Literature Review

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1 PVNet

- code:
- paper:
- citation:

1.1 Introduction

In this paper, the authors propose a novel two-stage pose estimation framework, Pixel-wise Voting Network or PVNet. First, they estimate 2D keypoints for each object in a RANSAC-like fashion which enables uncertainty measurement in the following stage. In the second stage, they use a modified EPnP algorithm [1] that leverages feature uncertainty [2] to calculate estimated object 6D position.

1.2 Problem Statement

Although 6D pose estimation has been subject of research for many years and great accuracy has been achieved, many state of the art solutions do not take advantage of uncertainty among observed features.

1.3 Related Work

1.3.1 Hollistic Methods

1.3.2 Keypoint-Based Methods

1.3.3 Dense Methods

1.4 Method

This framework proposes a new method, PVNet, for generating keypoints uncertainty data. They

mean and covariance information which they integrated into an the EPnP [2]

References

[1] V. Lepetit, F. Moreno-Noguer, and P. Fua, "Epnp: An accurate o (n) solution to the pnp problem," *International journal of computer vision*, vol. 81, no. 2, p. 155, 2009.

[2] L. Ferraz Colomina, X. Binefa, and F. Moreno-Noguer, "Leveraging feature uncertainty in the pnp problem," in *Proceedings of the BMVC 2014 British Machine Vision Conference*, pp. 1–13, 2014.