

## Introduction

### Advertisement Object

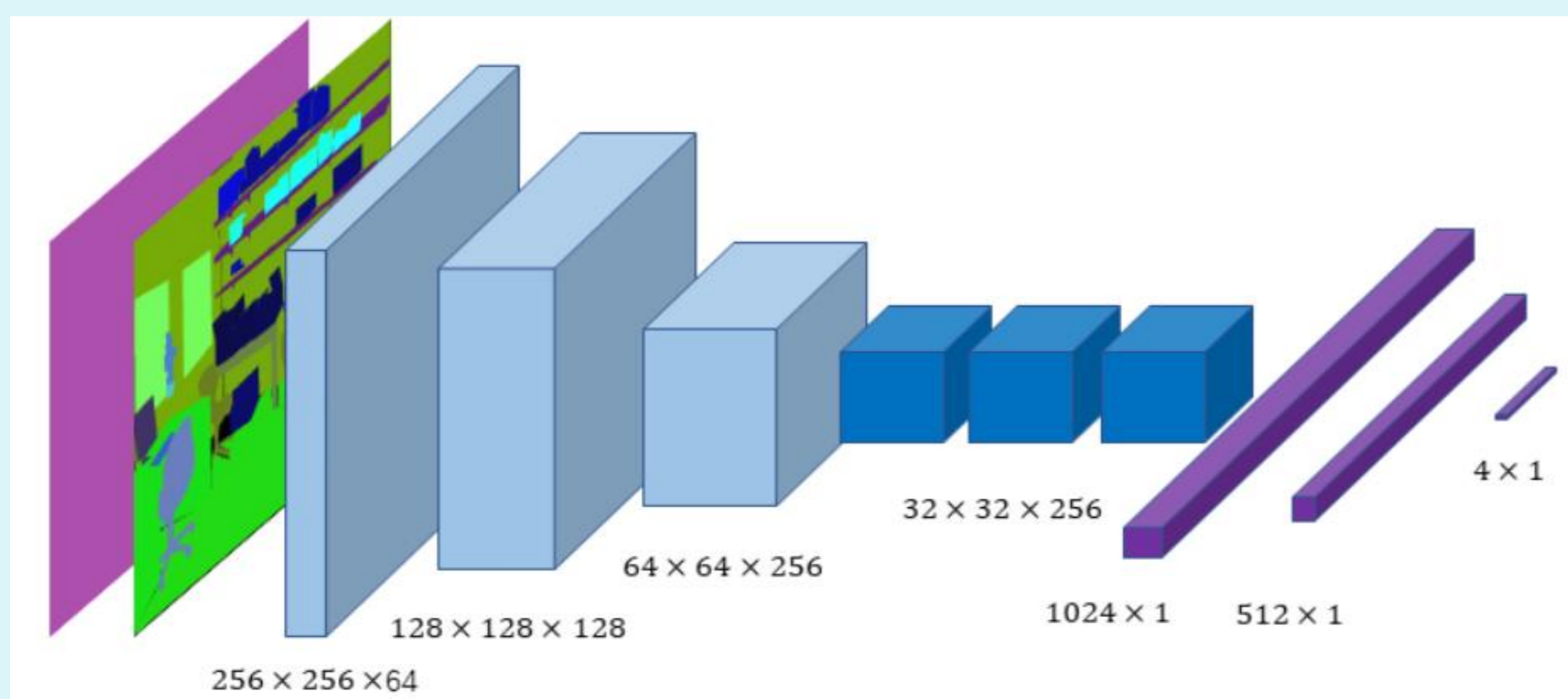


### Our Contributions

- We propose a framework to add products as advertisement in an arbitrary scene image. The framework consists of two parts: bounding box predictor and advertisement generator
- We propose local-global discriminators in order to generate the products more realistic in the whole scene and detail information such characters and logo.
- To demonstrate our method more convincing, we not only train on existing public dataset, but also make a dataset with some specific brands such as RIO cocktail, Coca Cola, HP laptop, Audi A6 and so on in a wide range products.

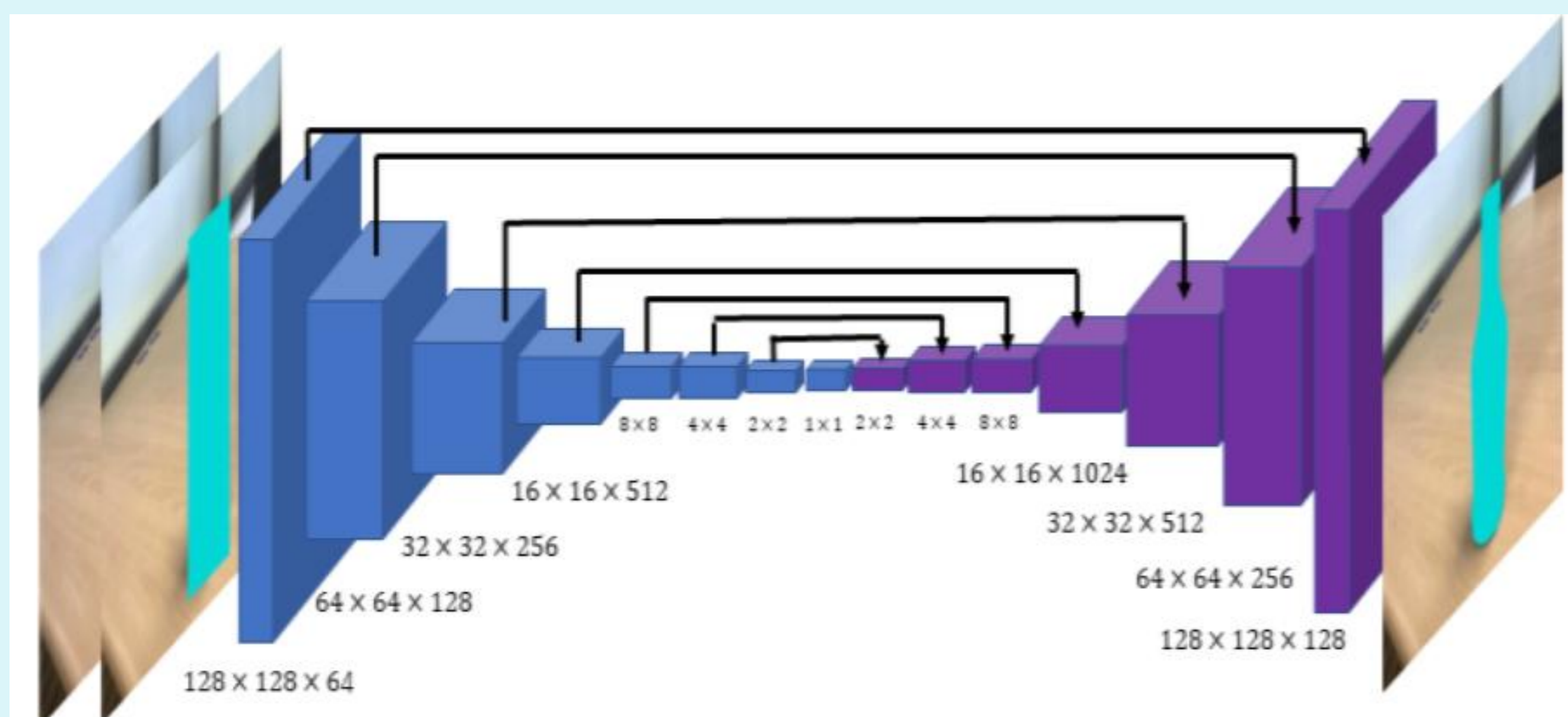
## Methods

### Bounding Box Predictor



- Firstly, we extract the semantic label map of the given scene image. We use Upernet to do semantic segmentation.
- Secondly, our bounding box predictor takes the semantic label map as input and infers a proper bounding box, containing the top left corner and bottom right corner. It provides both proper location and size information of the product in the scene image.

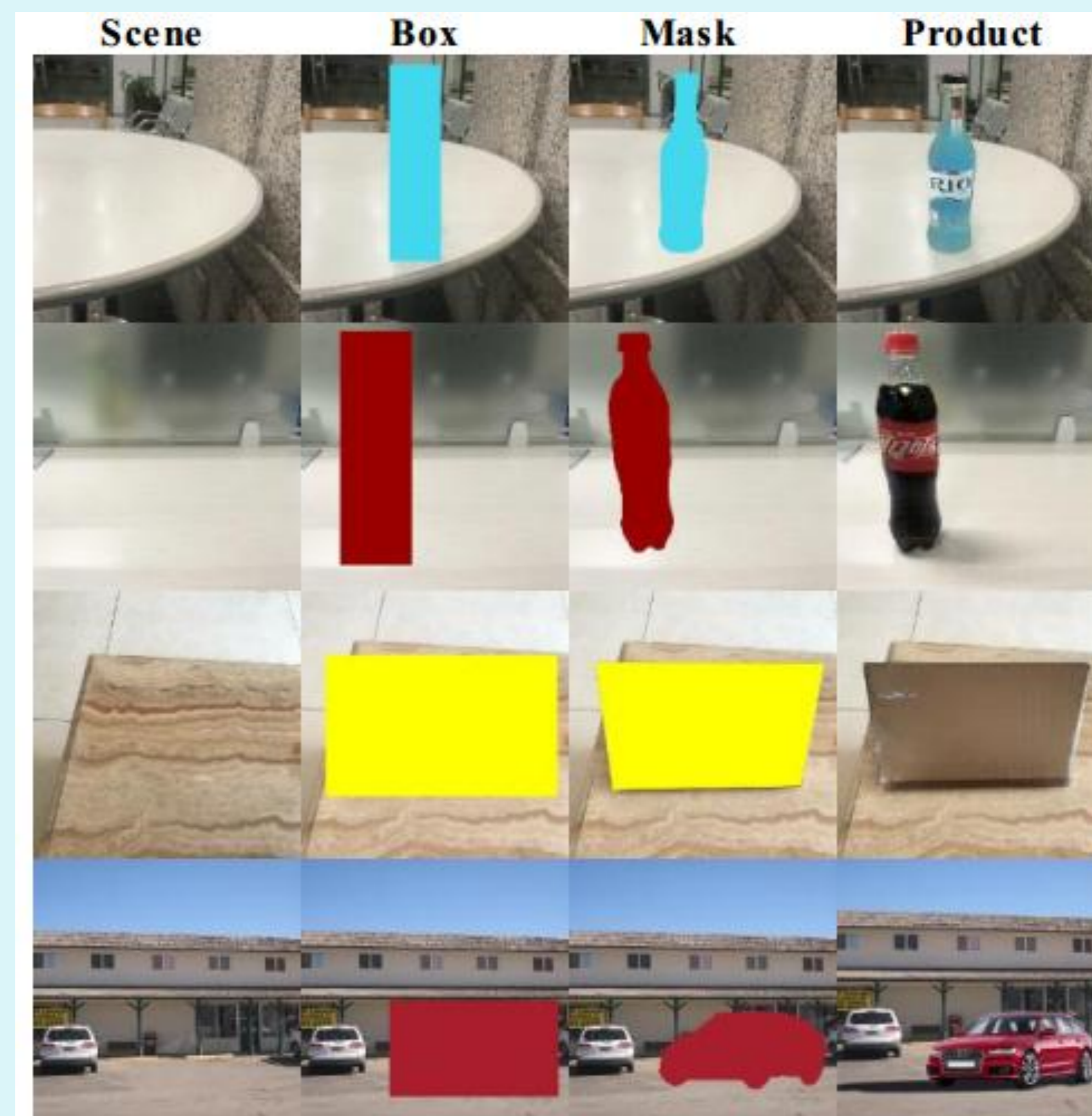
### Advertisement Generator



- Given the scene image domain  $X$ , bounding box domain  $B$ , our goal is to synthesize the product image  $Y$ . Then, the problem of adding advertisement aims to learn the mapping  $G: X \times B \rightarrow Y$ .
- Now, let  $M$  denotes the mask domain, so mask generator  $G_M$  can be defined as a mapping  $G_M: X \times B \rightarrow M$  and product generator can be defined as a mapping  $G_Y: X \times M \rightarrow Y$ .

## Results

### Products Synthesized by Our Framework



### Our Method VS Patch GAN



## Conclusions

- In this paper, we have proposed a novel framework for context-aware natural integration. A bounding box predictor and an adversarial network are used to make sure where and what the object should be.
- Experiments on datasets, including public dataset and our own dataset, confirm that our method obtains better performance, especially Chinese logo objects.

## Reference

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