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| **Assignment** | |
| **Course Code** | CSE308A |
| **Course Name** | Computer Vision |
| **Programme** | B.Tech |
| **Department** | CSE |
| **Faculty** | FET |

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| **Name of the Student** | Satyajit Ghana |
| **Reg. No.** | 17ETCS002159 |
| **Semester/Year** | 07/2021 |
| **Course Leader(s)** | Dr. Aruna Kumar S V |



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| Declaration Sheet | | | | | | | | |
| Student Name | Satyajit Ghana | | | | | | | |
| Reg. No | 17ETCS002159 | | | | | | | |
| Programme | B.Tech | | | | | Semester/Year | 07/2021 | |
| Course Code | CSE308A | | | | | | | |
| Course Title | Computer Vision | | | | | | | |
| Course Date |  | | to |  | | | | |
| Course Leader | Dr. Aruna Kumar S V | | | | | | | |
| **Declaration**  The assignment submitted herewith is a result of my own investigations and that I have conformed to the guidelines against plagiarism as laid out in the Student Handbook. All sections of the text and results, which have been obtained from other sources, are fully referenced. I understand that cheating and plagiarism constitute a breach of University regulations and will be dealt with accordingly. | | | | | | | | |
| Signature of the Student | |  | | | | | Date |  |
| Submission date stamp  (by Examination & Assessment Section) | |  | | | | | | |
| Signature of the Course Leader and date | | | | | Signature of the Reviewer and date | | | |
|  | | | | |  | | | |

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# Question 1

Solution to Question No. 1

## Introduction to Segmentation Techniques

## Importance of Segmentation Techniques in Computer Vision

## Summary of State-of-the-Art techniques for Segmentation

# Question 2

Solution to Question 2

## Write the flow chart or Algorithm

## Create an Image Dataset. Explain pre-processing methods relevant to the created dataset

COCO categories:

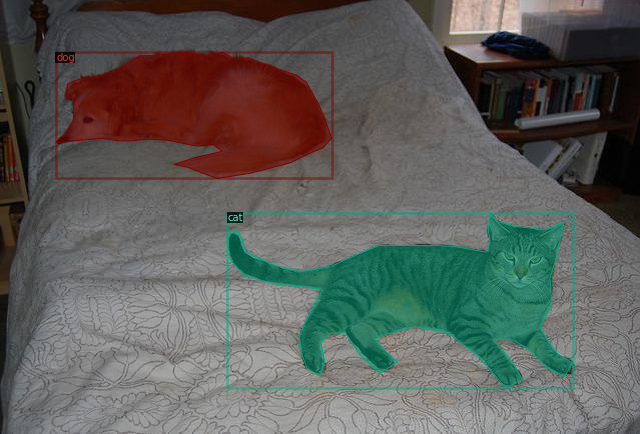
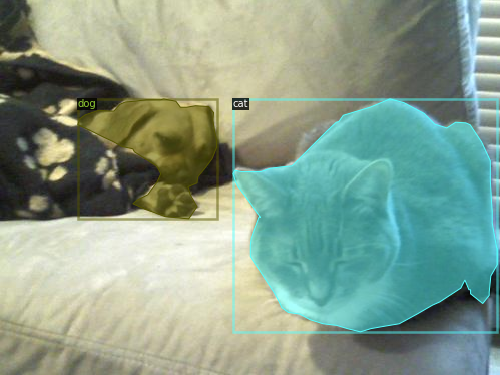
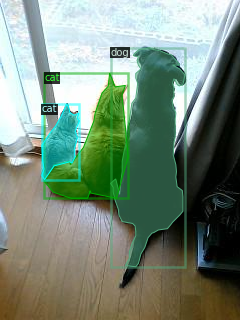
cat dog

COCO supercategories:

animal

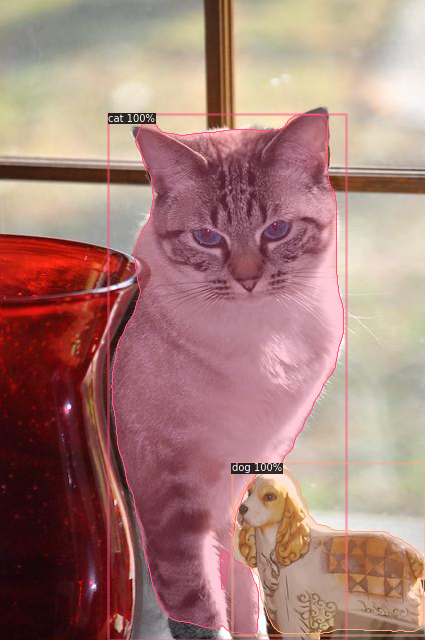
### Image Samples Visualized using COCO Tools





## Results and Discussions

### Test Images Prediction



# Bibliography

# Appendix

Training Logs

[01/17 10:11:52 d2.data.datasets.coco]: Loaded 32 images in COCO format from /content/cat\_dog\_coco/annotations/annotations.json

[01/17 10:11:52 d2.data.dataset\_mapper]: [DatasetMapper] Augmentations used in training: [ResizeShortestEdge(short\_edge\_length=(640, 672, 704, 736, 768, 800), max\_size=1333, sample\_style='choice'), RandomFlip()]

[01/17 10:11:52 d2.engine.train\_loop]: Starting training from iteration 0

[01/17 10:12:02 d2.utils.events]: eta: 0:40:41 iter: 19 total\_loss: 2.53 loss\_cls: 0.8805 loss\_box\_reg: 0.9396 loss\_mask: 0.6926 loss\_rpn\_cls: 0.006285 loss\_rpn\_loc: 0.006694 time: 0.4791 data\_time: 0.0163 lr: 4.9953e-06 max\_mem: 3255M

[01/17 10:12:12 d2.utils.events]: eta: 0:40:31 iter: 39 total\_loss: 2.502 loss\_cls: 0.8392 loss\_box\_reg: 0.9773 loss\_mask: 0.6875 loss\_rpn\_cls: 0.008476 loss\_rpn\_loc: 0.007306 time: 0.4786 data\_time: 0.0067 lr: 9.9902e-06 max\_mem: 3255M

. . . . . . . .

[01/17 10:51:50 d2.utils.events]: eta: 0:00:19 iter: 4959 total\_loss: 0.1519 loss\_cls: 0.01956 loss\_box\_reg: 0.0574 loss\_mask: 0.07078 loss\_rpn\_cls: 9.858e-06 loss\_rpn\_loc: 0.002456 time: 0.4828 data\_time: 0.0082 lr: 0.00025 max\_mem: 3394M

[01/17 10:52:00 d2.utils.events]: eta: 0:00:09 iter: 4979 total\_loss: 0.1468 loss\_cls: 0.01878 loss\_box\_reg: 0.05593 loss\_mask: 0.06667 loss\_rpn\_cls: 1.776e-05 loss\_rpn\_loc: 0.002517 time: 0.4828 data\_time: 0.0080 lr: 0.00025 max\_mem: 3394M

[01/17 10:52:13 d2.utils.events]: eta: 0:00:00 iter: 4999 total\_loss: 0.1479 loss\_cls: 0.01777 loss\_box\_reg: 0.05872 loss\_mask: 0.06731 loss\_rpn\_cls: 2.385e-05 loss\_rpn\_loc: 0.003065 time: 0.4829 data\_time: 0.0067 lr: 0.00025 max\_mem: 3394M

[01/17 10:52:13 d2.engine.hooks]: Overall training speed: 4998 iterations in 0:40:13 (0.4829 s / it)

[01/17 10:52:13 d2.engine.hooks]: Total training time: 0:40:19 (0:00:06 on hooks)