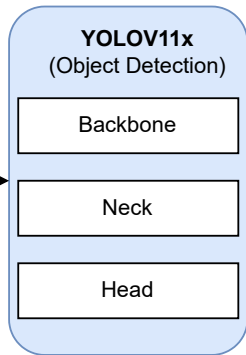




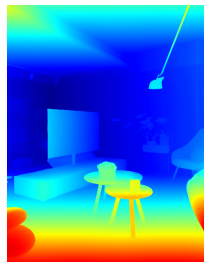
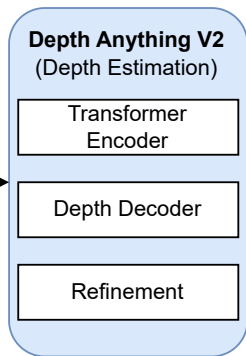
Input image



**Detection Outputs**  
(Image with BBoxes,  
Classes, Confidence)



BBoxes,  
Classes,  
Confidence



**Depth Output**  
(Dense Depth Map  
Output Image)

Dense Depth  
Map

**Object-Depth Fusion  
& Spatial Logic**  
(Python / Shapely)

**Stage 1: Fusion**

Centroid Calculation

Depth Sampling  
& Averaging

**Rich Objects**  
(ID, BBox, Centroid,  
Avg Depth)

**Stage 2: Spatial Logic**

Pairwise  
Combinations

IoU Calculation for  
Overlap/Touching

Centroid-based  
Directional with  
Dynamic Thresholds  
(Shapely)

Relationship  
Prioritization

Rich Objects  
& Spatial  
Relationships

Spatial  
Relationships

**RDF Knowledge Graph  
Generator (rdflib)**

Namespace Definition

Object Node Creation

Relationship Edge  
Creation

RDF Triples  
(in-memory graph)

RDF Triples

**Scene Graph  
Knowledge Base**

(TTL File)

TTL Serialization

