

Tactile sensing

Mapping

Visual sensing

The Big Picture

Semantic Segmentation

Spacial Projection



Semantic Prediction

Physical Estimation

Physical Measurement

Measurement Dataset













Thm 1.

(Conjugate prior)

Thm 3.

(Moments)

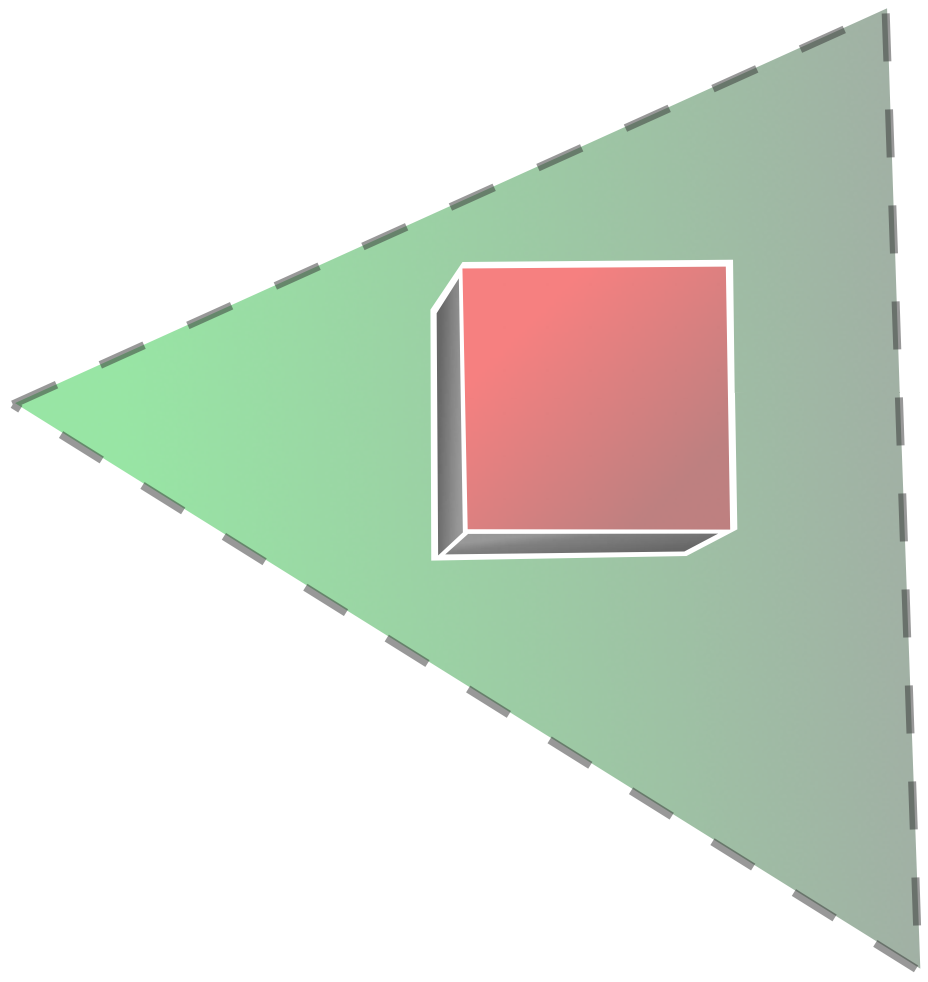


*init with default
friction table*

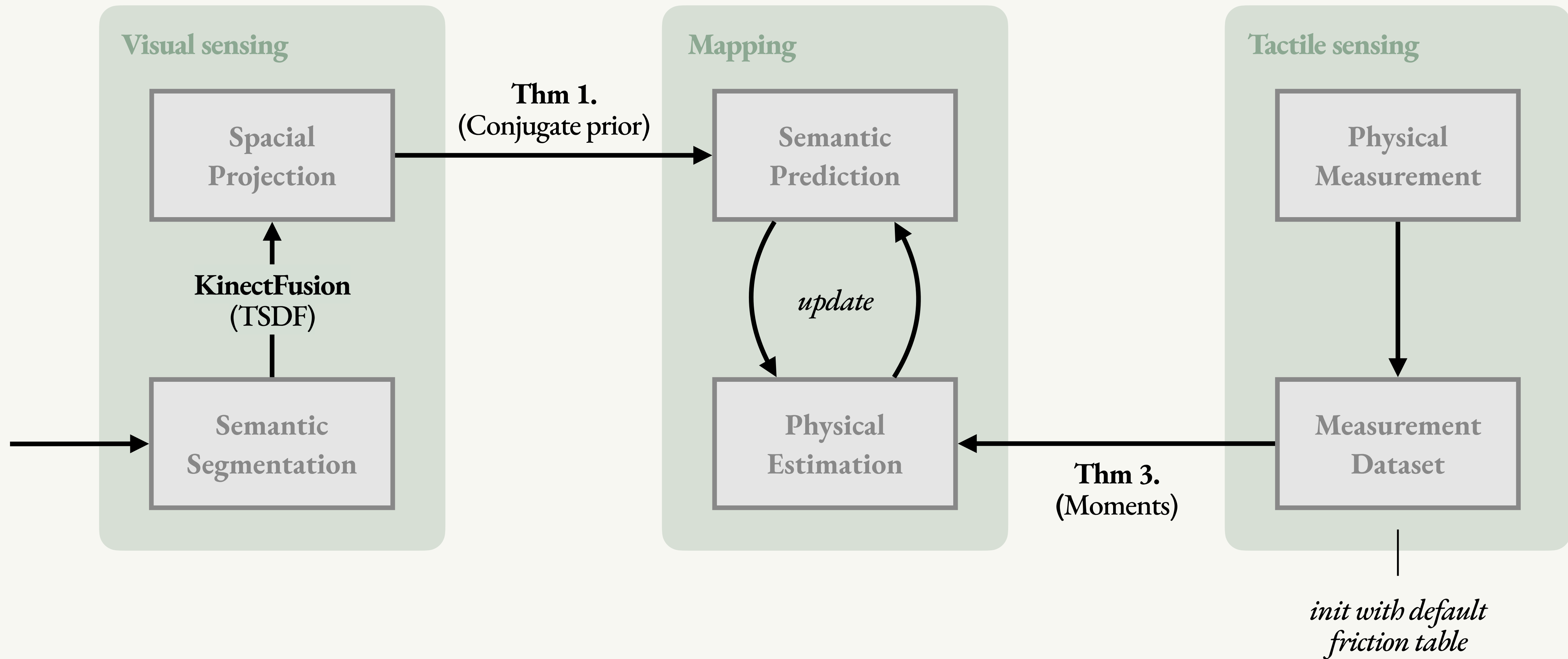
update

KinectFusion

(TSDF)



The Big Picture



Semantic label is corrected on contact

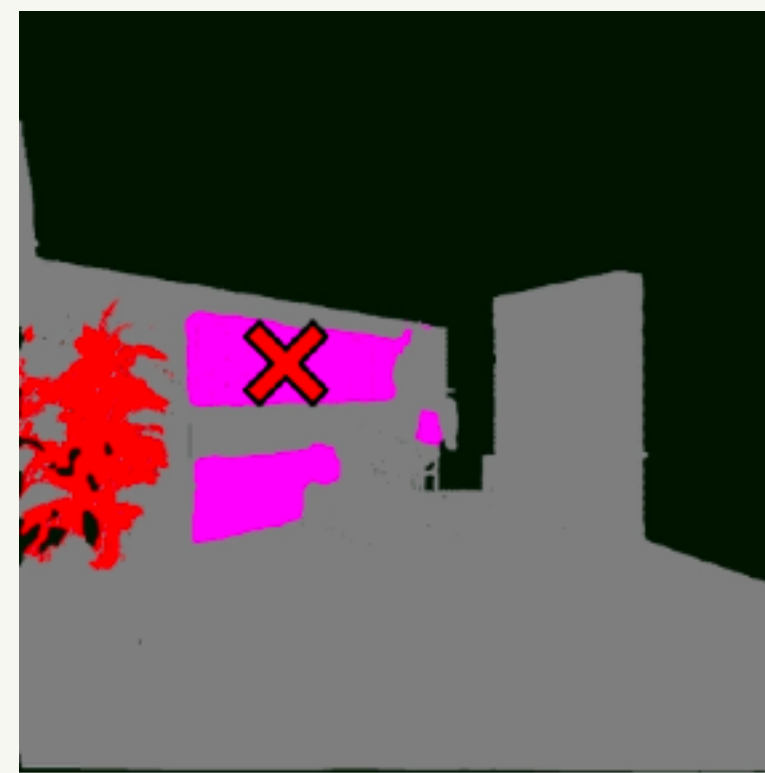
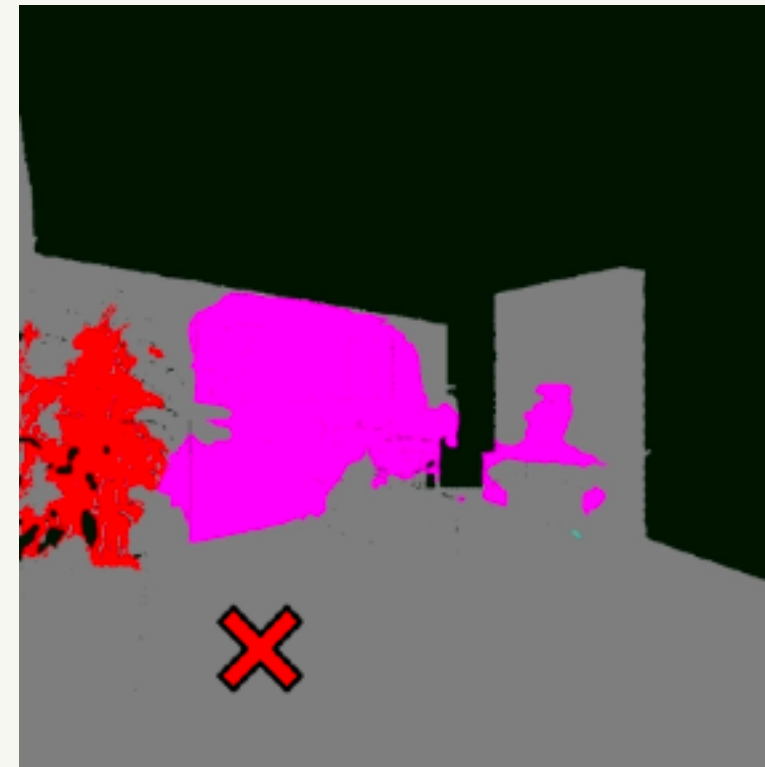
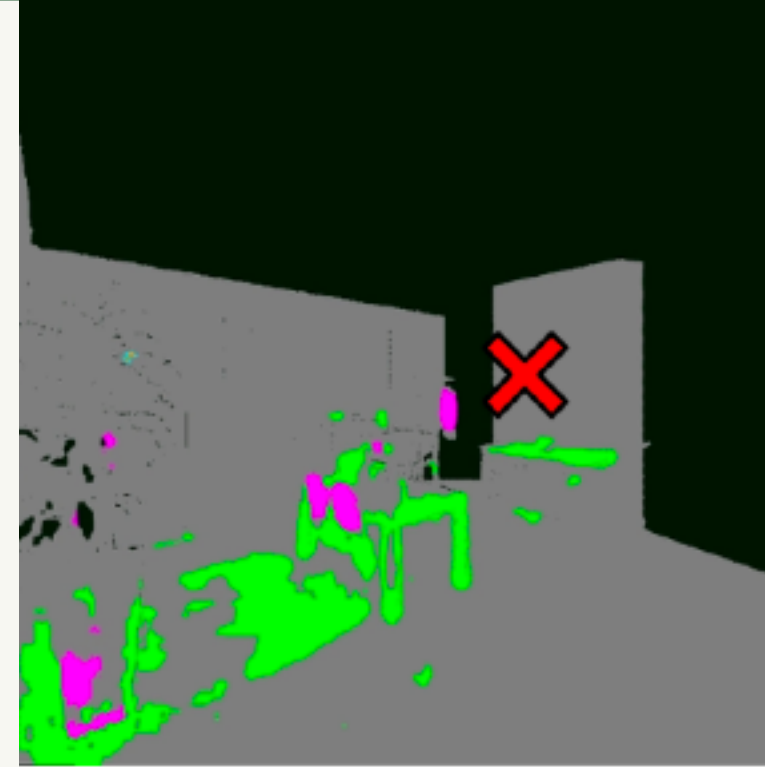
Scene



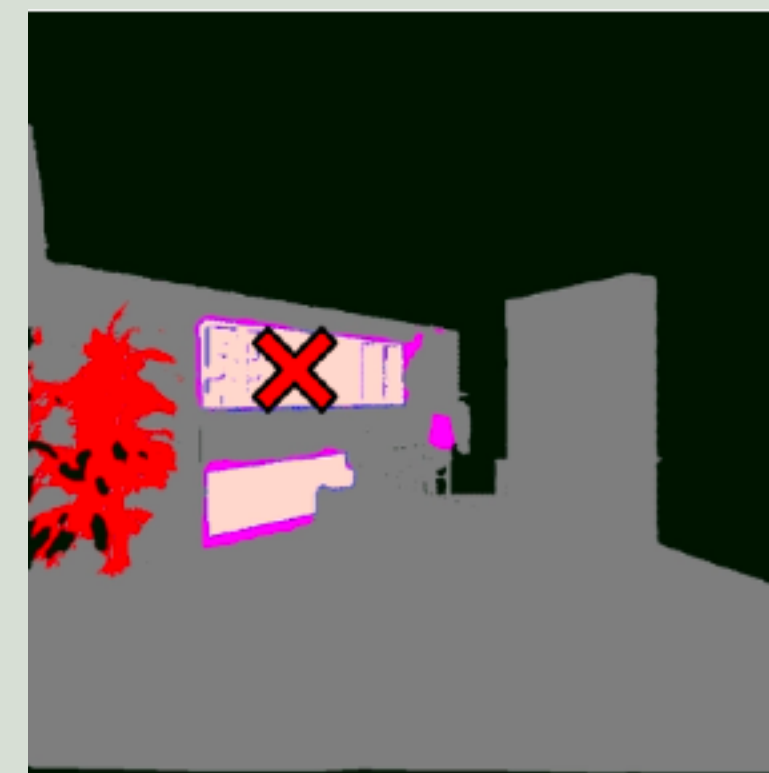
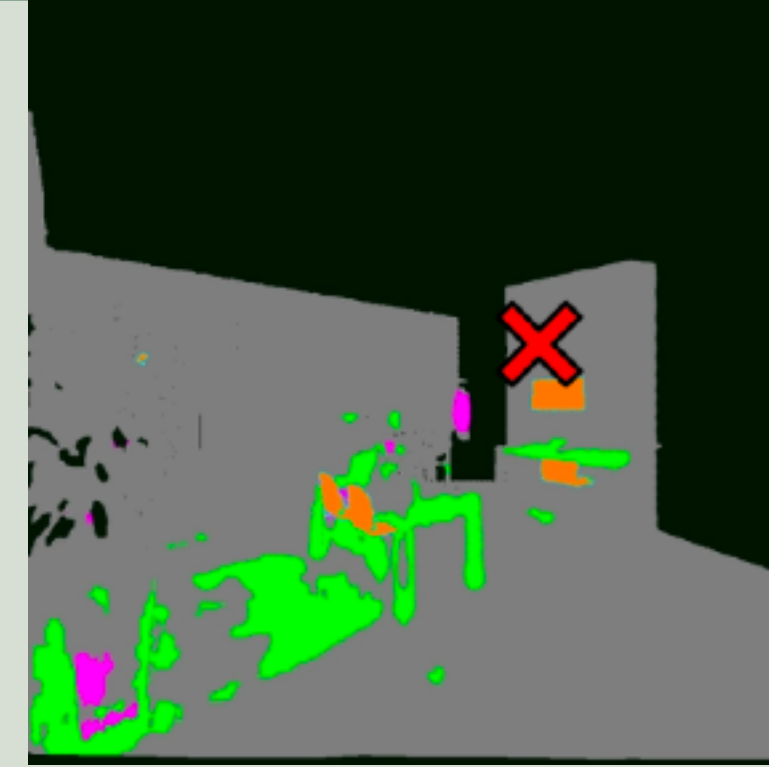
*Semantic
ground truth*



Selmap (Baseline)




Proposed



Dense Material Dataset
Segmentation Network

BERT Image
Transformer

OneFormer

 Tactile measurement