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**A study on the effect of different image centres on stereo triangulation accuracy**

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**Abstract**

This paper evaluates the effect of mixing the distortion centre, principal point and arithmetic image centre on the distortion correction, focal length determination and resulting real-world stereo vision triangulation. A robotic arm is used to generate a ground truth set of known positions resulting in 2078 measurements per cameras. It is seen that compared to the naive use of the arithmetic image centre improvements of 10% to 27% in triangulation accuracy can be made by determining an optimal principal point. An optimal distortion centre has a smaller but still beneficial effect.