Bridging the Reality Gap

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Domain Gap Problem

• Training on Dataset A does not ensure performance on Dataset B

![KITTI](image1) ![Internal](image2)

- Detection trained and tested on Internal: 89.5% mAP
- Trained on Internal, tested on KITTI: 74.0% mAP

KITTI ‘hard’ mode, Internal network
Holds true for Real vs Synthetic

- Detection trained and tested on KITTI: 92% mAP
- Trained on KITTI, tested on Synthetic: 73% mAP
  KITTI ‘hard’ mode, Faster-RCNN network

KITTI ≠ Synthetic
Domain Randomization

- Explore the gap using random cars, textures, camera, distractors, etc
Ablation Study

Domain Randomized KITTI vs KITTI 'easy' mode
Domain Specific Randomization

• Context is very important
  • Especially for smaller objects
  • Randomize, but within more realistic scenes
NVIDIA DRIVE™ Sim
DL for Pedestrian Animation