Experimental Protocol

Mon Feb 5 23:05:43 2018

experiment group:	tless_new
experiment name	obj5
evaluation name	5_2_18_icp
test dataset	tless_primesense

Train Config

[Paths] MODEL_PATH: /net/rmc-lx0050/home_local/sund_ma/data/t-less/models_reconst/obj_05.ply BACKGROUND_IMAGES_GLOB: /net/rmc-lx0050/home_local/sund_ma/data/VOCdevkit/VOC2012/JPEGImages

[Dataset] MODEL: reconst H: 128 W: 128 C: 3 RADIUS: 700 RENDER_DIMS: (720, 540) K: [1075.65, 0, 720/2, 0, 1073.90, 540/2, 0, 0, 1] VERTEX_SCALE: 1 ANTIALIASING: 8 PAD_FACTOR: 1.2 CLIP_NEAR: 10 CLIP_FAR: 10000 NOOF_TRAINING_IMGS: 10000 NOOF_BG_IMGS: 10000

[Augmentation] CROP_OFFSET_SIGMA: 20 CODE: Sequential([Sometimes(0.5, Affine(scale=(1.0, 1.2))), Sometimes(0.5, CoarseDropout(p=0.2, size_percent=0.05)), Sometimes(0.5, GaussianBlur(1.2*np.random.rand())), Sometimes(0.5, Add((-25, 25), per_channel=0.3)), Sometimes(0.3, Invert(0.2, per_channel=True)), Sometimes(0.5, Multiply((0.6, 1.4), per_channel=0.5)), Sometimes(0.5, Multiply((0.6, 1.4))), Sometimes(0.5, ContrastNormalization((0.5, 2.2), per_channel=0.3))], random_order=False)

[Embedding] EMBED_BB: True MIN_N_VIEWS: 1000 NUM_CYCLO: 36

[Network] VARIATIONAL: 0 LOSS: L2_bootstrapped BOOTSTRAP_RATIO: 4 NORM_REGULARIZE: 0 LATENT_SPACE_SIZE: 128 NUM_FILTER: [128, 256, 512, 512] STRIDES: [2, 2, 2, 2] KERNEL_SIZE_ENCODER: 5 KERNEL_SIZE_DECODER: 5

[Training] OPTIMIZER: Adam NUM_ITER: 40000 BATCH_SIZE: 64 LEARNING_RATE: 1e-4 SAVE_INTERVAL: 5000

[Queue] NUM_THREADS: 10 QUEUE_SIZE: 50

Evaluation Config

[METHOD] method = ae

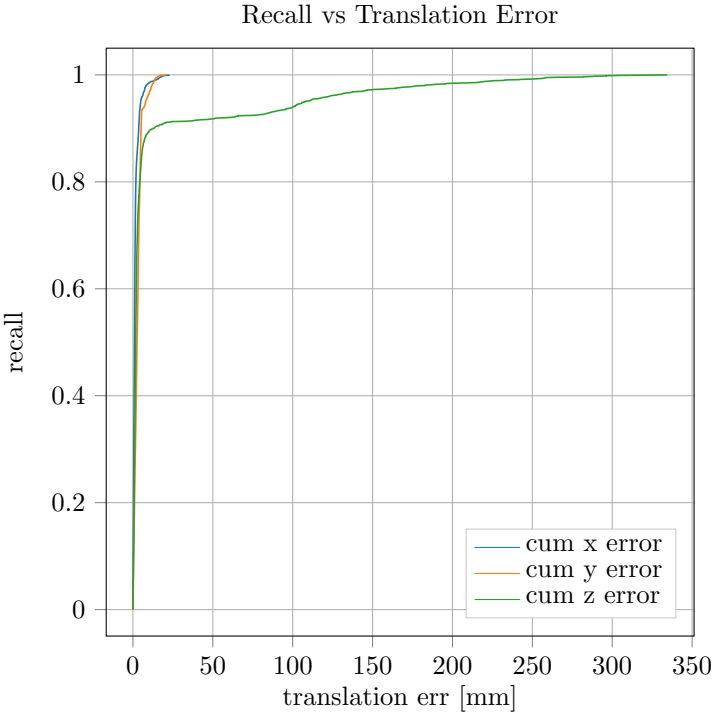
[DATA] dataset = tless cam_type = primesense scenes = [] obj_id = 5

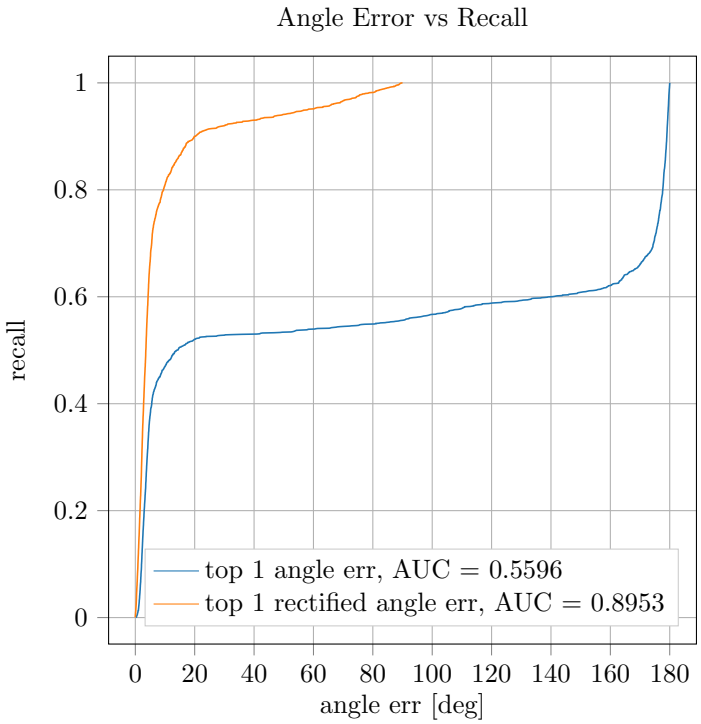
[BBOXES] estimate_bbs = False pad_factor = 1.2 single_instance = True

[EVALUATION] icp = True compute_errors = True evaluate_errors = True

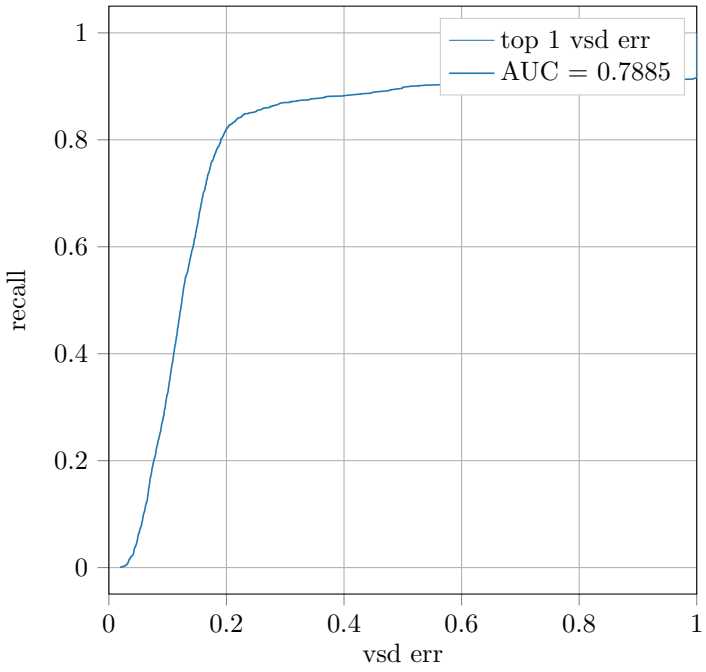
[METRIC] error_type = ['re','te','vsd'] top_n = 1 vsd_delta = 15 vsd_tau = 20 vsd_cost = step

[PLOT] nearest_neighbors = False scene_with_estimate = False reconstruction = False cum_t_error_hist = True cum_r_error_hist = True cum_vsd_error_hist = True vsd_occlusion = True r_error_occlusion = True embedding_pca = True animate_embedding_pca = False viewsphere = True reconstruction_test_batch = True

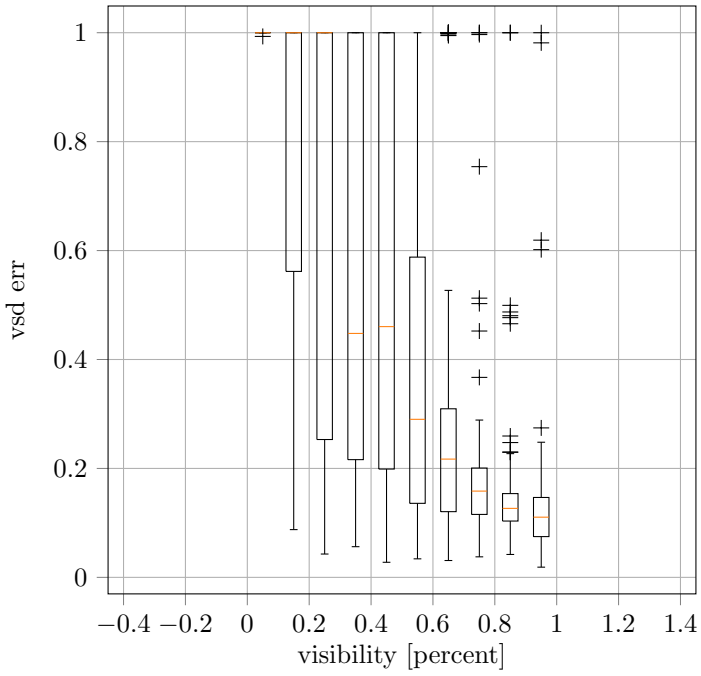

Recall vs Translation Error
recall
translation err [mm]
cum x error
cum y error
cum z error
0
0.2
0.4
0.6
0.8
1
0
50
100
150
200
250
300
350

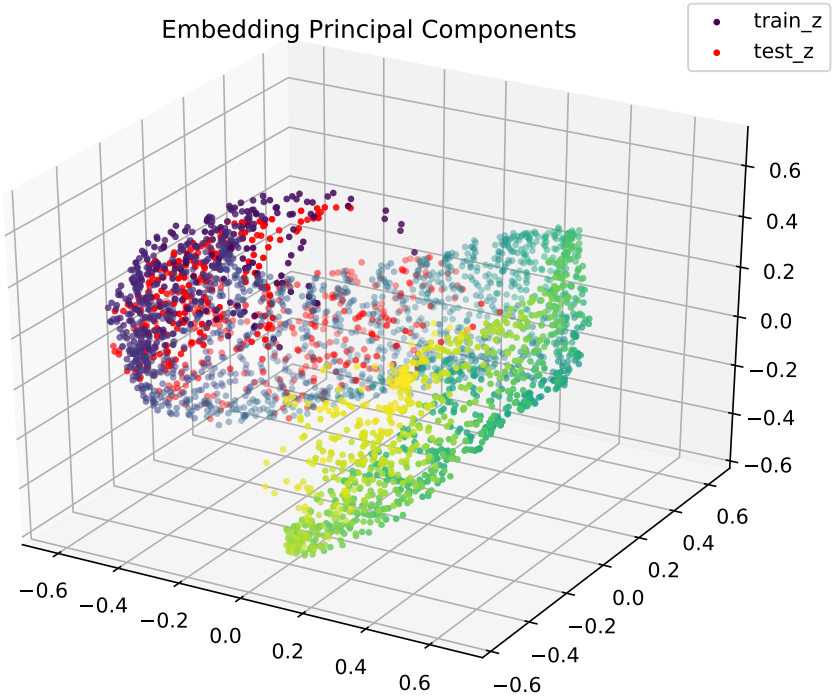

Angle Error vs Recall
recall
angle err [deg]
top 1 angle err, AUC = 0.5596
top 1 rectified angle err, AUC = 0.8953
0
0.2
0.4
0.6
0.8
1
0
20
40
60
80
100
120
140
160
180

VSD Error vs Recall

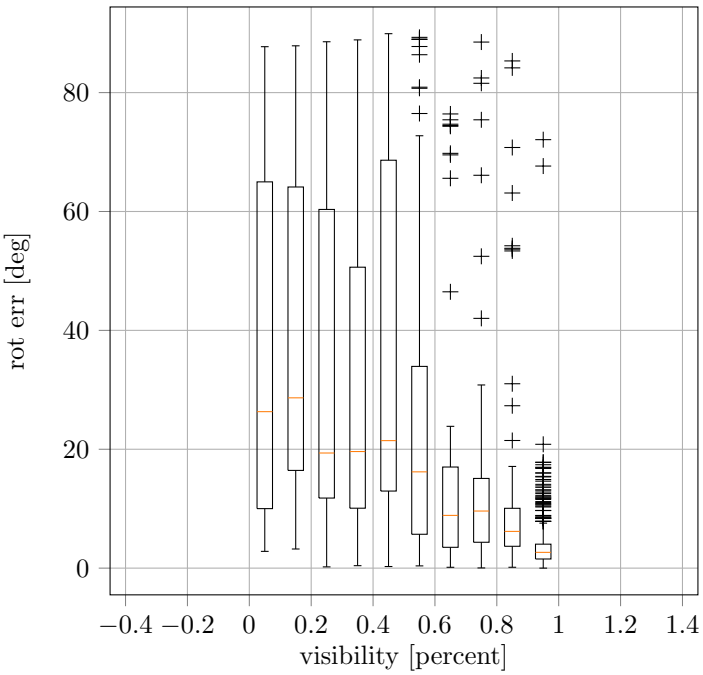


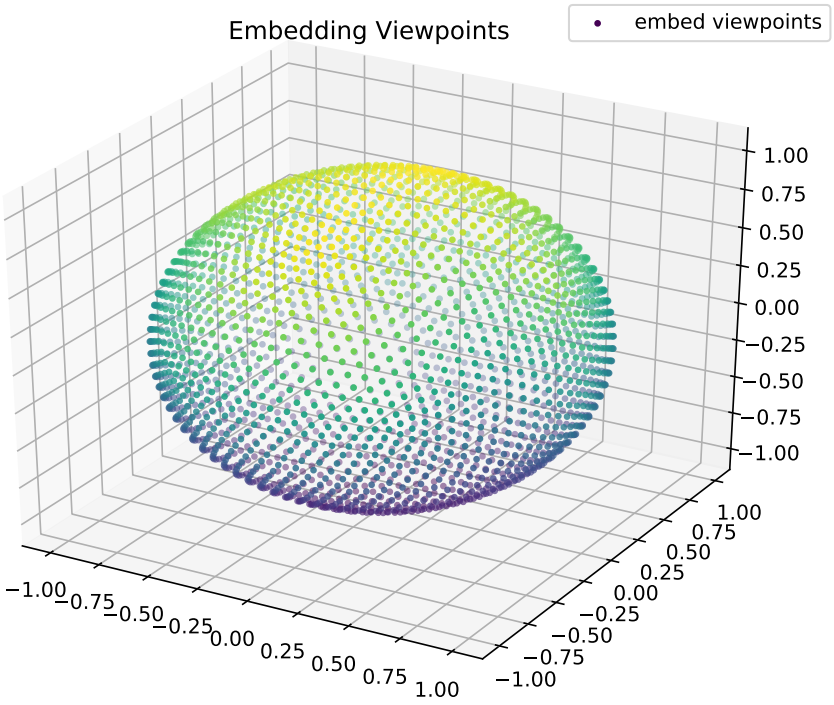
Visibility vs Mean VSD Error[30, 31, 45, 41, 44, 69, 77, 83, 191, 1356]





Visibility vs Median Rectified Rotation Error[30, 31, 45, 41, 44, 69, 77, 83, 191, 1356]




Embedding Viewpoints
embed viewpoints
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00