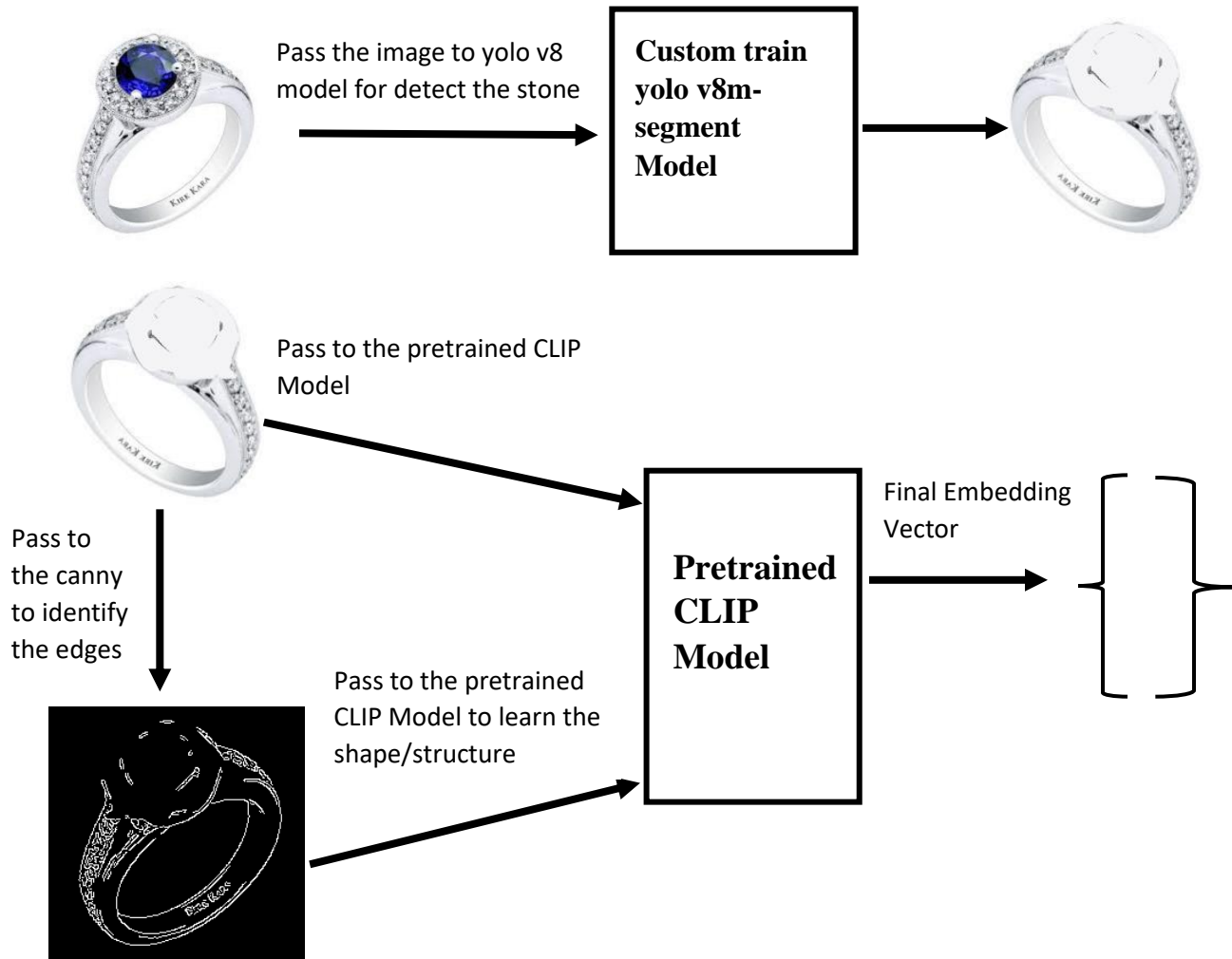# Ring Similarity System

## System pipeline:

```
Image -> Stone Mask -> Encoder (CLIP + Edge + Metal Color) -> Embedding ->
Similarity Search -> Top-N
```

Pass the image to yolo v8 model for detect the stone

**Custom train yolo v8m-segment Model**

Pass to the pretrained CLIP Model

Pass to the canny to identify the edges

Pass to the pretrained CLIP Model to learn the shape/structure
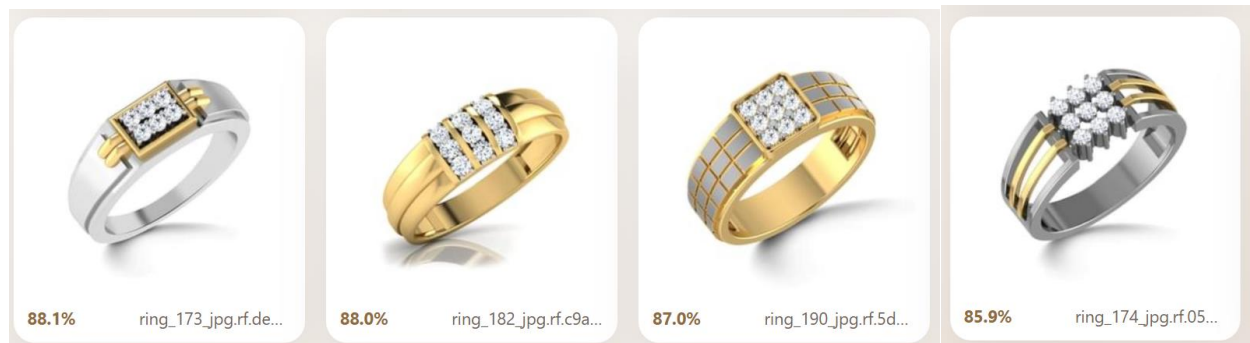
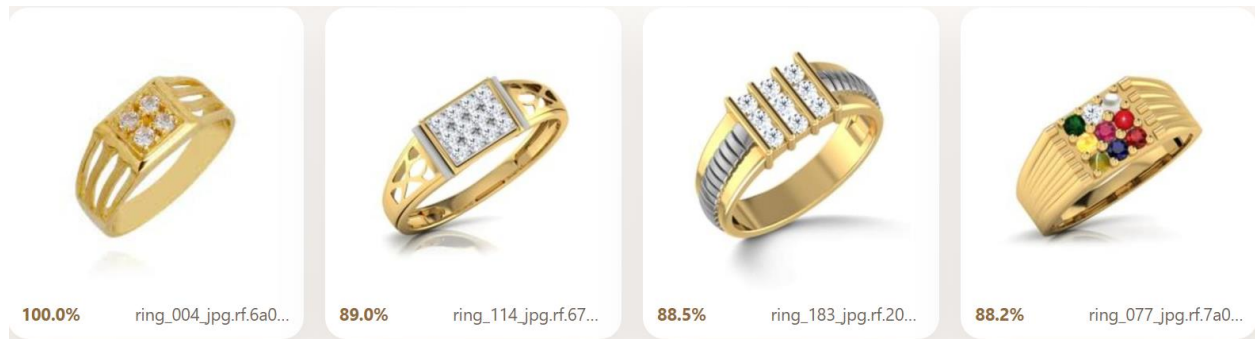**Pretrained CLIP Model**

Final Embedding Vector

Use the final Embedding vector to find the similarity between catalog and query image then show the top ten results.

# Example # 1:

## Query Image:



## Output Images:



| | | | |
|---|---|---|---|
| 100.0% ring_004_jpg.rf.6a0... | 89.0% ring_114_jpg.rf.67... | 88.5% ring_183_jpg.rf.20... | 88.2% ring_077_jpg.rf.7a0... |
| 88.1% ring_173_jpg.rf.de... | 88.0% ring_182_jpg.rf.c9a... | 87.0% ring_190_jpg.rf.5d... | 85.9% ring_174_jpg.rf.05... |

# Example # 2:

## Query Image:



## Output Images:



| 100.0% | ring_017_jpg.rf.c04... |
| 90.3% | ring_056_jpg.rf.3b... |
| 89.6% | ring_043_jpg.rf.f2e... |
| 89.3% | ring_025_jpg.rf.b0... |
| 88.0% | ring_045_jpg.rf.da... |
| 85.9% | ring_032_jpg.rf.f0a... |
| 85.8% | ring_041_jpg.rf.e7... |
| 85.6% | ring_031_jpg.rf.62... |