1. Installation

```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
# Update CUDA for TF 2.5
!wget https://developer.download.nvidia.com/compute/cuda/repos/ubuntu2004/x86_64/libcudnn8_8.1.0.77-1+cuda11.2_amd64.
!dpkg -i libcudnn8_8.1.0.77-1+cuda11.2_amd64.deb
# Check if package has been installed
!ls -l /usr/lib/x86_64-linux-gnu/libcudnn.so.*
# Upgrade Tensorflow
!pip install --upgrade tensorflow==2.5.0
```

```
Requirement already satisfied: chardet<5,>=3.0.2 in /usr/local/lib/python3.8/dist-packages (from requests<3,>=2.21.0->tensorboard~=2.
Requirement already satisfied: urllib3<1.27,>=1.21.1 in /usr/local/lib/python3.8/dist-packages (from requests<3,>=2.21.0->tensorboard
Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.8/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->te
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.8/dist-packages (from pyasn1-modules>=0.2.1->google-aut
Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.8/dist-packages (from requests-oauthlib>=0.7.0->google-auth-
Building wheels for collected packages: termcolor, wrapt
  Building wheel for termcolor (setup.py) ... done
  Created wheel for termcolor: filename=termcolor-1.1.0-py3-none-any.whl size=4849 sha256=0ecb1c20468e23cf28784bfe32473127017b0b0c091
  Stored in directory: /root/.cache/pip/wheels/a0/16/9c/5473df82468f958445479c59e784896fa24f4a5fc024b0f501
  Building wheel for wrapt (setup.py) ... done
  Created wheel for wrapt: filename=wrapt-1.12.1-cp38-cp38-linux_x86_64.whl size=78582 sha256=d49f5652451cab04dcba4da86d6cc3ec0da96cd
  Stored in directory: /root/.cache/pip/wheels/5f/fd/9e/b6cf5890494cb8ef0b5eaff72e5d55a70fb56316007d6dfe73
Successfully built termcolor wrapt
Installing collected packages: wrapt, typing-extensions, termcolor, tensorflow-estimator, keras-nightly, numpy, grpcio, absl-py, tens
  Attempting uninstall: wrapt
    Found existing installation: wrapt 1.14.1
    Uninstalling wrapt-1.14.1:
      Successfully uninstalled wrapt-1.14.1
  Attempting uninstall: typing-extensions
    Found existing installation: typing_extensions 4.4.0
    Uninstalling typing_extensions-4.4.0:
      Successfully uninstalled typing_extensions-4.4.0
  Attempting uninstall: termcolor
    Found existing installation: termcolor 2.2.0
    Uninstalling termcolor-2.2.0:
      Successfully uninstalled termcolor-2.2.0
  Attempting uninstall: tensorflow-estimator
    Found existing installation: tensorflow-estimator 2.9.0
    Uninstalling tensorflow-estimator-2.9.0:
      Successfully uninstalled tensorflow-estimator-2.9.0
  Attempting uninstall: numpy
    Found existing installation: numpy 1.21.6
    Uninstalling numpy-1.21.6:
      Successfully uninstalled numpy-1.21.6
  Attempting uninstall: grpcio
    Found existing installation: grpcio 1.51.1
    Uninstalling grpcio-1.51.1:
      Successfully uninstalled grpcio-1.51.1
  Attempting uninstall: absl-py
    Found existing installation: absl-py 1.3.0
    Uninstalling absl-py-1.3.0:
      Successfully uninstalled absl-py-1.3.0
  Attempting uninstall: tensorflow
    Found existing installation: tensorflow 2.9.2
    Uninstalling tensorflow-2.9.2:
      Successfully uninstalled tensorflow-2.9.2
ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This behaviour is the sour
xarray 2022.12.0 requires numpy>=1.20, but you have numpy 1.19.5 which is incompatible.
xarray-einstats 0.4.0 requires numpy>=1.20, but you have numpy 1.19.5 which is incompatible.
pydantic 1.10.4 requires typing-extensions>=4.2.0, but you have typing-extensions 3.7.4.3 which is incompatible.
jaxlib 0.3.25+cuda11.cudnn805 requires numpy>=1.20, but you have numpy 1.19.5 which is incompatible.
jax 0.3.25 requires numpy>=1.20, but you have numpy 1.19.5 which is incompatible.
grpcio-status 1.48.2 requires grpcio>=1.48.2, but you have grpcio 1.34.1 which is incompatible.
google-cloud-bigquery 3.4.1 requires grpcio<2.0dev,>=1.47.0, but you have grpcio 1.34.1 which is incompatible.
cupy-cuda11x 11.0.0 requires numpy<1.26,>=1.20, but you have numpy 1.19.5 which is incompatible.
cmdstanpy 1.0.8 requires numpy>=1.21, but you have numpy 1.19.5 which is incompatible.
Successfully installed absl-py-0.15.0 grpcio-1.34.1 keras-nightly-2.5.0.dev2021032900 numpy-1.19.5 tensorflow-2.5.0 tensorflow-estima
```

```
!wget https://pysource.com/extra_files/maskrcnn_colab_demo_commit_17.zip
!unzip maskrcnn_colab_demo_commit_17.zip
import sys
sys.path.append("/content/maskrcnn_colab/mrcnn_demo")
```

```
from m_rcnn import *
from visualize import random_colors, get_mask_contours, draw_mask
%matplotlib inline
```

```
--2023-01-29 09:33:27--  https://pysource.com/extra_files/maskrcnn_colab_demo_commit_17.zip
Resolving pysource.com (pysource.com)... 172.67.180.33, 104.21.67.193, 2606:4700:3036::ac43:b421, ...
Connecting to pysource.com (pysource.com)|172.67.180.33|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 59340 (58K) [application/zip]
Saving to: ‘maskrcnn_colab_demo_commit_17.zip’

maskrcnn_colab_demo 100%[===================>]  57.95K  --.-KB/s    in 0.001s

2023-01-29 09:33:27 (40.9 MB/s) - ‘maskrcnn_colab_demo_commit_17.zip’ saved [59340/59340]

Archive:  maskrcnn_colab_demo_commit_17.zip
   creating: maskrcnn_colab/
   creating: maskrcnn_colab/mrcnn_demo/
  inflating: maskrcnn_colab/mrcnn_demo/config.py
  inflating: maskrcnn_colab/mrcnn_demo/model.py
  inflating: maskrcnn_colab/mrcnn_demo/m_rcnn.py
  inflating: maskrcnn_colab/mrcnn_demo/parallel_model.py
  inflating: maskrcnn_colab/mrcnn_demo/utils.py
  inflating: maskrcnn_colab/mrcnn_demo/visualize.py
VERS 0.4 - updated 04/08/2022
/content/maskrcnn_colab/mrcnn_demo/model.py:2378: SyntaxWarning: "is" with a literal. Did you mean "=="?
  if os.name is 'nt':
Downloading pretrained model to /content/maskrcnn_colab/mask_rcnn_coco.h5 ...
... done downloading pretrained model!
```

```
!nvidia-smi
```

```
Sun Jan 29 09:34:14 2023
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 510.47.03    Driver Version: 510.47.03    CUDA Version: 11.6     |
|-------------------------------+----------------------+----------------------+
| GPU  Name        Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Compute M. |
|                               |                      |               MIG M. |
|===============================+======================+======================|
|   0  Tesla T4            Off  | 00000000:00:04.0 Off |                    0 |
| N/A   61C    P0    29W /  70W |      0MiB / 15360MiB |      0%      Default |
|                               |                      |                  N/A |
+-------------------------------+----------------------+----------------------+

+-----------------------------------------------------------------------------+
| Processes:                                                                  |
|  GPU   GI   CI        PID   Type   Process name                  GPU Memory |
|        ID   ID                                                   Usage      |
|=============================================================================|
|  No running processes found                                                 |
+-----------------------------------------------------------------------------+
```

2. Run Mask-RCNN on Images

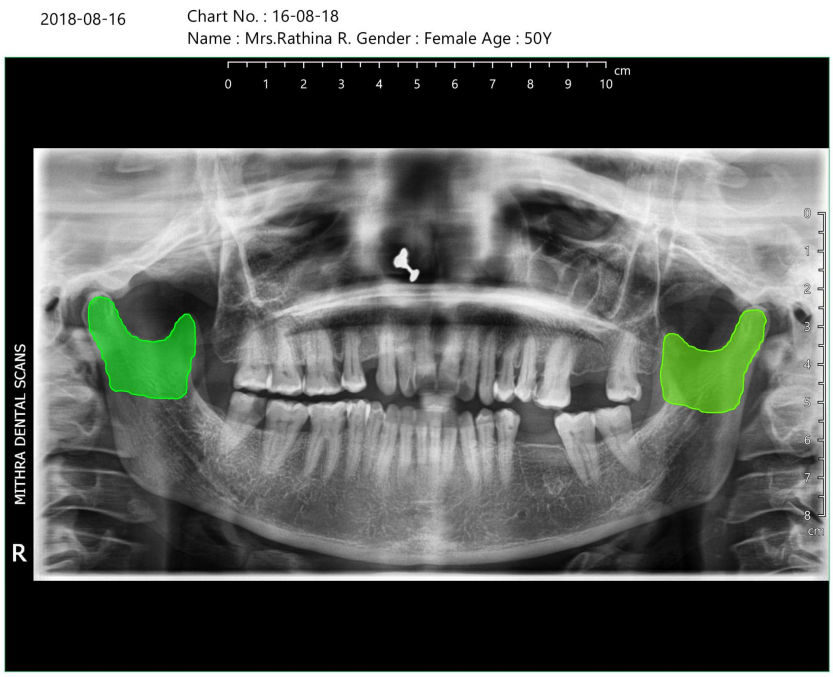
You can load here the image and extract the mask using Mask-RCNN

```
# Load Image
img = cv2.imread("/content/drive/MyDrive/dataset/Mrs.Rathina R._2018-08-16094142-1.jpg")

test_model, inference_config = load_inference_model(1, "/content/drive/MyDrive/mask_rcnn_object_0005.h5")
image = cv2.cvtColor(img, cv2.COLOR_BGR2RGB)

# Detect results
r = test_model.detect([image])[0]
colors = random_colors(80)
```

```
Loading weights from  /content/drive/MyDrive/mask_rcnn_object_0005.h5
```

```
from google.colab.patches import cv2_imshow
# Get Coordinates and show it on the image
object_count = len(r["class_ids"])
for i in range(object_count):
    # 1. Mask
    mask = r["masks"][:, :, i]
    contours = get_mask_contours(mask)
    for cnt in contours:
        cv2.polylines(img, [cnt], True, colors[i], 2)
```

```
            img = draw_mask(img, [cnt], colors[i])

    cv2_imshow(img)
```



Colab paid products - Cancel contracts here

✓ 8s completed at 3:05 PM