T-LESS: An RGB-D Dataset for 6D Pose Estimation of Texture-less Objects

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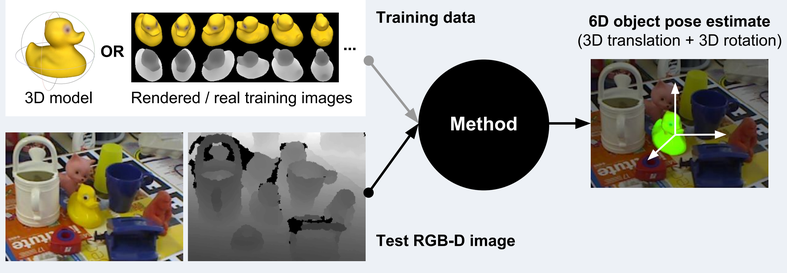
Texture-less Objects Around Us

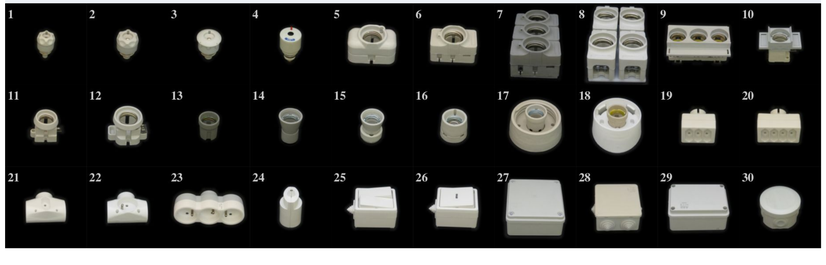
Detection + 6D Object Pose Estimation

Required in **robotics** and **augmented reality**



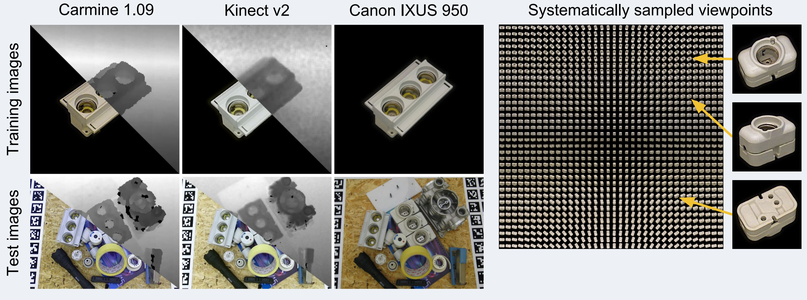
T-LESS Includes 30 Industry-relevant Objects

- No significant texture
- No discriminative color or reflectance properties
- Symmetries and mutual similarities in shape and/or size
- Some objects are parts of others



Training and Test Images

- Captured by **3 synchronized sensors** from a view sphere
- **39K training** and **10K fully annotated test images** from each sensor
- **Training images** depict individual objects against a black background
- **Test images** feature multiple objects, occlusion and clutter

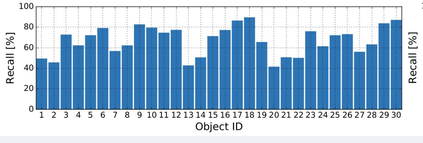


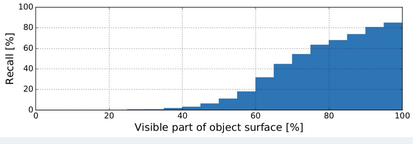
Test Images from 20 Scenes with Varying Complexity

3D Models - CAD & Reconstructed from RGB-D

Evaluation of 6D Localization - Hodaň et al. IROS'15

Input: A test image + IDs of present objects, **Output:** 6D pose estimates
Success rate: **67.2%** → Ample room for improvement!





SIXD Challenge 2017 on 6D Object Pose Estimation

- At the **3rd Workshop on Recovering 6D Object Pose** at ICCV 2017

Download T-LESS: cmp.felk.cvut.cz/t-less