

In The Name of God.
The Merciful, The Compassionate.

Extracting 3D Scene-consistent Object Proposals and Depth from Stereo Images

By Michael Bleier, Christoph Rhemann, and Carsten Rother

1 Abstract and Introduction

- The goal is to jointly extract objects and estimate depths from stereo images
- Main contribution is to introduce the concept of 3D scene consistency in stereo matching
- Few works on 3D reasoning with respect to stereo images
- Object stereo: the goal was to improve depth estimation by object extraction.
- This work: main focus is on object extraction.
- Inspired by the work of [12]. Proposed the following 3-step pipeline for object extraction:
 1. generate large pool of object proposals
 2. rank object proposals by learning objectness score
 3. perform object recognition on top ranked proposals
- This work differs in the case that it takes an stereo image as input and generates a pool of scene proposals which consist:
 1. disparity map
 2. object map: each pixel \longrightarrow an object