

15 different concepts

4 different pre-trained models (Resnet, Densenet, Inception, VGG)

- All CNN based imagenet trained model

(1) Resnet: conv5_block3_out layer

(2) Densenet: conv5_block16_concat layer

(3) Inception: mixed10 layer

(4) VGG: block5_pool layer

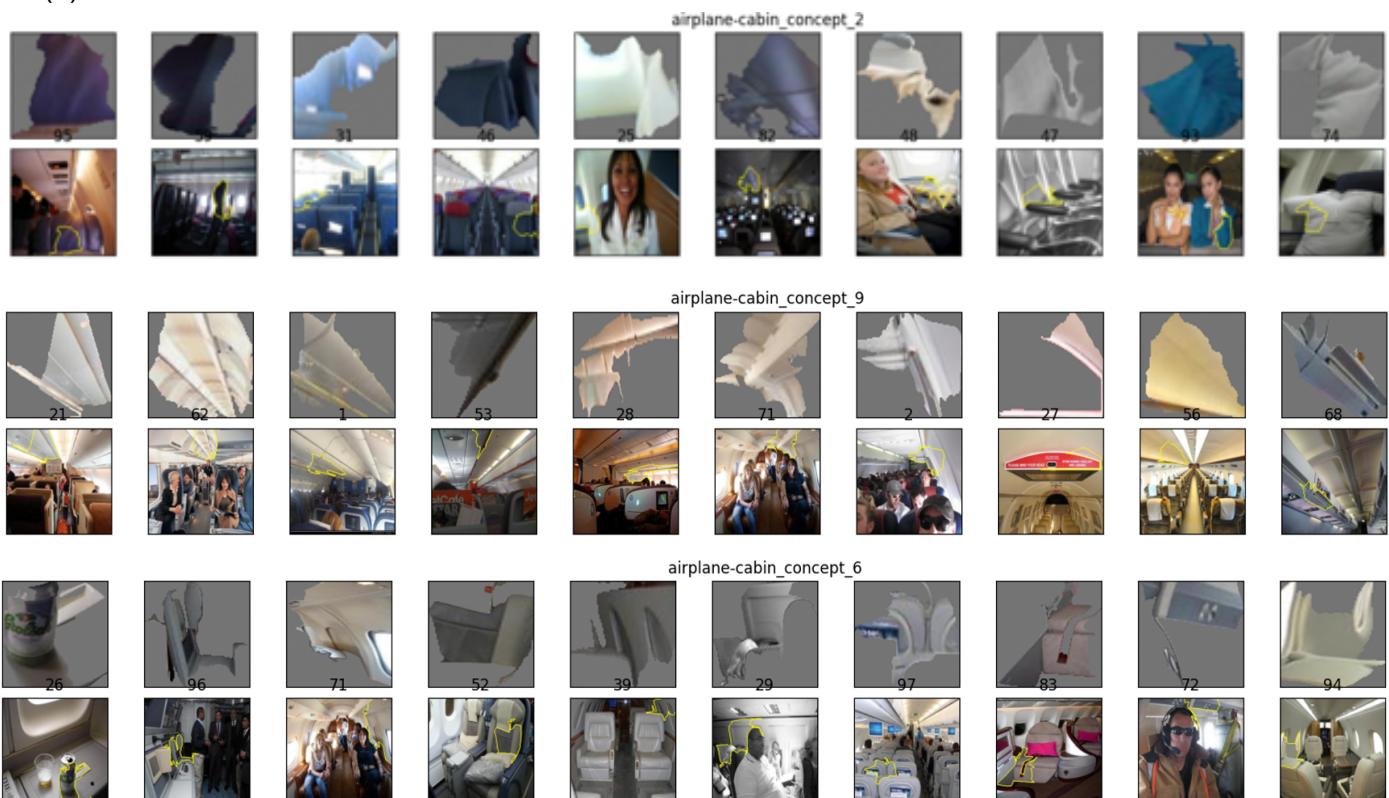
Lowered the number of clusters.

There were slight differences in a few classes, but it was hard to see patterns in concepts.

1. Airfield (not much difference)

2. Airplane Cabin

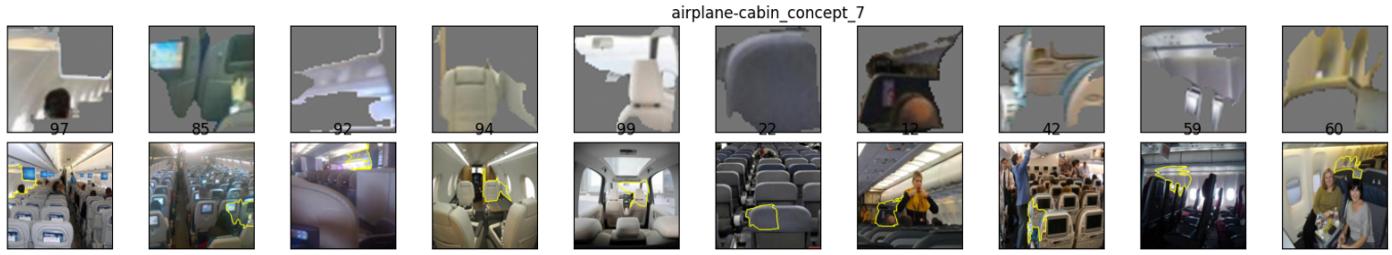
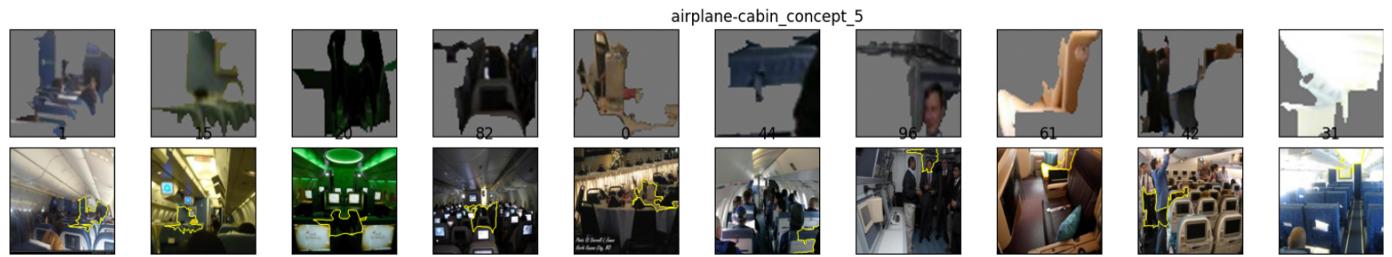
(1) Resnet



- Chair, ceiling, handle, car sheet.

(2) Densenet

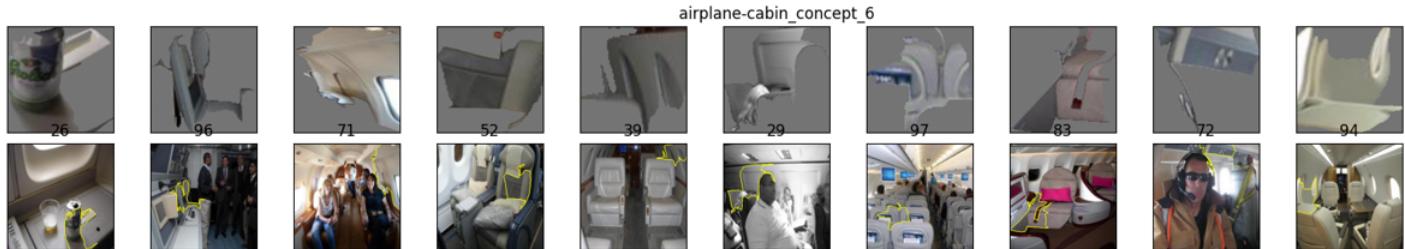
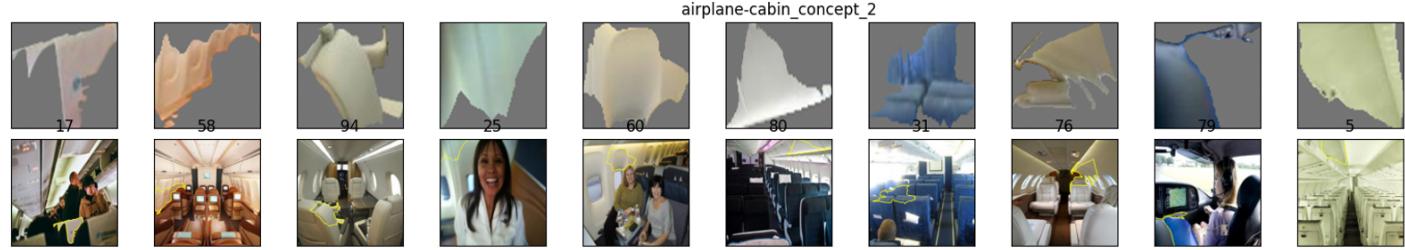




- A human face, cabin background, chair

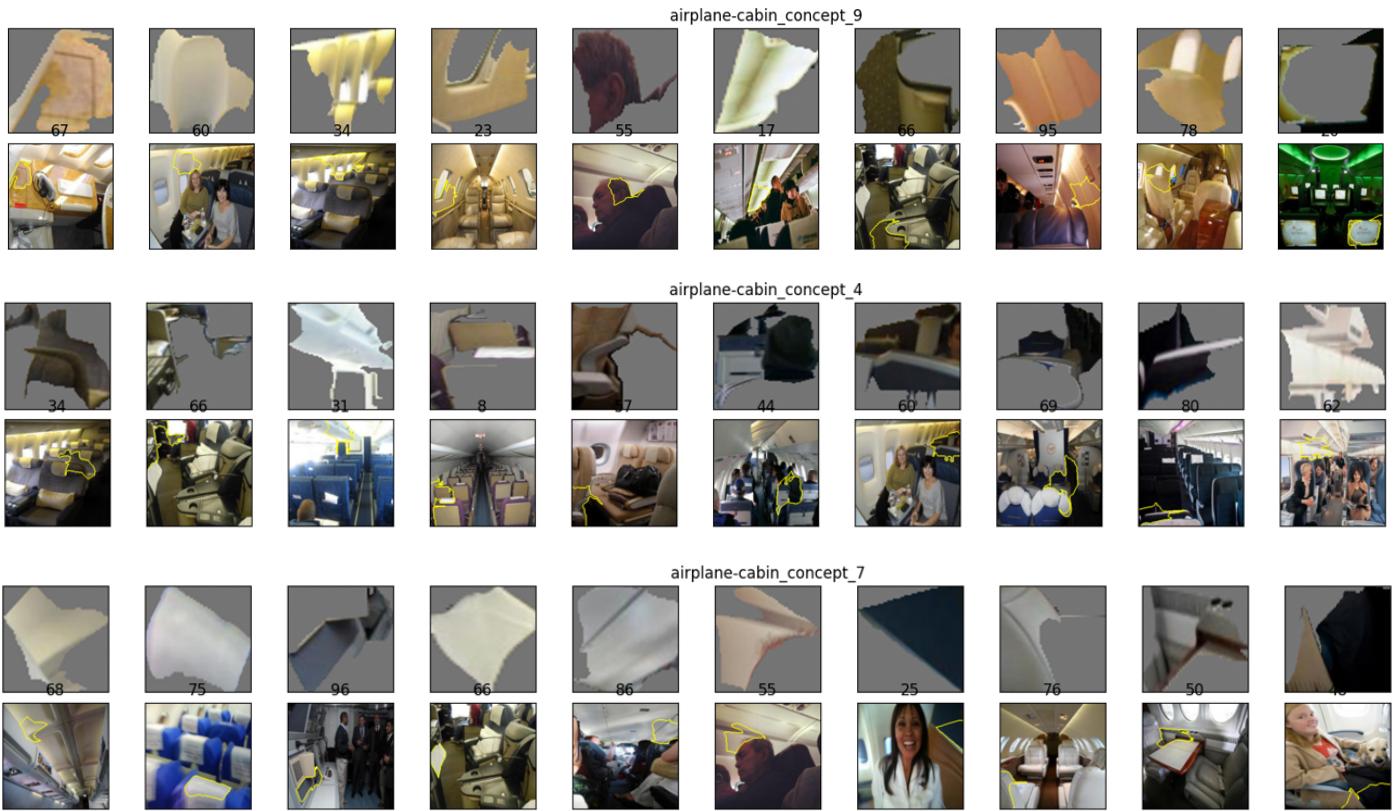
- Unlike other classes, it captured human faces as a concept with a high tcav score.

(3) Inception



- Chair, ceiling

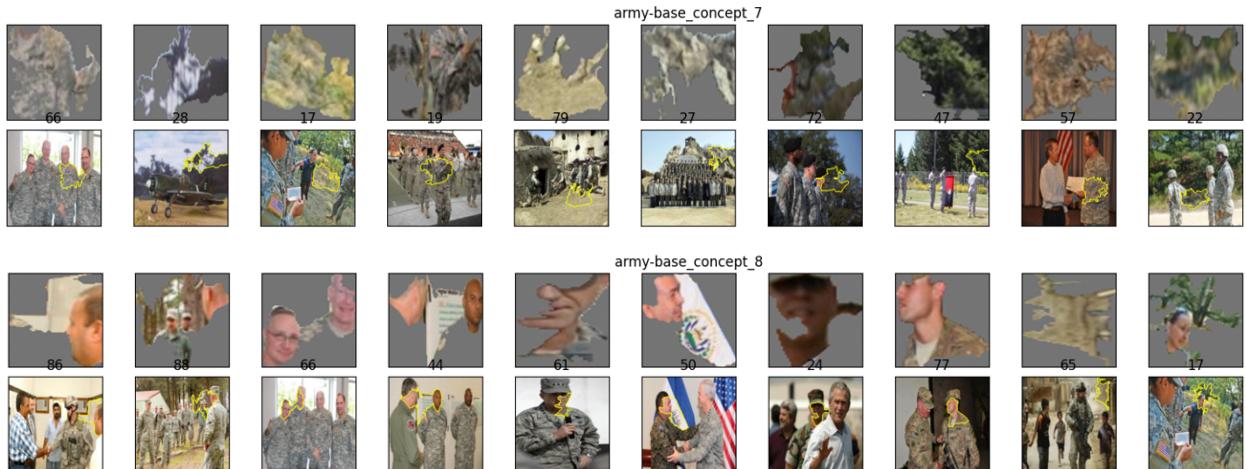
(4) VGG



- Chair, background

3. Army base: Models showed similar concepts, such as the human face, camouflage patterns, and background. (only the VGG model didn't have a concept with a human face)

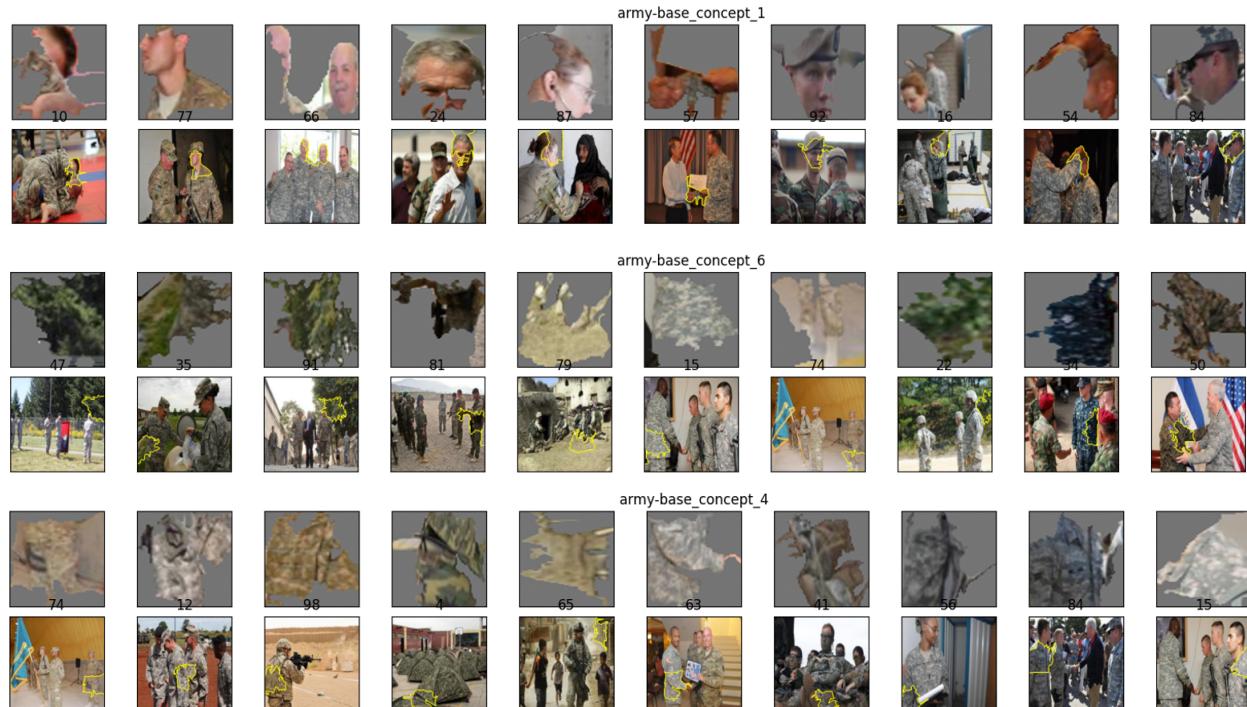
(1) Resnet





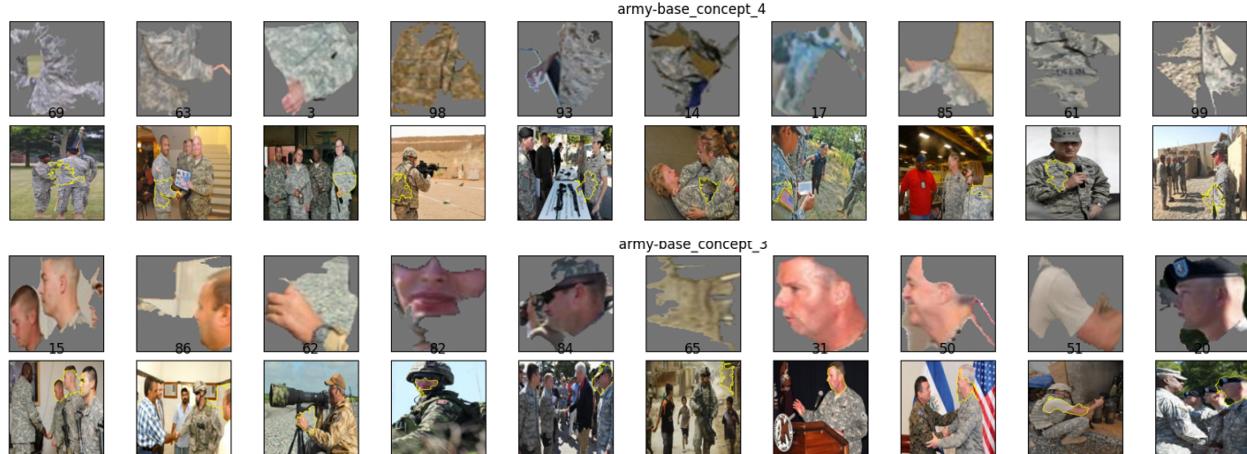
- Camouflage pattern, human faces

(2) Densenet



- Camouflage pattern, human faces

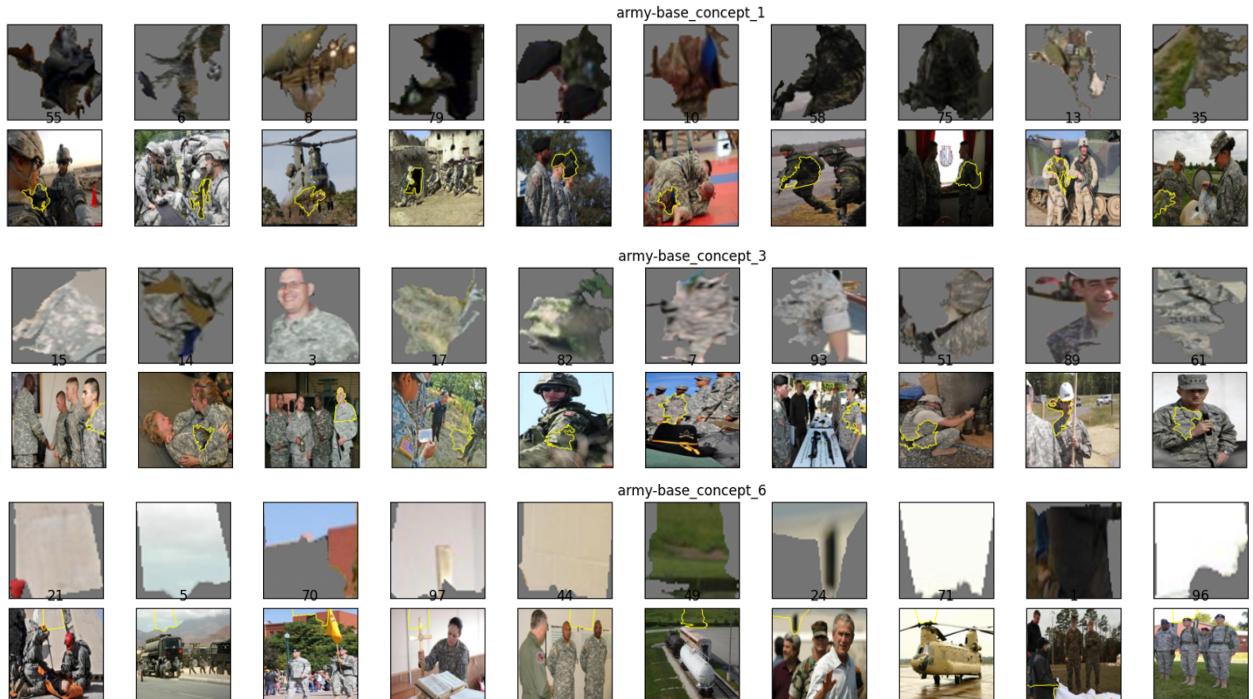
(3) Inception





- Human faces, camouflage patterns

(4) VGG



- Background, camouflage patterns

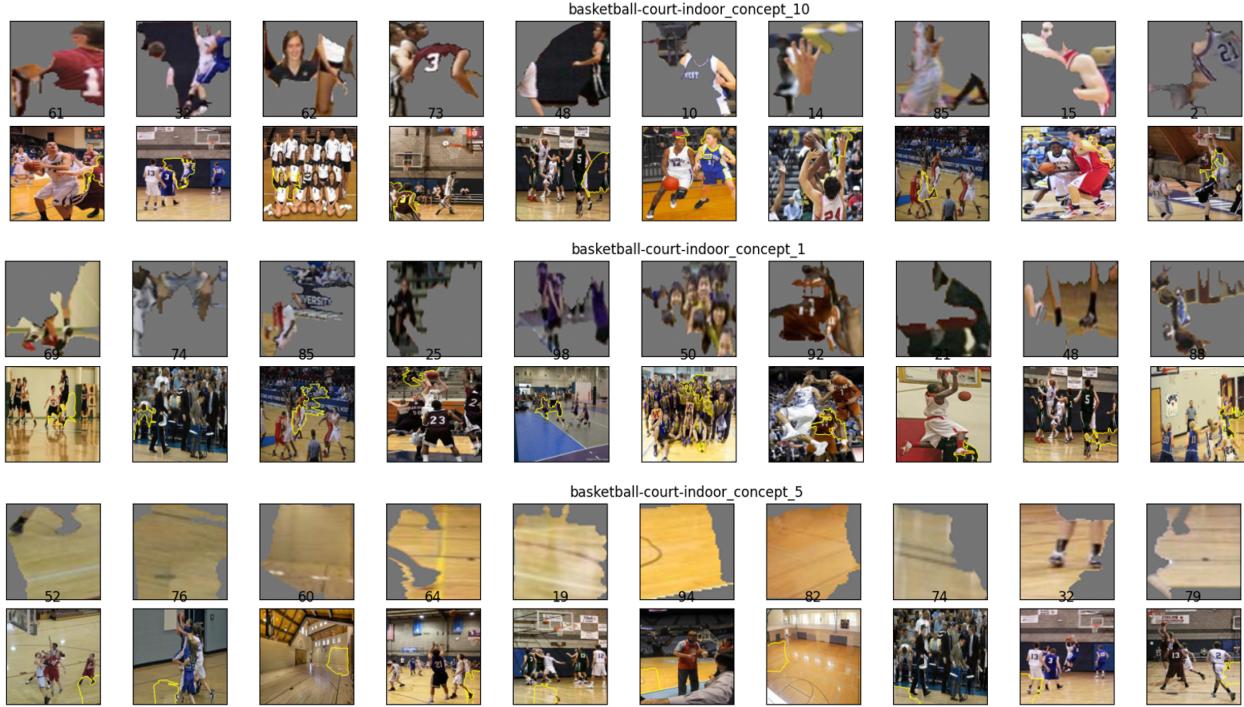
4. Basketball court: Resnet focused on the players' faces than other models.

(1) Resnet



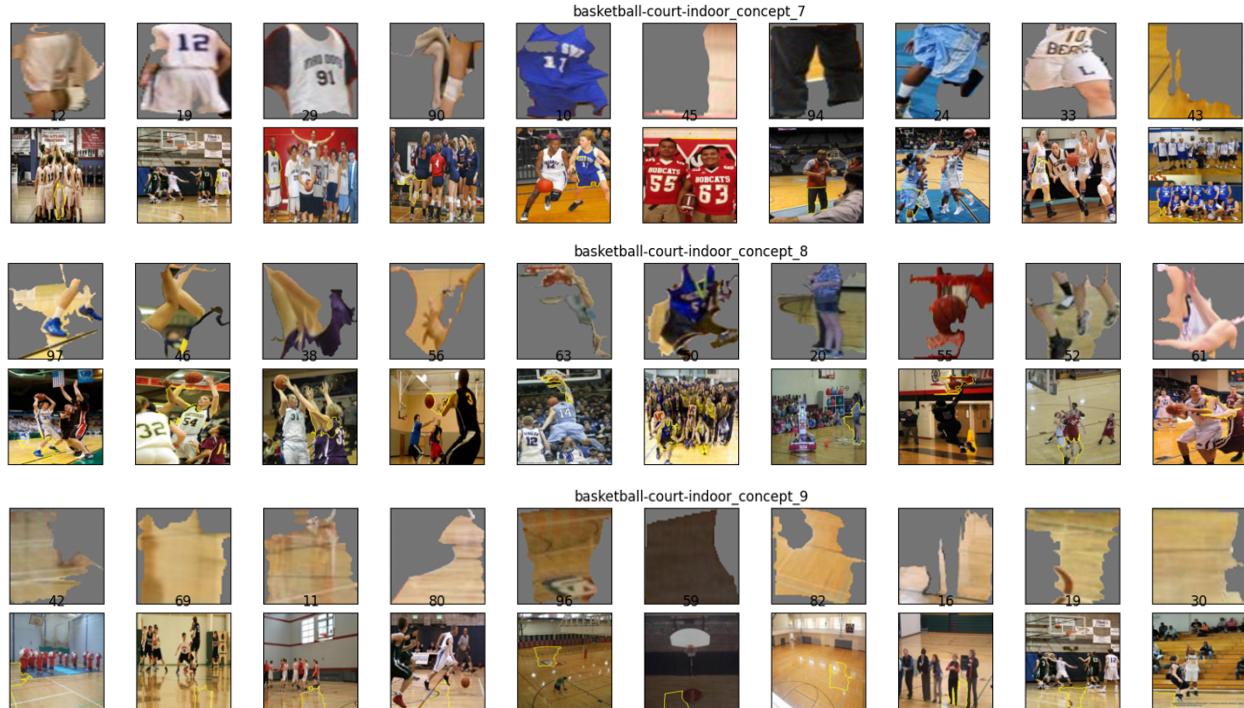
- Background audiences, and the human faces.

(2) Densenet



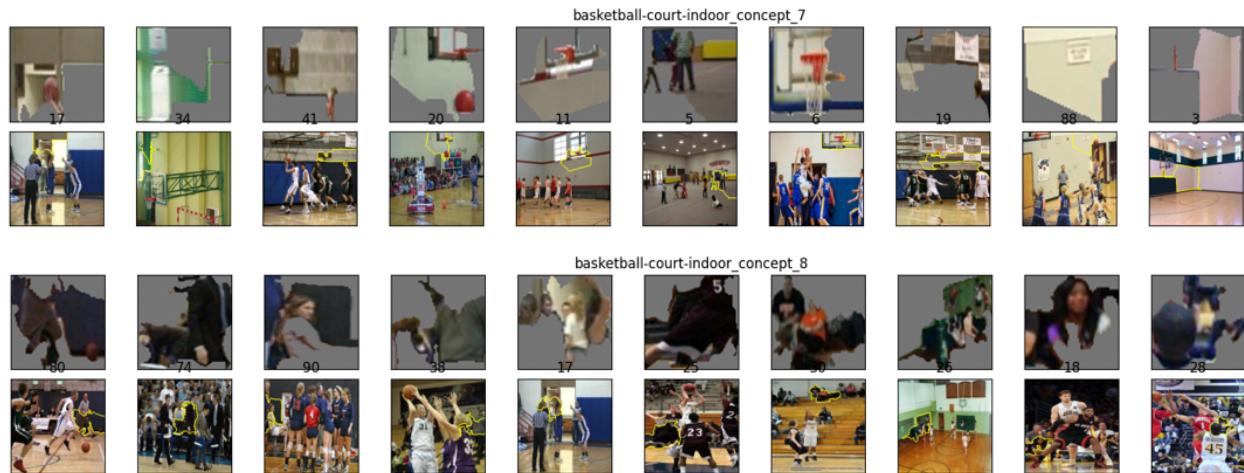
- Players' body, and court background.

(3) Inception



- Player's body and uniform, court background.

(4) VGG



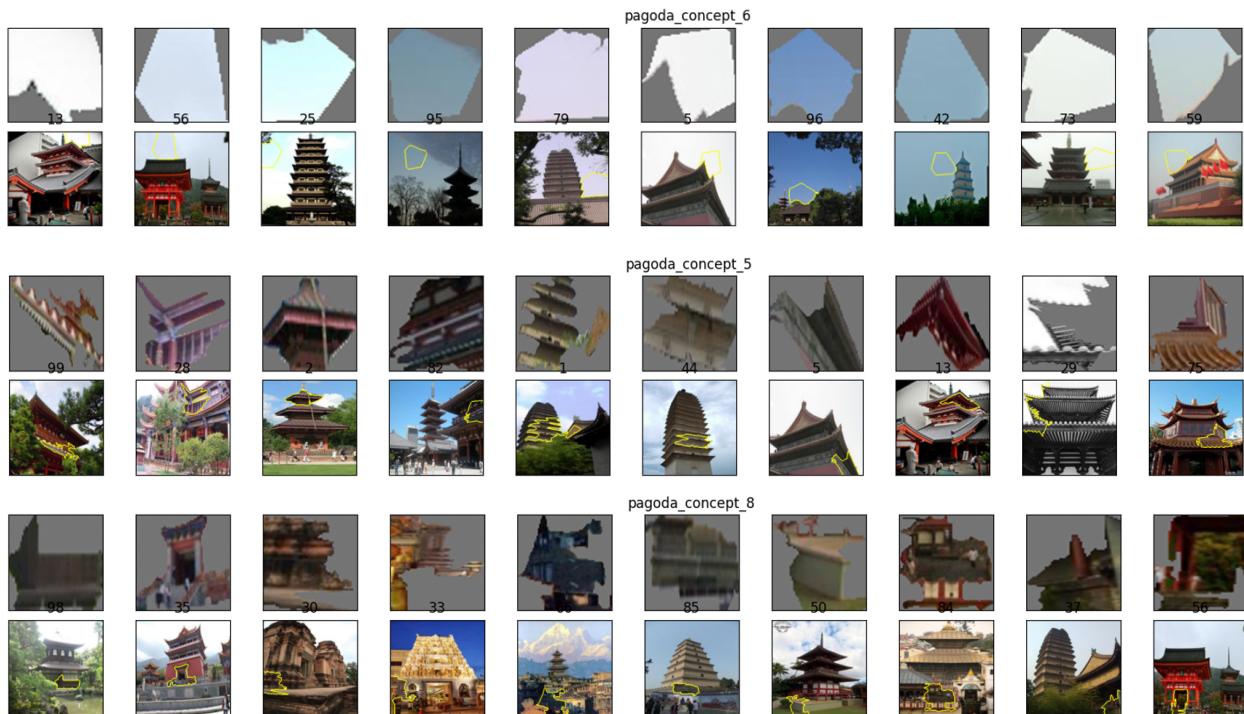
- Basketball board, audiences.
- All four models had court floor and background as common concepts.

5. Television room (not much difference)

6. Florist shop (not much difference)

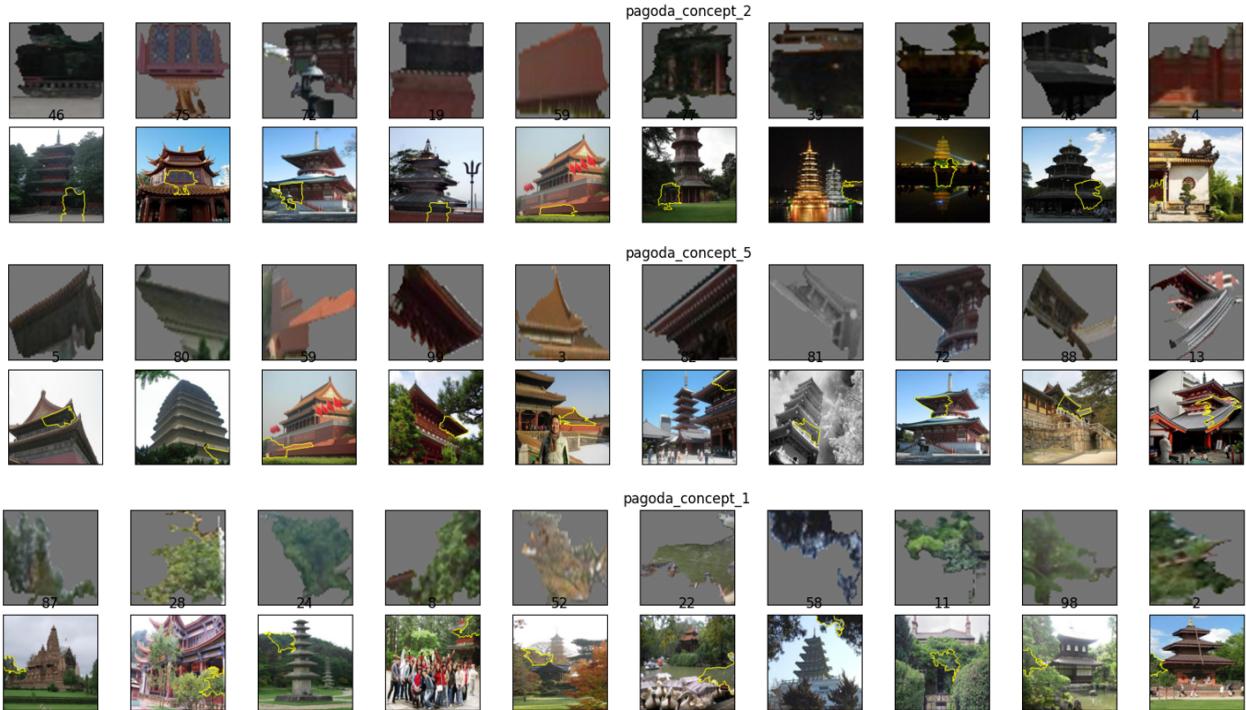
7. Pagoda

(1) Resnet



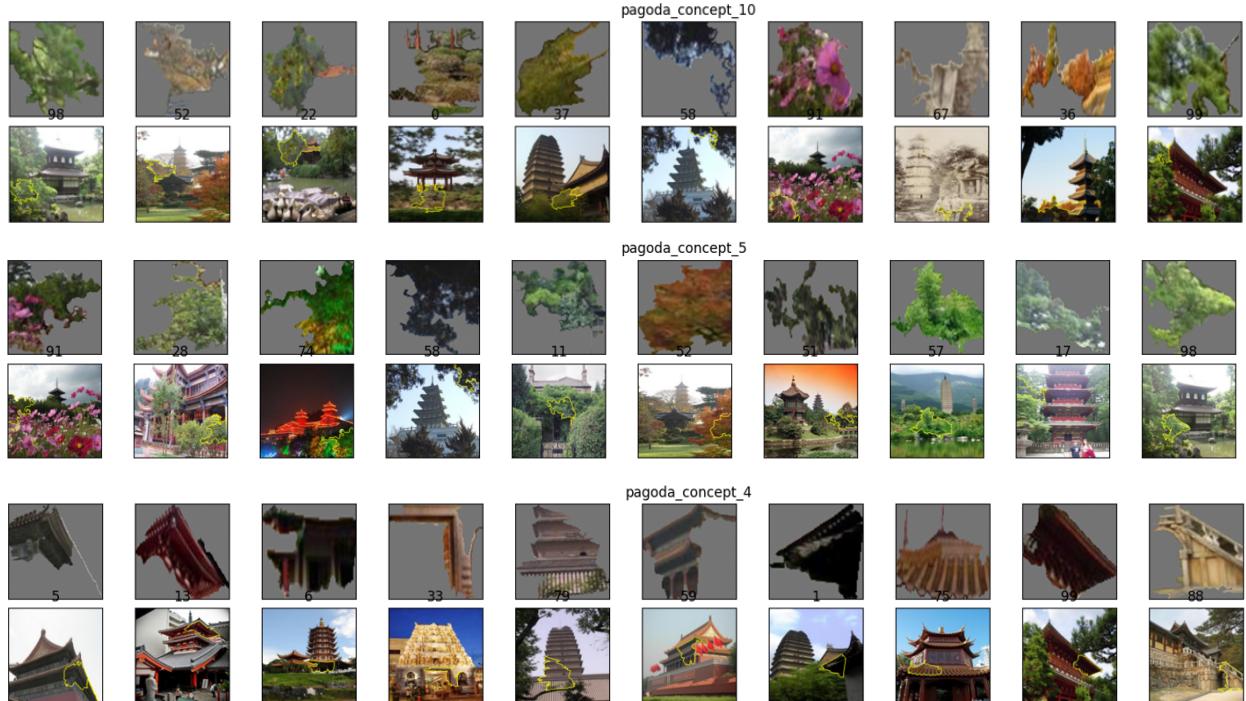
- Sky background, pagoda building body

(2) Densenet



- Background nature, pagoda building

(3) Inception



- Background nature, pagoda roof

(4) VGG



- Background nature, and pagoda building.