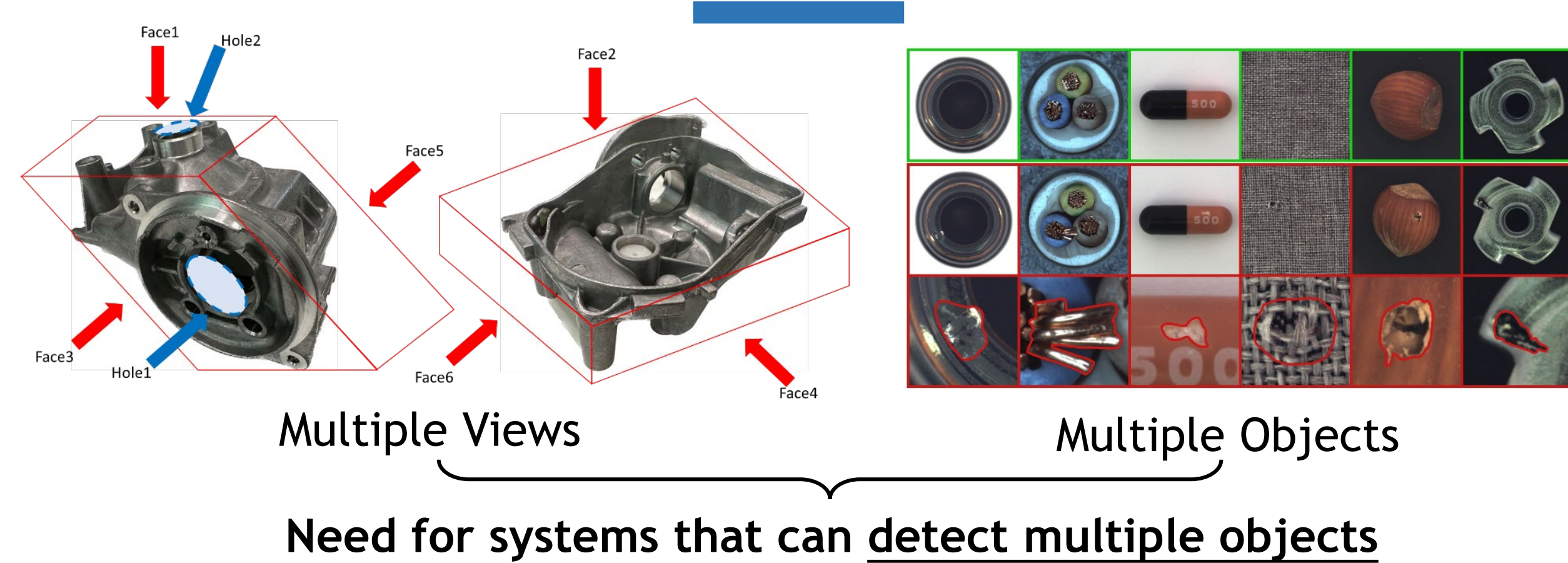
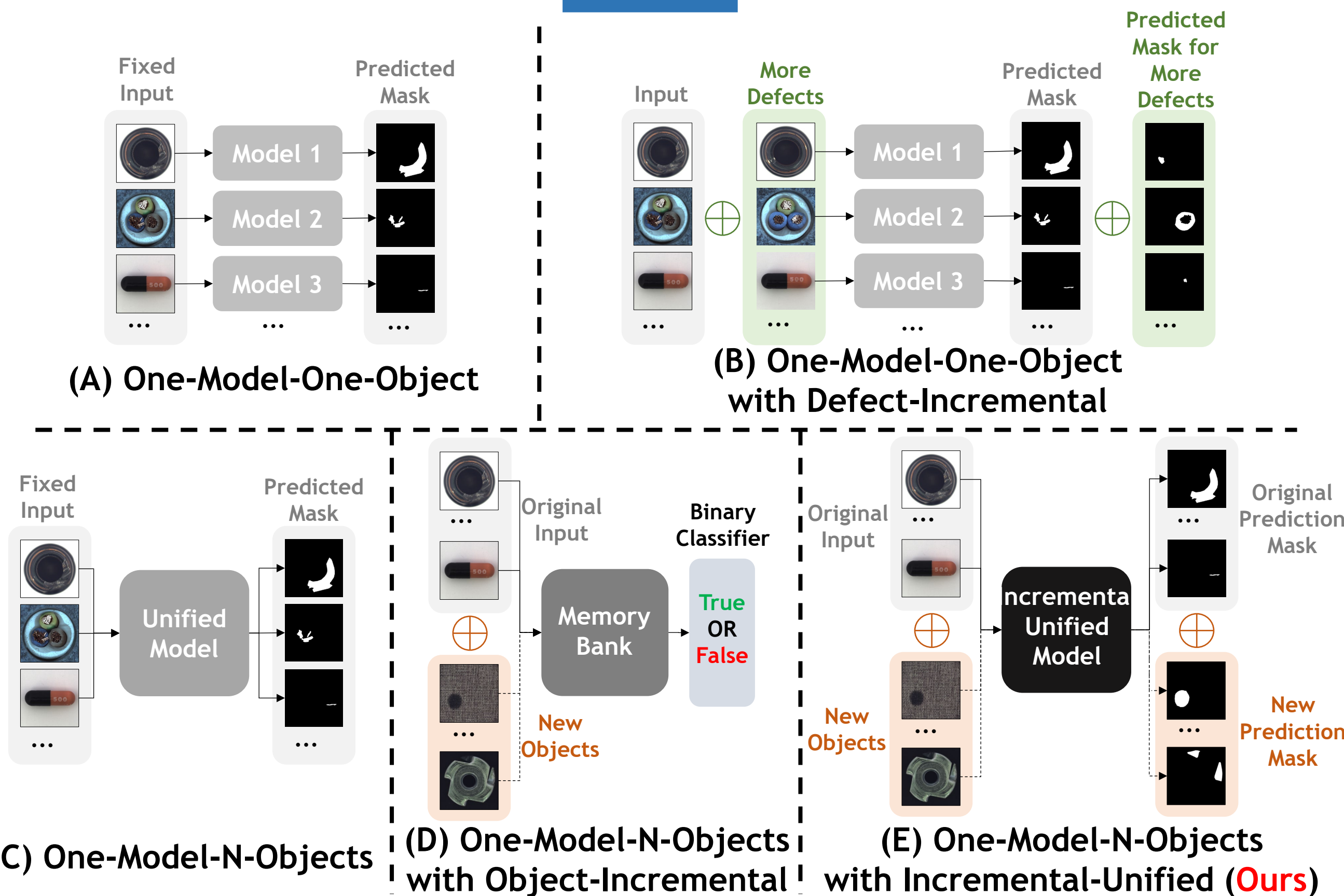


## Motivation: Industrial Dynamic Environment



## Our Setting: Incremental Unified Framework



- ❖ First framework to integrate incremental learning into the unified reconstruction-based detection.
- ❖ Overcoming memory bank capacity limitations.
- ❖ Delivering not only image-level performance but also pixel-level location.

$n_{th}$  object in current step

Model

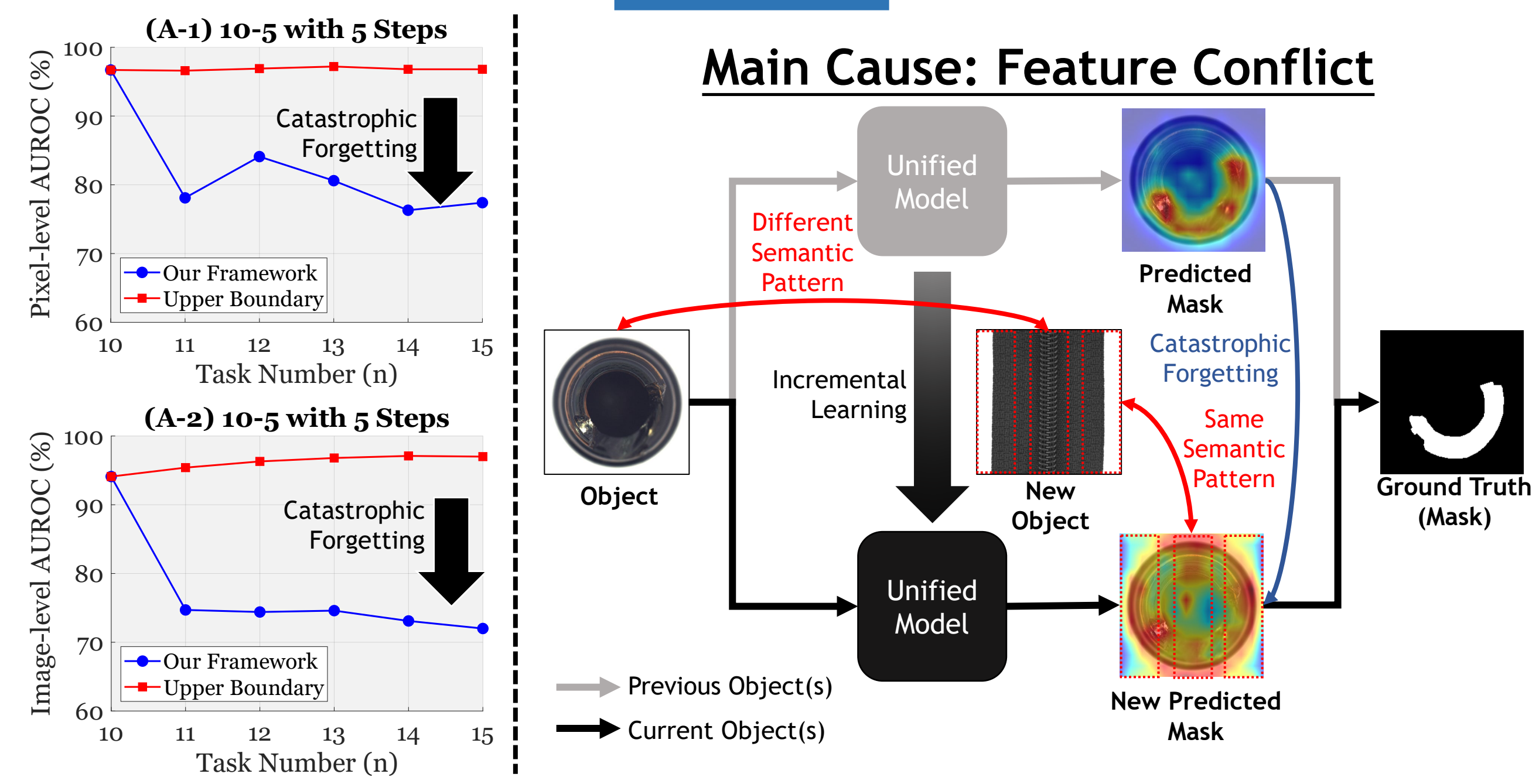
Parameter of Model

Step  $n$ :  $\hat{x}_{o_n} = f_r(x_{o_n}^+; \theta)$

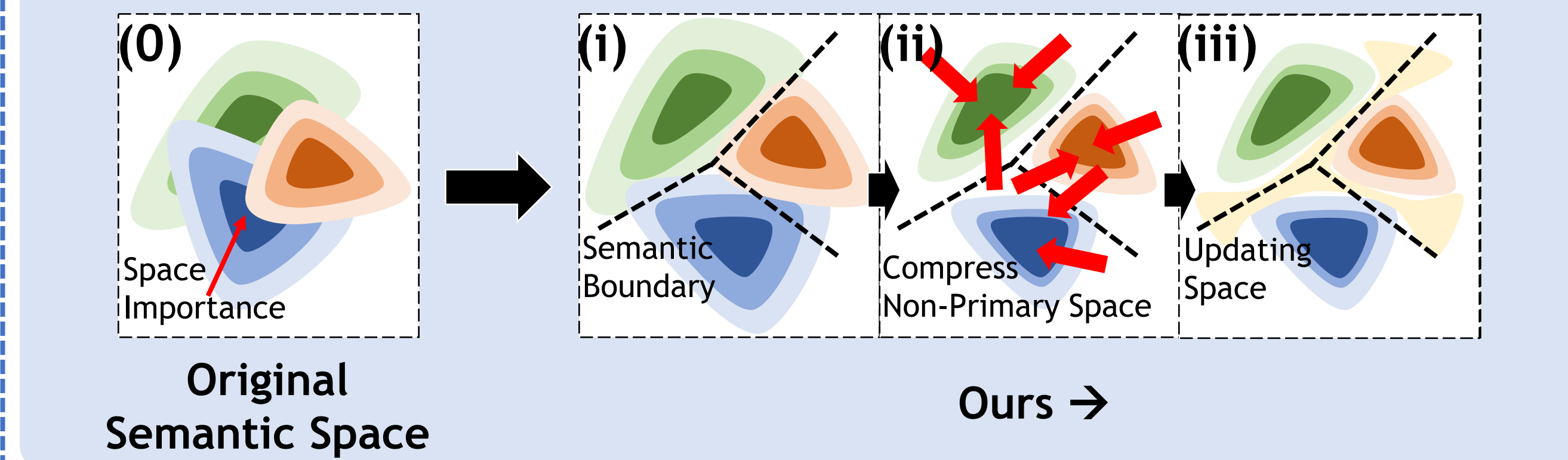
Reconstructed Inputted

$\min L_1(\hat{x}_{o_n}, x_{o_n}^+) = \min |\hat{x}_{o_n} - x_{o_n}^+|$

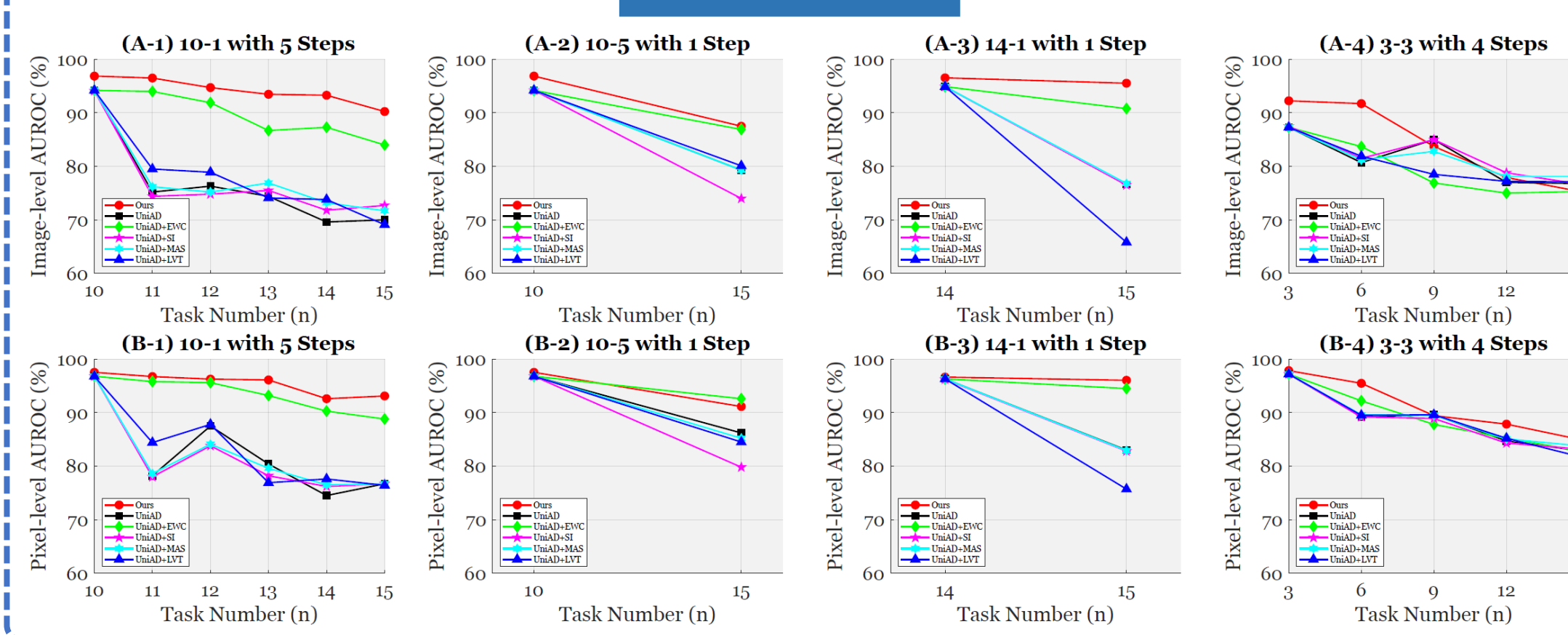
## Problems: Catastrophic Forgetting



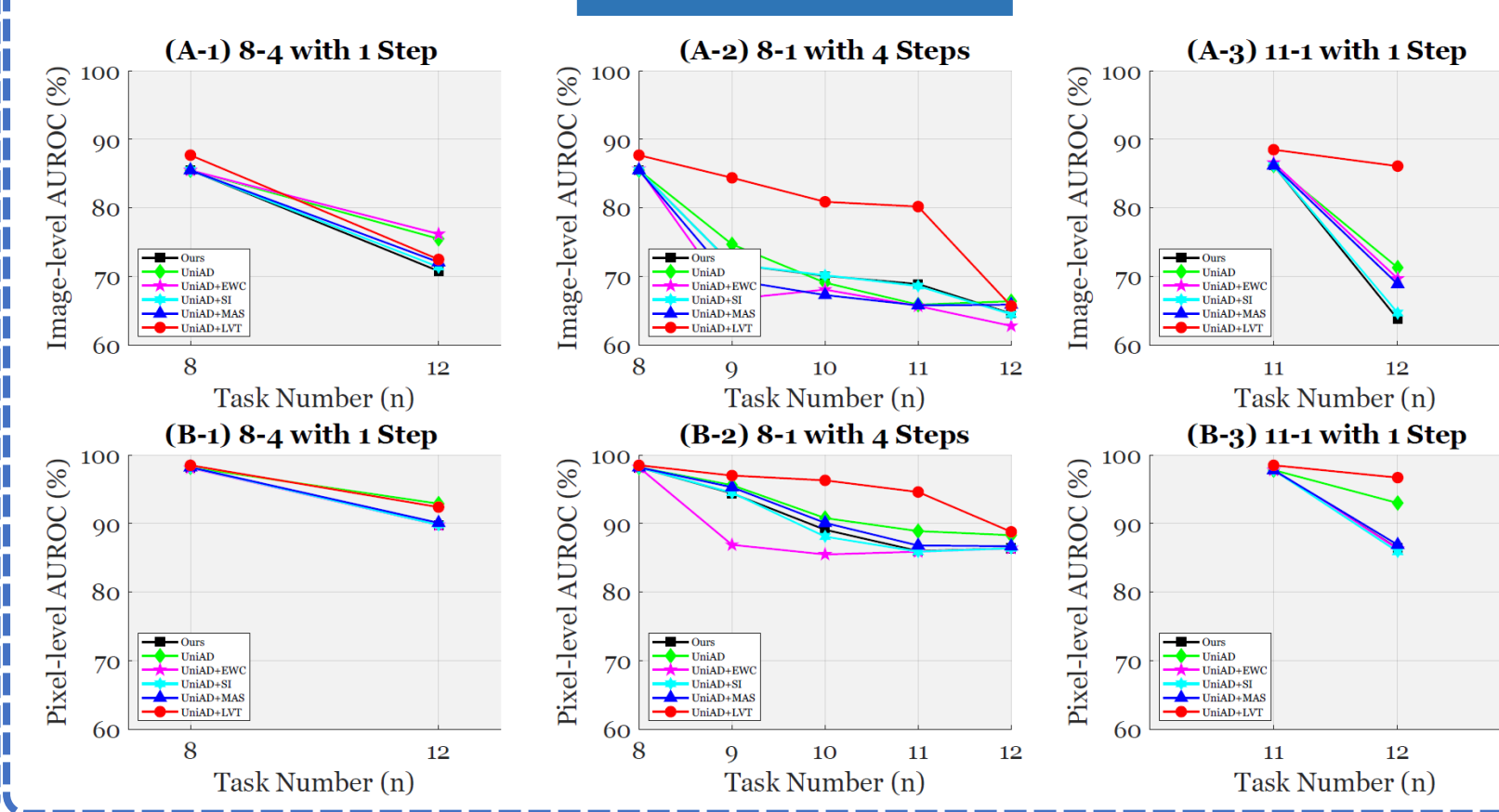
## Our Solution



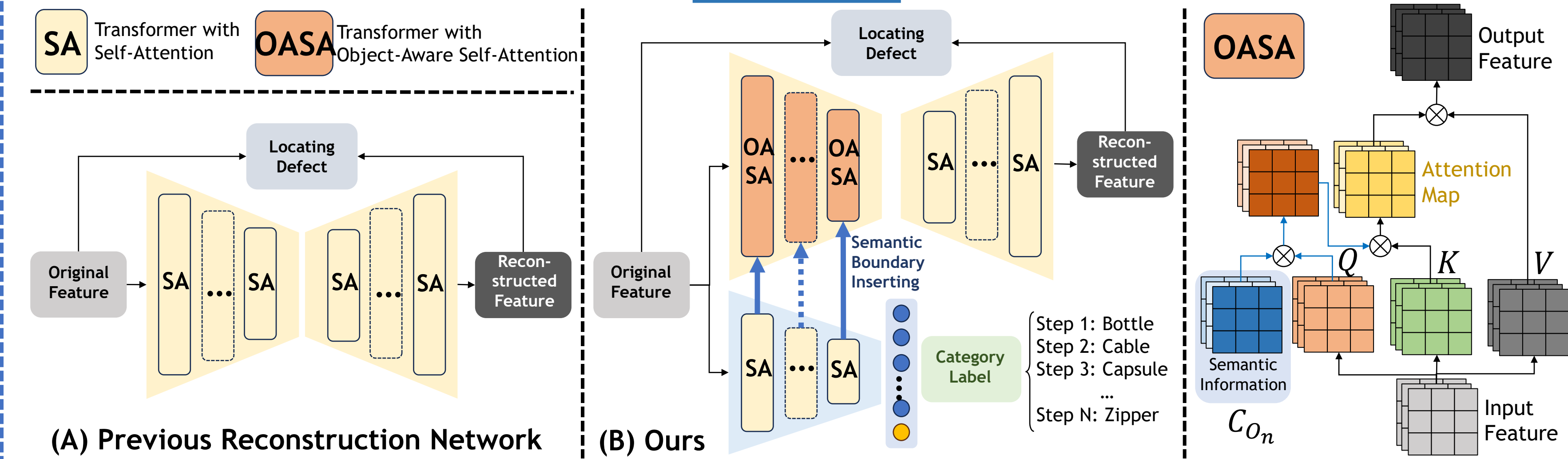
## Qualitative Evaluation (MvTec AD)



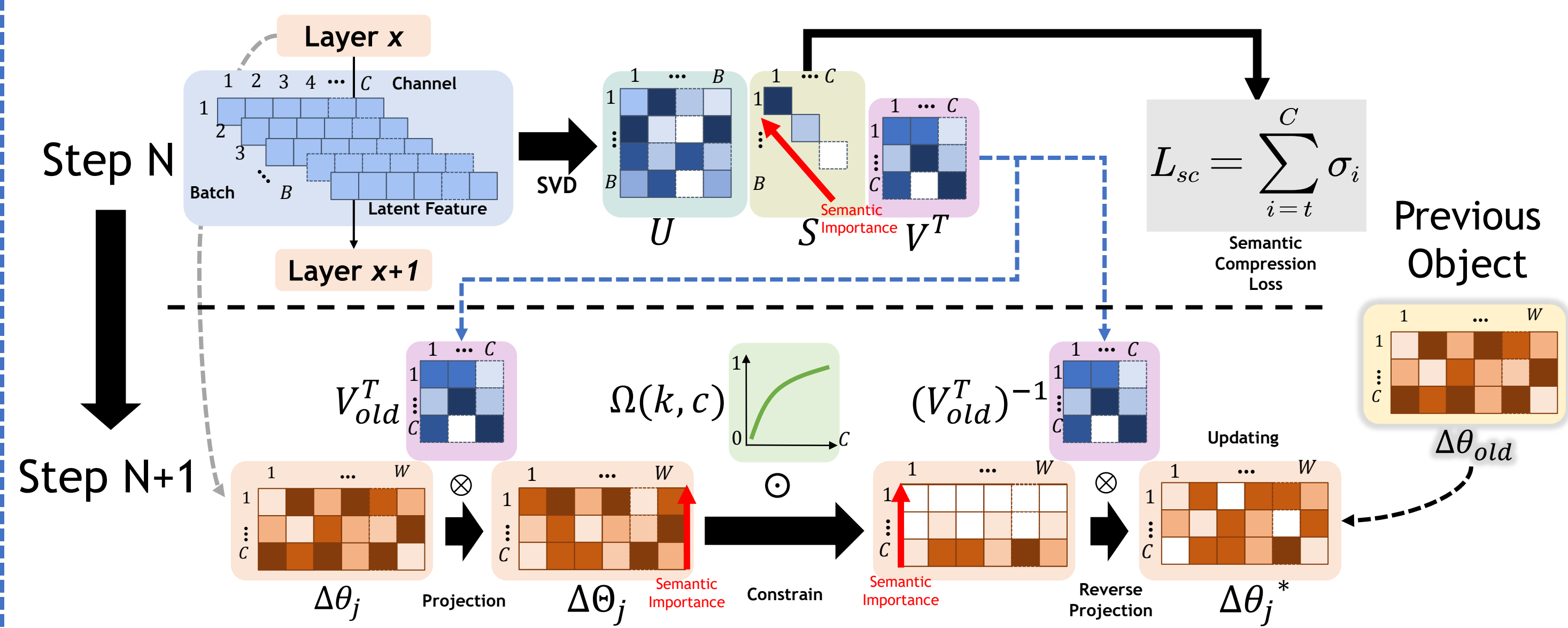
## Evaluation (Visa)



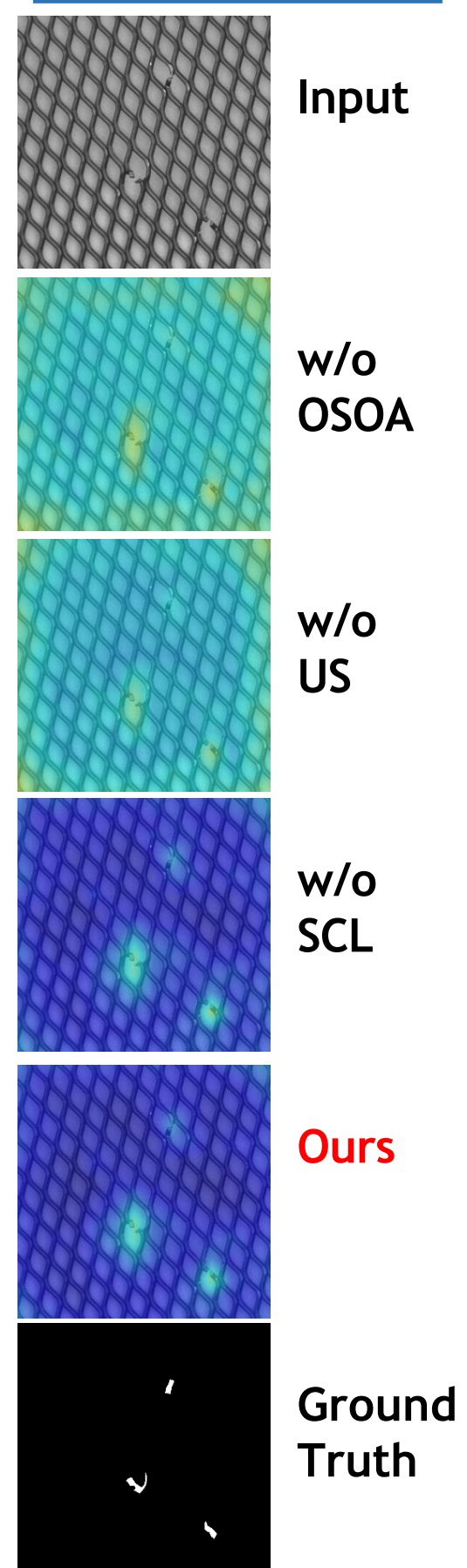
## (i) Identifying Semantics Boundary



## (ii) Compacting Semantic Space (iii) Reinforcing Primary Semantic Memory



## Ablation Study



## Qualitative Evaluation (Defect Localization)

