

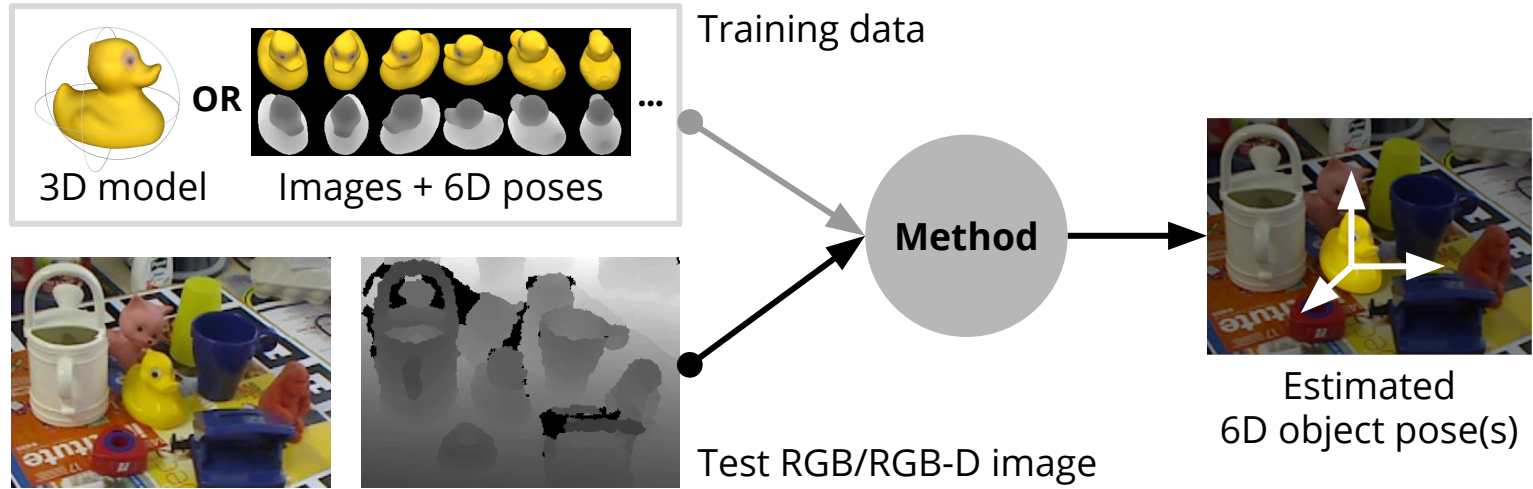
6th International Workshop on Recovering 6D Object Pose (R6D)



ECCV 2020, August 23, online

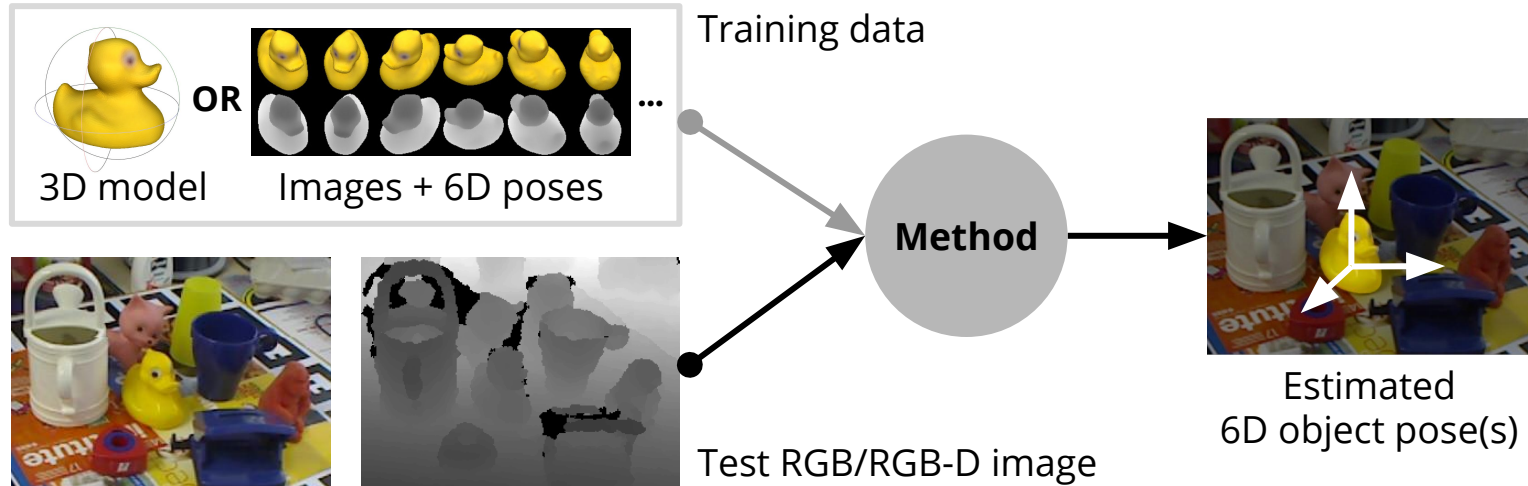
Tomáš Hodaň, Martin Sundermeyer, Rigas Kouskouridas,
Tae-Kyun Kim, Jiří Matas, Carsten Rother, Vincent Lepetit,
Ales Leonardis, Krzysztof Walas, Carsten Steger,
Eric Brachmann, Bertram Drost, Juil Sock

Covered topics



Primary topic: 6D pose estimation of specific rigid objects

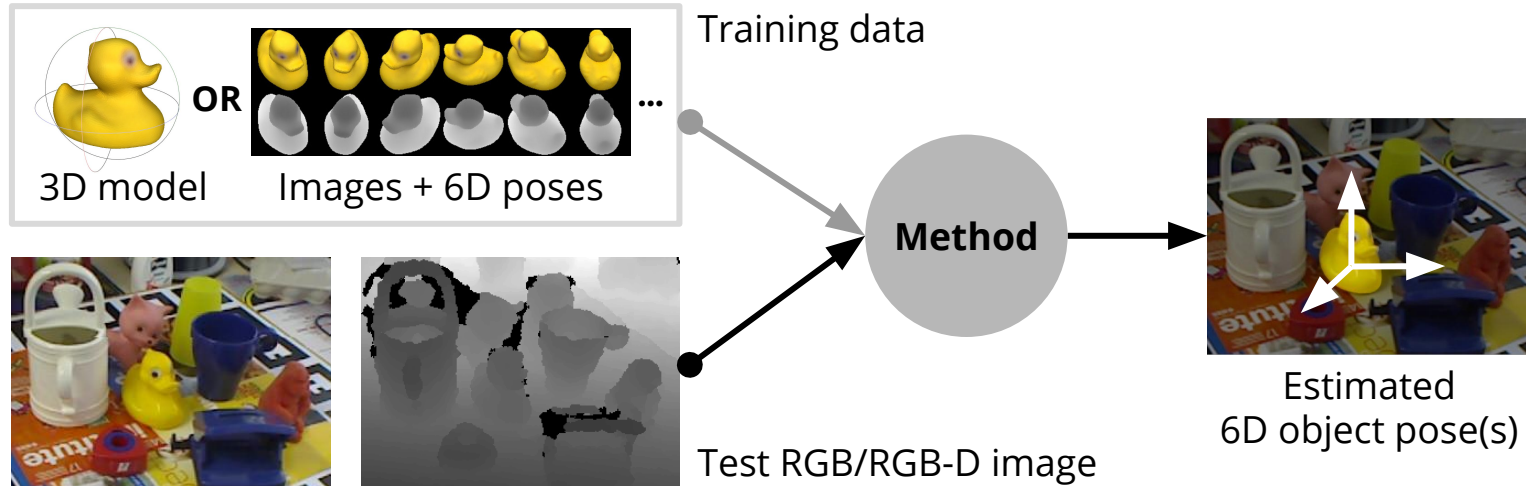
Covered topics



Primary topic: 6D pose estimation of specific rigid objects

- Handling object symmetries, occlusion, clutter, illumination changes, ...
- Reliability and sufficient execution speed in real-world scenarios
- Scalability to multiple objects
- Synthesis of effective training data

Covered topics



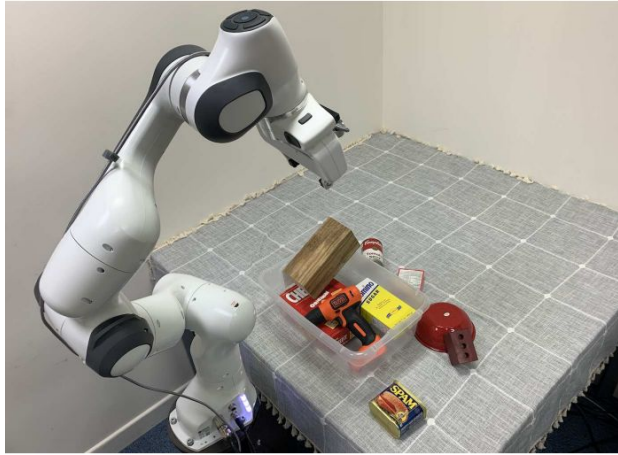
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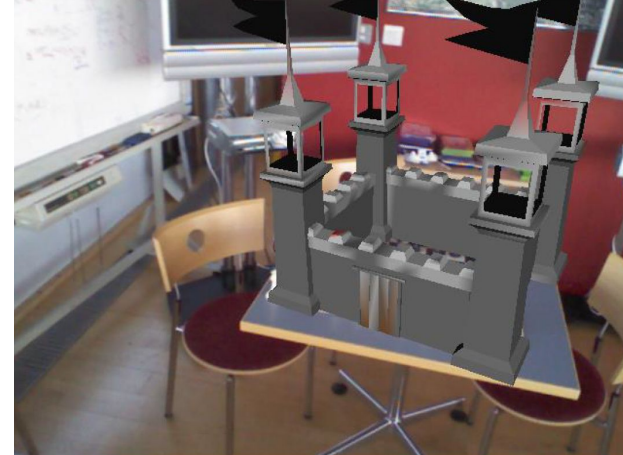
Other covered topics:

- Pose estimation of non-rigid objects (>6DoF pose) and object categories
- Object pose tracking
- 3D object reconstruction, ...

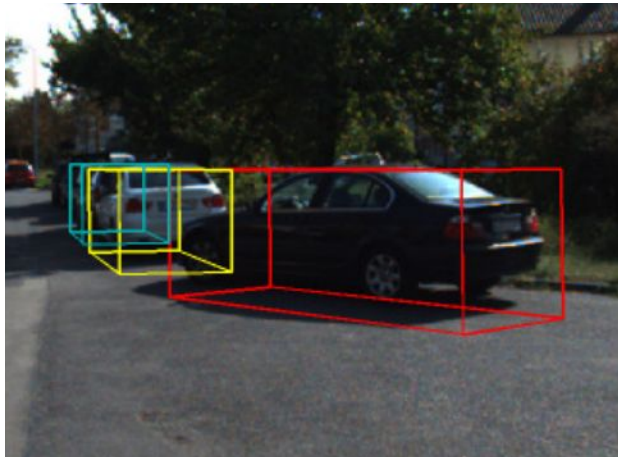
Applications of object pose estimation



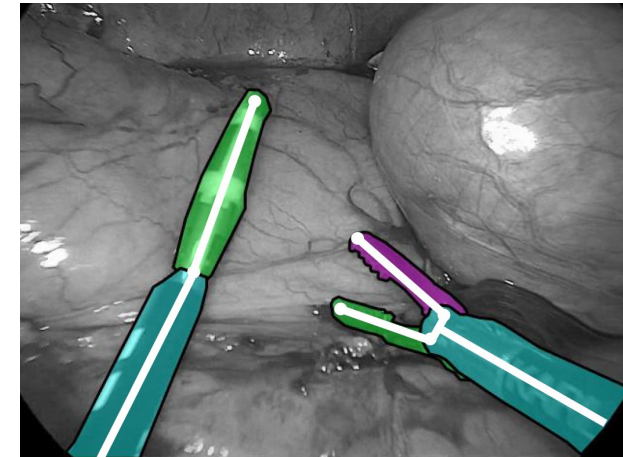
Robotic manipulation
(Wada et al. CVPR 2020)



Augmented reality
(Brachmann, PhD thesis)



Autonomous driving
(Geiger et al. CVPR 2012)



Medicine
(Brachmann, PhD thesis)

Previous editions of the R6D workshop



Long workshop papers

Documenting unpublished work, 14 pages excluding references.

6/8 accepted long papers.

2019: 7/12 accepted papers, 3 extended abstracts.

2018: 10/13 accepted papers, 3 extended abstracts.

2017: 9/14 accepted papers, 6 extended abstracts.

2016: 9/11 accepted papers, 3 extended abstracts.

2015: 12 extended abstracts.

2-4 reviews per paper by 31 reviewers - THANK YOU!

Accepted papers will be published in the ECCV workshop proceedings.

Accepted long workshop papers

StructureFromGAN: Single Image 3D Model Reconstruction and Photorealistic Texturing, Vladimir V Kniaz, Vladimir Knyaz, Vladimir Mizginov, Artyom Bordodymov, Mark Kozyrev, Peter Moshkantsev, Nikita Fomin.

6 DoF Pose Estimation of Textureless Objects From Multiple RGB Frames, Roman Kaskman, Ivan Shugurov, Sergey Zakharov, Slobodan Ilic.

Semi-supervised Viewpoint Estimation with Pose-aware Conditional Generation, Octave Mariotti, Hakan Bilen.

Physical Plausibility of 6D Pose Estimates in Scenes of Static Rigid Objects, Dominik Bauer, Timothy Patten, Markus Vincze.

DronePose: Photorealistic UAV-Assistant Dataset Synthesis for 3D Pose Estimation via a Smooth Silhouette Loss, Georgios Albanis, Nikolaos Zioulis, Anastasios Dimou, Dimitrios Zarpalas, Petros Daras.

How to track your dragon: A Multi-Attentional Framework for real-time RGB-D 6DOF Object Pose Tracking, Isidoros Marougkas, Petros Koutras, Nikolaos Kardaris, George Retsinas, Georgia Chalvatzaki, Petros Maragos.

Short workshop papers

Documenting methods participating in the BOP Challenge 2020, exactly 4 pages including references.

2/2 accepted short papers.

Reviewed by the organizational committee.

Accepted papers will be published in the ECCV workshop proceedings.

Accepted short workshop papers

A Hybrid Approach for 6DoF Pose Estimation, Rebecca Koenig, Bertram Drost.

Leaping from 2D Detection to Efficient 6DoF Object Pose Estimation, Jinhui Liu, Zhikang Zou, Xiaoqing Ye, Xiao Tan, Errui Ding, Feng Xu, Xin Yu.

BOP Challenge 2020 (BOP = Benchmark for 6D Object Pose Estimation)

BOP 2019: Classical methods outperform CNN methods, because of:

1. Insufficient number of real training images annotated with 6D object poses (annotation is expensive).
2. Large domain gap between real test images and the commonly used synthetic training images (objects rendered on random background).

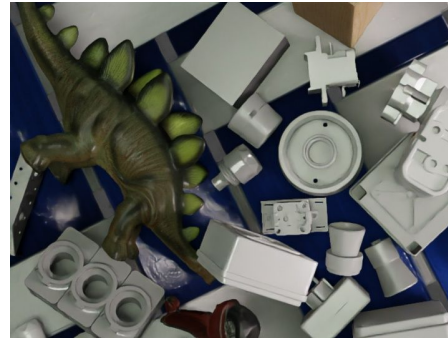
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New in 2020:

- BlenderProc4BOP - an open-source photorealistic (PBR) renderer.
- 350K pre-rendered training images provided to the participants.



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Does the increased photorealism help to reduce the domain gap between the synthetic training and real test images? **Results at 11:30!**

Online traffic

6K visits (4K users) of the workshop websites since ICCV'19.

18K visits (6K users) of the BOP Challenge 2019/2020 website.

272 members in the BOP Google Group:

<https://groups.google.com/forum/#!forum/bop-benchmark>

Sponsor



Workshop program (cmp.felk.cvut.cz/sixd/workshop_2020)

Two Zoom sessions accessible with the **ECCV delegate pass**.

The times below are in the **UTC+1** zone.

Session 1

- 10:00 Opening
- 10:10 Invited talk 1: **Stephen James** (Imperial College London)
- 10:50 Invited talk 2: **Shuran Song** (Columbia University)
- 11:30 BOP Challenge 2020 - results, awards: **Tomáš Hodaň**
- 12:00 End of session 1

Session 2

- 18:00 Invited talk 3: **Leonidas Guibas** (Stanford University)
- 18:40 Invited talk 4: **Dieter Fox** (University of Washington, Nvidia)
- 19:20 BOP Challenge 2020 - a summary of results: **Tomáš Hodaň**
- 19:30 BOP Challenge 2020 - BlenderProc4BOP: **Martin Sundermeyer**
- 19:45 BOP Challenge 2020 - presentation of the winning methods
- 20:00 End of session 2