Straight line fitting