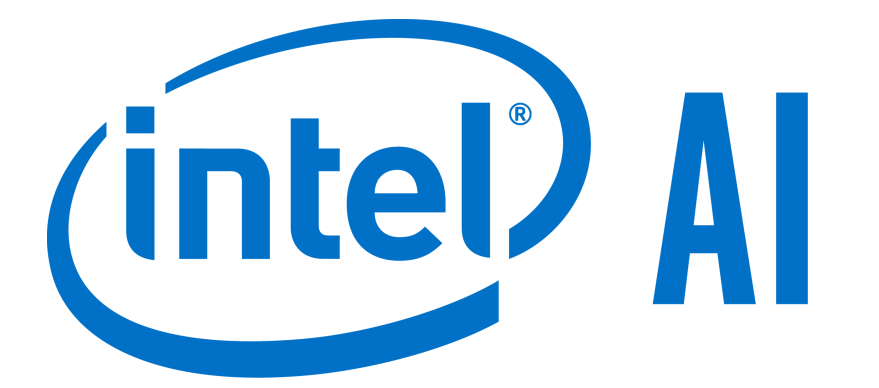# Layout Composition from Attributed Scene Graphs
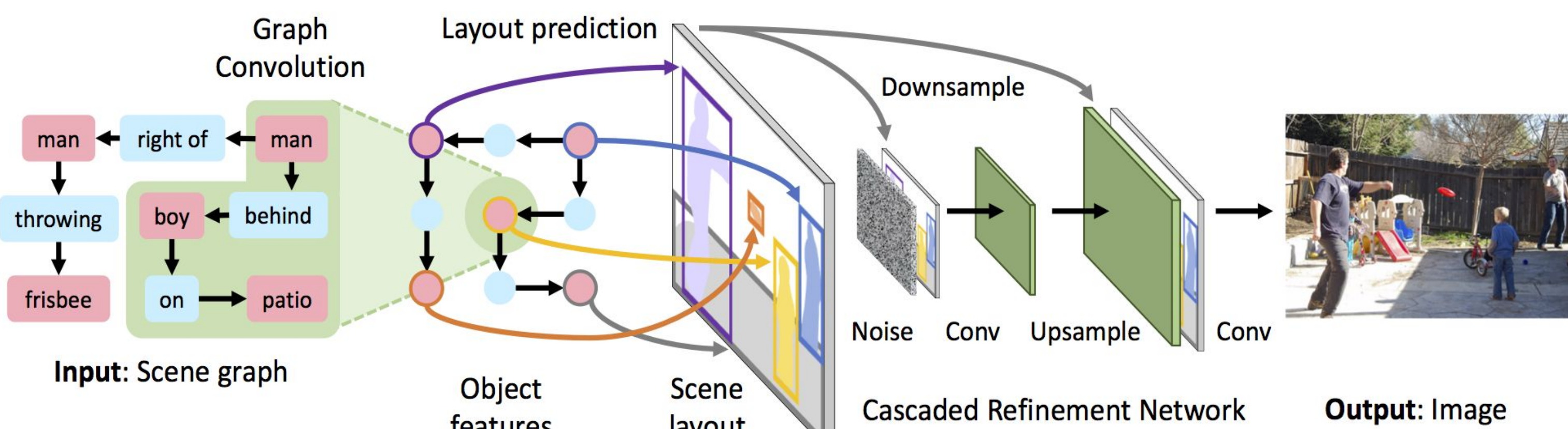
## Subarna Tripathi and Anahita Bhiwandiwalla

intel AI

## Introduction

Scene graph to layout or image generation is an emerging research problem.

Most existing methods use objects(classes) and relationships information.



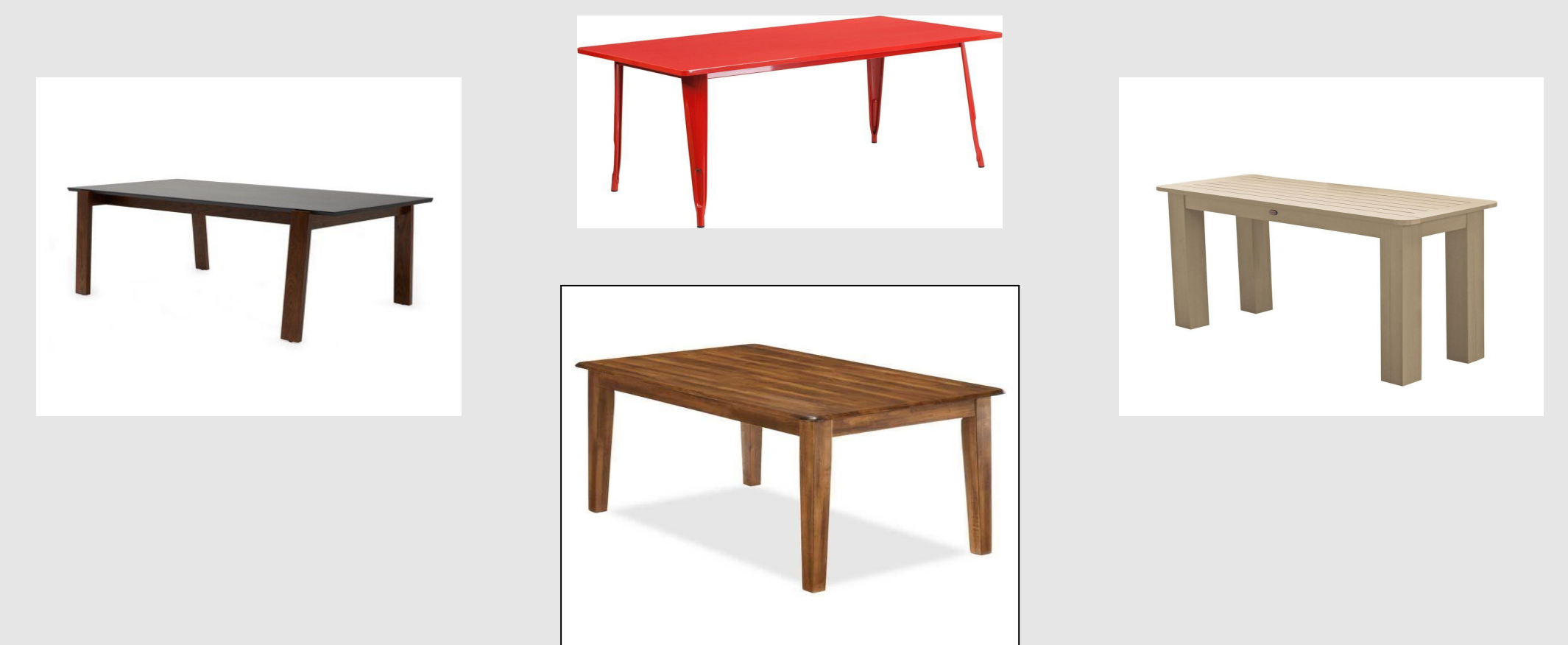Source: Johnson et al, Image generation from scene graphs, CVPR'18

How important those attributes are?
rectangular table vs round table

How to leverage those for layout generation?
**Shape-impacting** vs **color-impacting** attributes
We focus on shape-impacting attributes in this work

## Scene Graph: nodes, attributes, edges
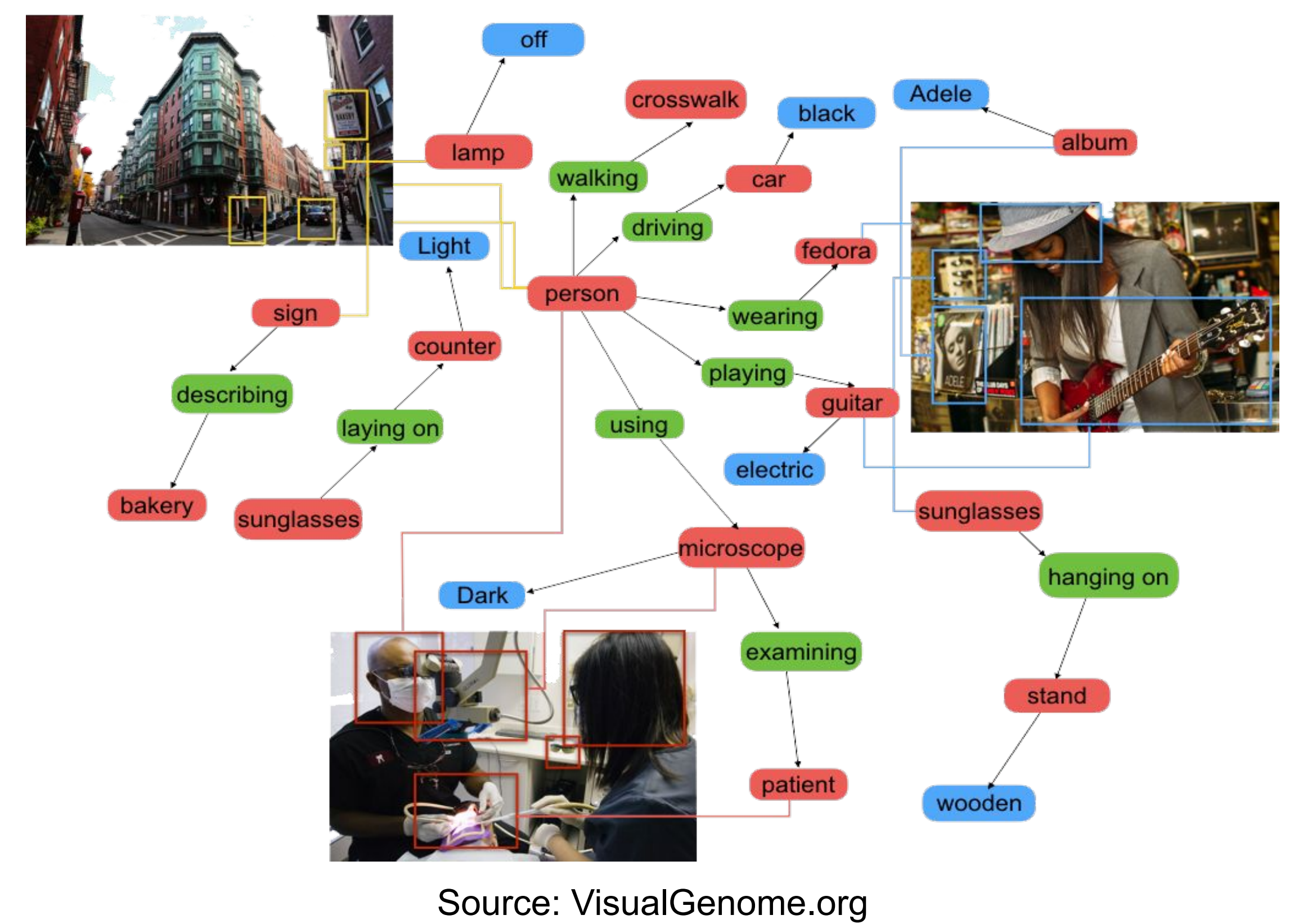


Source: VisualGenome.org
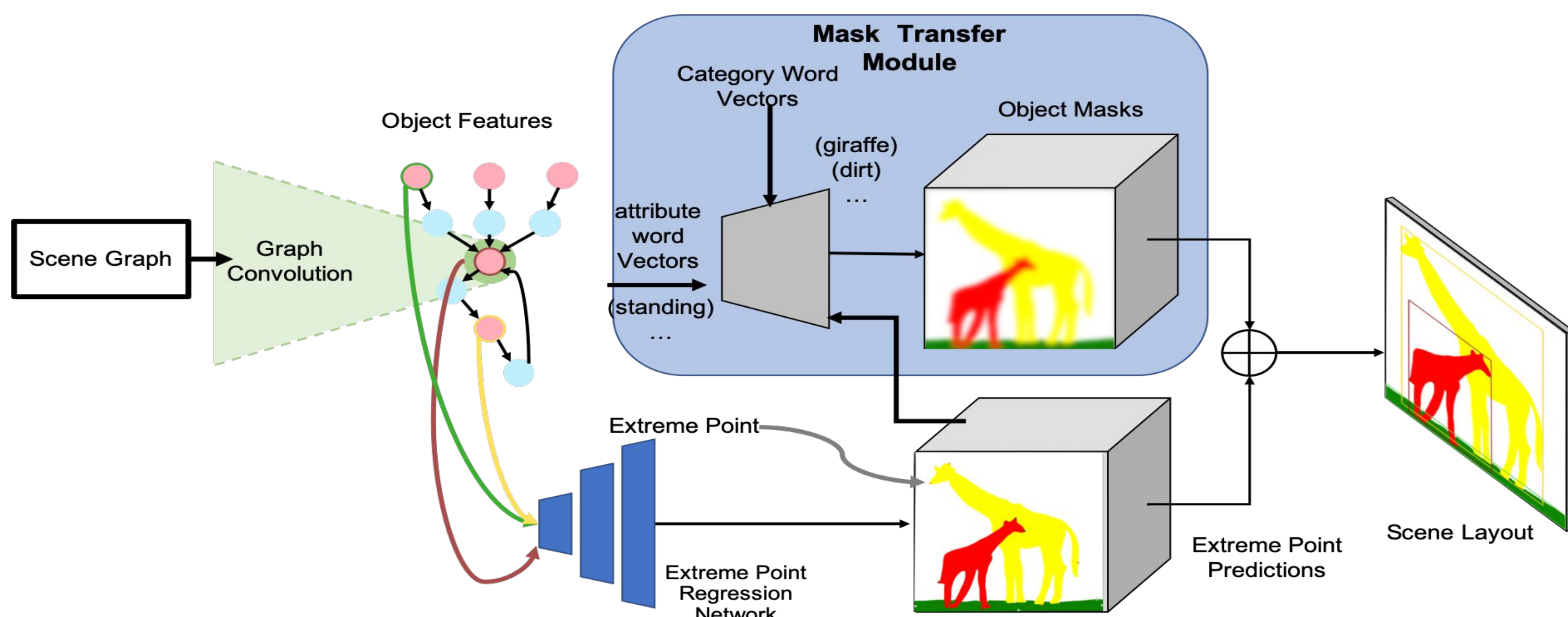


## Training with Segmentation and Attributes



Fig 1. Mask prediction module uses the location, category and attribute word vectors, but not the GCN embedding vectors.

## Dataset constraints

* Visual Genome has attributes, relations, but no segmentation
* COCO-stuff has segmentation, relations (synthetic and limited vocabulary), and segmentations
* We exploit COCO-attributes dataset by matching instance ids, and perform experiments on subset of COCO-stuff for training
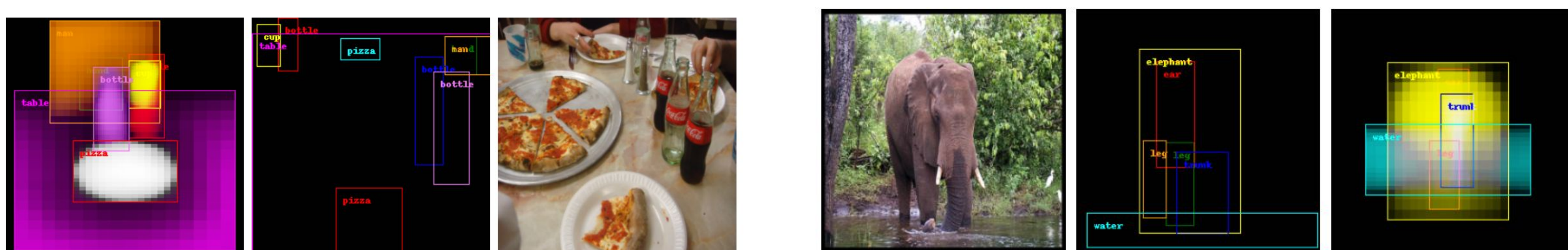
## Weakly supervised Scene Layout composition



Figure 2: Generating object masks for VG scene graphs. Ground truth (GT) bounding boxes and image are shown for reference. GT segmentation masks not available.

## References

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