

```
# Run in a Colab cell
!mkdir -p /content/oralvis_project
%cd /content/oralvis_project

# install libs
!pip install -q ultralytics==8.3.40 gdown pyyaml pandas matplotlib scikit-learn python-docx Pillow
```

→ /content/oralvis_project ━━━━━━━━ 898.5/898.5 kB 46.9 MB/s eta 0:00:00
━ 253.0/253.0 kB 18.5 MB/S eta 0:00:00

```
from pathlib import Path
FILE_ID = "1Bj0F9upmZ97N1V8jW7epb7YUwFDmM13"
DATA_ZIP = Path('/content/oralvis_project/dental_dataset.zip')
DATA_ROOT = Path('/content/oralvis_project/dental_data')
if not DATA_ZIP.exists():
    !gdown --id {FILE_ID} -O {DATA_ZIP}
DATA_ROOT.mkdir(exist_ok=True)
!unzip -q -o {DATA_ZIP} -d {DATA_ROOT}
!ls -l {DATA_ROOT} | sed -n '1,200p'
```

```
→ /usr/local/lib/python3.12/dist-packages/gdown/_main__.py:140: FutureWarning: Option `--id` was deprecated in version 4.3.1 and will be removed in 5.0.0. Use `url` instead.
  warnings.warn(
Downloading...
From (original): https://drive.google.com/uc?id=1BJ0F9upmZ97N1VK8jW7epb7YUwFDmM13
From (redirected): https://drive.google.com/uc?id=1BJ0F9upmZ97N1VK8jW7epb7YUwFDmM13&confirm=t&uuid=1d9a29de-eee7-4f82-ac20-e67cf229
To: /content/oralvis_project/dental_dataset.zip
100% 42.6M/42.6M [00:00<00:00, 56.2MB/s]
total 92
drwx----- 2 root root 49152 Aug 26 07:02 images
drwx----- 2 root root 45056 Aug 26 07:02 labels
```

```
from pathlib import Path
root = Path('/content/oralvis_project/dental_data')
imgs = list(root.rglob('*.*')) + list(root.rglob('*.png'))
txts = list(root.rglob('*.*txt'))
print("Images:", len(imgs), "Label .txt files:", len(txts))
if txts:
    print("Sample label file:", txts[0])
    print(Path(txts[0]).read_text().splitlines()[:5])
```

Images: 497 Label .txt files: 497
Sample label file: /content/oralvis_project/dental_data/labels/cate8-00323.jpg.rf.40365ebbe31bd5ff73e44c6aba65928dc.txt

```
import random, shutil
from pathlib import Path

random.seed(42)
ROOT = Path('/content/oralvis_project/dental_data')
OUT = Path('/content/oralvis_project/dataset')
# create folders
for p in ['train/images','val/images','test/images','train/labels','val/labels','test/labels']:
    (OUT/p).mkdir(parents=True, exist_ok=True)
```

```

# pair images with labels
img_exts = ('.jpg','.jpeg','.png')
pairs = []
for img in sorted([p for p in ROOT.rglob('*') if p.suffix.lower() in img_exts]):
    lab = img.with_suffix('.txt')
    if lab.exists():
        pairs.append((img, lab))
len_pairs = len(pairs)
print("Paired images:", len_pairs)

random.shuffle(pairs)
n = len_pairs
n_train = int(0.8*n)
n_val = int(0.1*n)
train = pairs[:n_train]; val = pairs[n_train:n_train+n_val]; test = pairs[n_train+n_val:]

def copy_pairs(pairs, split):
    for img,label in pairs:
        shutil.copy(img, OUT/f'{split}/images/{img.name}')
        shutil.copy(label, OUT/f'{split}/labels/{label.name}')

```

```
copy_pairs(train,'train'); copy_pairs(val,'val'); copy_pairs(test,'test')
print("Train/Val/Test counts:", len(train), len(val), len(test))
```

→ Paired images: 0
Train/Val/Test counts: 0 0 0

```
!ls -R /content/oralvis_project/dental_data | head -n 200
```

→ cate10-00063.jpg.rf.3a093b85e3f523f0d21ecbb2c60bab35.jpg
cate10-00066.jpg.rf.258590bede3b77924430f33914476a9a.jpg
cate10-00066.jpg.rf.8355b9cd10e8f695c8c144f96f578c72.jpg
cate10-00070.jpg.rf.314fc4568fa0ea36e4854bc770c55005.jpg
cate10-00072.jpg.rf.103bc7aae3af6b953a340774e274ee2b.jpg
cate10-00072.jpg.rf.91d3de6f73923fd0b7dc3625708dd903.jpg
cate10-00072.jpg.rf.b728d79504745fe3873553eb51d780a2.jpg
cate10-00077.jpg.rf.55ee1c2653c81cd69cbbb3c35f5ce8cf.jpg
cate10-00078.jpg.rf.c5d9cf951424801e5c5140d6550548d6.jpg
cate10-00084.jpg.rf.28a9a7a29e2435a28672832b6f727d59.jpg
cate10-00084.jpg.rf.85ec6a4ebe490441c7810204ac7349e8.jpg
cate10-00085.jpg.rf.50e35c3788c415e0216fc9c2dcafe6e9.jpg
cate1-00008.jpg.rf.10436fa8d35c0764df5402f3a6f093dc.jpg
cate1-00008.jpg.rf.3f73860592a2aef8cf53b9031356ffbb.jpg
cate1-00008.jpg.rf.bd52f3e93a205ce4f81a74a113d8677d.jpg
cate10-00096.jpg.rf.7e87642d67920f133fa3b2bae53a0e23.jpg
cate10-00096.jpg.rf.847cc33e35016442a58b3832dfcc488.jpg
cate10-00099.jpg.rf.930b392526a8d7c5bd58de4ef8d8913b.jpg
cate10-00099.jpg.rf.9aed28ed71f4e0bfe8cc0216ecd074c.jpg
cate10-00099.jpg.rf.bd736ca3902c9f7e8415b4d73dab2198.jpg
cate10-00102.jpg.rf.a13b825b4c6206c659c41586a243895d.jpg
cate10-00106.jpg.rf.faad589d7bdc19f7175a1607749b83a0.jpg
cate10-00108.jpg.rf.912ca1f68f0307534ff59a071ed40224.jpg
cate1-00113.jpg.rf.b131d93c8af80e729c75c2a4a0d403b0.jpg
cate10-00113.jpg.rf.b8bd7fe7443cc844b2fcbb38bea5256.jpg
cate10-00114.jpg.rf.8bd5efa8118e62908fc3eb558cab6855.jpg
cate1-00014.jpg.rf.35b346d991cc15ccd3041ca12411ceeb.jpg
cate1-00014.jpg.rf.ec1e433bb6e41264fa4819877fe7486a.jpg
cate1-00017.jpg.rf.2e6315d4e63cf6957204b573cad616d4.jpg
cate1-00017.jpg.rf.3dd93f8441ac070e8ba7f26ffea1c7a.jpg
cate1-00029.jpg.rf.97fe17dca11f631d02b8290db8b4c8de.jpg
cate1-00029.jpg.rf.e7a2481e049e4936cef587d6e5957e3.jpg
cate1-00032.jpg.rf.eb7da146237078d22e5eb8426dfdf08c.jpg
cate1-00035.jpg.rf.c9bfeb3c8fad98601f86f34317ac85e7.jpg
cate1-00035.jpg.rf.e82433024ad10ea2a258614c2a8d3c5f.jpg
cate1-00038.jpg.rf.3c63a693ae24c5155b6f1282928630d.jpg
cate1-00038.jpg.rf.69e28b79d95e827709721cddf171074a.jpg
cate1-00059.jpg.rf.5274a2e90f902b214f5a4f9add2c447f.jpg
cate1-00059.jpg.rf.a9e11268c4bba51e9373b827dc1b9753.jpg
cate1-00062.jpg.rf.35e5b385c0d5970753e864741be4bf1f.jpg
cate1-00062.jpg.rf.626864add6028b0980b80dbd0f702cb.jpg
cate1-00065.jpg.rf.13b31542eab0bd3f045736a1d935221c.jpg
cate1-00068.jpg.rf.7053b967f1a29660587386e1dc0b8a99.jpg
cate1-00068.jpg.rf.f9e5e1d821dd0c82fe3224544a745710.jpg
cate1-00071.jpg.rf.b39f1ea88d5665838cad95481830f028.jpg
cate1-00071.jpg.rf.c21bb8f317002ad33d2b93003224a551.jpg
cate2-00002.jpg.rf.88df00cce5a1d60ebf0e6b7fd48b8e71.jpg
cate2-00003.jpg.rf.afa79e0ec99e842018d86d31b5cbdf52.jpg
cate2-00003.jpg.rf.ee753866ade30285aa03556cdfbb28d5.jpg
cate2-00005.jpg.rf.c8270cb28a9a16cd71c2d3a5874720fd.jpg
cate2-00008.jpg.rf.2a6a886fa46a067e37e6ce01241f5c71.jpg
cate2-0010.jpg.rf.840b78b87aefc5c054c0a14ce7343e65.jpg
cate2-0010.jpg.rf.8deab81916101ce7c23a61d31df4459b.jpg
cate2-0011.jpg.rf.f249193f4e79801e8bc58274deffcbaa.jpg
cate2-0013.jpg.rf.efc626f58bc2c1e92655a6e732b61545.jpg
cate2-0014.jpg.rf.d7f786ae7e337fd90b4661215a8692fb.jpg
cate2-0015.jpg.rf.4988361d8610350ebfd3bbbacf9a0a5.jpg
cate2-0016.jpg.rf.15d1a53b4685edbeb668ebb8577490b0.jpg

```
import random, shutil
from pathlib import Path

random.seed(42)

ROOT = Path('/content/oralvis_project/dental_data')
IMGS = sorted((ROOT/'images').glob('*.*'))
OUT = Path('/content/oralvis_project/dataset')
for p in ['train/images','val/images','test/images','train/labels','val/labels','test/labels']:
    (OUT/p).mkdir(parents=True, exist_ok=True)

pairs = []
for img in IMGS:
    lab = (ROOT/'labels')/(img.stem + '.txt')
    if lab.exists():
        pairs.append((img, lab))

print("Total pairs found:", len(pairs))
```

```
# Shuffle and split 80/10/10
n = len(pairs)
n_train, n_val = int(0.8*n), int(0.1*n)
random.shuffle(pairs)
train, val, test = pairs[:n_train], pairs[n_train:n_train+n_val], pairs[n_train+n_val:]

def copy_pairs(pairs, split):
    for img,label in pairs:
        shutil.copy(img,
```

→ File "/tmp/ipython-input-442135281.py", line 28
`shutil.copy(img,`
^
SyntaxError: incomplete input

Next steps: [Explain error](#)

Double-click (or enter) to edit

```
import random, shutil
from pathlib import Path

random.seed(42)

ROOT = Path('/content/oralvis_project/dental_data')
IMGS = sorted((ROOT/'images').glob('*.*'))
OUT = Path('/content/oralvis_project/dataset')
for p in ['train/images','val/images','test/images','train/labels','val/labels','test/labels']:
    (OUT/p).mkdir(parents=True, exist_ok=True)

pairs = []
for img in IMGS:
    lab = (ROOT/'labels')/(img.stem + '.txt')
    if lab.exists():
        pairs.append((img, lab))

print("Total pairs found:", len(pairs))

# Shuffle and split 80/10/10
n = len(pairs)
n_train, n_val = int(0.8*n), int(0.1*n)
random.shuffle(pairs)
train, val, test = pairs[:n_train], pairs[n_train:n_train+n_val], pairs[n_train+n_val:]

def copy_pairs(pairs, split):
    for img,label in pairs:
        shutil.copy(img, OUT/f'{split}/images/{img.name}')
        shutil.copy(label, OUT/f'{split}/labels/{label.name}')

# copy files into folders
copy_pairs(train,'train')
copy_pairs(val,'val')
copy_pairs(test,'test')

print("Train/Val/Test counts:", len(train), len(val), len(test))
```

→ Total pairs found: 497
Train/Val/Test counts: 397 49 51

```
yaml_content = """\
path: /content/oralvis_project/dataset
train: /content/oralvis_project/dataset/train/images
val: /content/oralvis_project/dataset/val/images
test: /content/oralvis_project/dataset/test/images
names:
  0: "Canine (13)"
  1: "Canine (23)"
  2: "Canine (33)"
  3: "Canine (43)"
  4: "Central Incisor (21)"
  5: "Central Incisor (41)"
  6: "Central Incisor (31)"
  7: "Central Incisor (11)"
  8: "First Molar (16)"
  9: "First Molar (26)"
  10: "First Molar (36)"
```

```

11: "First Molar (46)"
12: "First Premolar (14)"
13: "First Premolar (34)"
14: "First Premolar (44)"
15: "First Premolar (24)"
16: "Lateral Incisor (22)"
17: "Lateral Incisor (32)"
18: "Lateral Incisor (42)"
19: "Lateral Incisor (12)"
20: "Second Molar (17)"
21: "Second Molar (27)"
22: "Second Molar (37)"
23: "Second Molar (47)"
24: "Second Premolar (15)"
25: "Second Premolar (25)"
26: "Second Premolar (35)"
27: "Second Premolar (45)"
28: "Third Molar (18)"
29: "Third Molar (28)"
30: "Third Molar (38)"
31: "Third Molar (48)"

"""

```

```

with open("/content/oralvis_project/data.yaml", "w") as f:
    f.write(yaml_content)

print("✅ data.yaml created at /content/oralvis_project/data.yaml")

```

→ ✅ data.yaml created at /content/oralvis_project/data.yaml

```

from ultralytics.utils.checks import check_yaml
import yaml

yaml_path = "/content/oralvis_project/data.yaml"

# Check that YAML is valid
check_yaml(yaml_path)

# Print content
with open(yaml_path) as f:
    data_cfg = yaml.safe_load(f)
print("✅ YAML loaded correctly")
print(data_cfg)

# Quick check: do we have images + labels?
from pathlib import Path
train_imgs = list(Path(data_cfg['train']).glob("*.jpg"))
val_imgs = list(Path(data_cfg['val']).glob("*.jpg"))
test_imgs = list(Path(data_cfg['test']).glob("*.jpg"))
print(f"Train images: {len(train_imgs)}, Val images: {len(val_imgs)}, Test images: {len(test_imgs)}")

```

→ Creating new Ultralytics Settings v0.0.6 file ✅
View Ultralytics Settings with 'yolo settings' or at '/root/.config/Ultralytics/settings.json'
Update Settings with 'yolo settings key=value', i.e. 'yolo settings runs_dir=path/to/dir'. For help see <https://docs.ultralytics.com>
✅ YAML loaded correctly
{'path': '/content/oralvis_project/dataset', 'train': '/content/oralvis_project/dataset/train/images', 'val': '/content/oralvis_pro...
Train images: 397, Val images: 49, Test images: 51

```
!pip install ultralytics==8.3.40
```

```

→ Requirement already satisfied: matplotlib>=3.3.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (3.10.0)
Requirement already satisfied: opencv-python>=4.6.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (4.12.0)
Requirement already satisfied: pillow>=7.1.2 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (11.3.0)
Requirement already satisfied: pyyaml>=5.3.1 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (6.0.2)
Requirement already satisfied: requests>=2.23.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (2.32.4)
Requirement already satisfied: scipy>=1.4.1 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (1.16.1)
Requirement already satisfied: torch>=1.8.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (2.8.0+cu126)
Requirement already satisfied: torchvision>=0.9.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (0.23.0+cu...
Requirement already satisfied: tqdm>=4.64.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (4.67.1)
Requirement already satisfied: psutil in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (5.9.5)
Requirement already satisfied: py-cpuinfo in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (9.0.0)
Requirement already satisfied: pandas>=1.1.4 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (2.2.2)
Requirement already satisfied: seaborn>=0.11.0 in /usr/local/lib/python3.12/dist-packages (from ultralytics==8.3.40) (0.13.2)
Collecting ultralytics-thop>=2.0.0 (from ultralytics==8.3.40)
  Downloading ultralytics_thop-2.0.16-py3-none-any.whl.metadata (14 kB)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics==8...
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics==8.3.4

```

```
requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics==8.3.40)
Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.12/dist-packages (from matplotlib>=3.3.0->ultralytics==8.3.40)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.12/dist-packages (from pandas>=1.1.4->ultralytics==8.3.40) (3.19)
Requirement already satisfied: tzdata>=2022.7 in /usr/local/lib/python3.12/dist-packages (from pandas>=1.1.4->ultralytics==8.3.40)
Requirement already satisfied: charset_normalizer<4,>>2 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics==8.3.40)
Requirement already satisfied: idna<4,>>2.5 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics==8.3.40)
Requirement already satisfied: urllib3<3,>>1.21.1 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics==8.3.40)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.12/dist-packages (from requests>=2.23.0->ultralytics==8.3.40)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (3.19)
Requirement already satisfied: typing-extensions>=4.10.0 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (75.4.0)
Requirement already satisfied: sympy>=1.13.3 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (1.13.3)
Requirement already satisfied: networkx in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (3.5)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (3.1.6)
Requirement already satisfied: fsspec in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (2025.3)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.6.80 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cudnn-cu12==9.10.2.21 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cublas-cu12==12.6.4.1 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cufft-cu12==11.3.0.4 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-curand-cu12==10.3.7.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cusolver-cu12==11.7.1.2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cusparse-cu12==12.5.4.2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cusparseلت cu12==0.7.1 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-ncc1-cu12==2.27.3 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-nvtx-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-nvjitlink-cu12==12.6.85 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: nvidia-cufile-cu12==1.11.1.6 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: triton==3.4.0 in /usr/local/lib/python3.12/dist-packages (from torch>=1.8.0->ultralytics==8.3.40) (3.4.0)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.12/dist-packages (from python-dateutil>=2.7->matplotlib>=3.3.0->ultralytics==8.3.40)
Requirement already satisfied: mpmath<1.4,>>1.1.0 in /usr/local/lib/python3.12/dist-packages (from sympy>=1.13.3->torch>=1.8.0->ultralytics==8.3.40)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from jinja2->torch>=1.8.0->ultralytics==8.3.40)
Downloading ultralytics-8.3.40-py3-none-any.whl (898 kB)
```

- 898.5/898.5 kB 33.2 MB/s eta 0:00:00

Downloading ultralytics_thop-2.0.16-py3-none-any.whl (28 kB)

Installing collected packages: ultralytics-thop, ultralytics

Successfully installed ultralytics-8.3.40 ultralytics-thop-2.0.16

```
import os  
os.makedirs("/content/oralvis_project", exist_ok=True)
```

```
yaml_content = """\npath: /content/oralvis_project/dataset\ntrain: /content/oralvis_project/dataset/train/images\nval: /content/oralvis_project/dataset/val/images\ntest: /content/oralvis_project/dataset/test/images\nnames:\n    0: "Canine (13)"\n    1: "Canine (23)"\n    2: "Canine (33)"\n    3: "Canine (43)"\n    4: "Central Incisor (21)"\n    5: "Central Incisor (41)"\n    6: "Central Incisor (31)"\n    7: "Central Incisor (11)"\n    8: "First Molar (16)"\n    9: "First Molar (26)"\n   10: "First Molar (36)"\n   11: "First Molar (46)"\n   12: "First Premolar (14)"\n   13: "First Premolar (34)"\n   14: "First Premolar (44)"\n   15: "First Premolar (24)"\n   16: "Lateral Incisor (22)"\n   17: "Lateral Incisor (32)"\n   18: "Lateral Incisor (42)"\n   19: "Lateral Incisor (12)"\n   20: "Second Molar (17)"\n   21: "Second Molar (27)"\n   22: "Second Molar (37)"\n   23: "Second Molar (47)"\n   24: "Second Premolar (15)"\n   25: "Second Premolar (25)"\n   26: "Second Premolar (35)"\n   27: "Second Premolar (45)"\n   28: "Third Molar (18)"\n   29: "Third Molar (28)"\n   30: "Third Molar (38)"\n   31: "Third Molar (48)"\n   .."
```

```
with open("/content/oralvis_project/data.yaml", "w") as f:  
    f.write(yaml_content)
```

```
print("✅ data.yaml created at /content/oralvis_project/data.yaml")
```

→ ✅ data.yaml created at /content/oralvis_project/data.yaml

```
from ultralytics import YOLO
```

```
yaml_path = "/content/oralvis_project/data.yaml"
```

```
# Just load YAML to check
model = YOLO("yolov8s.pt")
model.info() # show model structure
```

→ YOLOv8s summary: 225 layers, 11,166,560 parameters, 0 gradients, 28.8 GFLOPs
(225, 11166560, 0, 28.816844800000002)

```
!yolo task=detect mode=check data=/content/oralvis_project/data.yaml
```

→ Traceback (most recent call last):
File "/usr/local/bin/yolo", line 8, in <module>
 sys.exit(entrypoint())
 ^^^^^^^^^^
File "/usr/local/lib/python3.12/dist-packages/ultralytics/cfg/_init__.py", line 911, in entrypoint
 raise ValueError(f"Invalid 'mode={mode}'. Valid modes are {MODES}.\\n{CLI_HELP_MSG}")
ValueError: Invalid 'mode=check'. Valid modes are {'predict', 'track', 'train', 'benchmark', 'val', 'export'}.

```
Arguments received: ['yolo', 'task=detect', 'mode=check', 'data=/content/oralvis_project/data.yaml']. Ultralytics 'yolo' command  
yolo TASK MODE ARGS
```

```
Where   TASK (optional) is one of {'pose', 'obb', 'detect', 'classify', 'segment'}  
MODE (required) is one of {'predict', 'track', 'train', 'benchmark', 'val', 'export'}  
ARGS (optional) are any number of custom 'arg=value' pairs like 'imgsz=320' that override defaults.  
See all ARGS at https://docs.ultralytics.com/usage/cfg or with 'yolo cfg'
```

1. Train a detection model for 10 epochs with an initial learning_rate of 0.01
yolo train data=coco8.yaml model=yolo11n.pt epochs=10 lr0=0.01
2. Predict a YouTube video using a pretrained segmentation model at image size 320:
yolo predict model=yolo11n-seg.pt source='<https://youtu.be/LNwODJXcvt4>' imgsz=320
3. Val a pretrained detection model at batch-size 1 and image size 640:
yolo val model=yolo11n.pt data=coco8.yaml batch=1 imgsz=640
4. Export a YOLO11n classification model to ONNX format at image size 224 by 128 (no TASK required)
yolo export model=yolo11n-clss.pt format=onnx imgsz=224,128
5. Streamlit real-time webcam inference GUI
yolo streamlit-predict
6. Ultralytics solutions usage
yolo solutions count or in ['count', 'heatmap', 'queue', 'speed', 'workout', 'analytics', 'trackzone', 'help'] source="path",
7. Run special commands:
yolo help
yolo checks
yolo version
yolo settings
yolo copy-cfg
yolo cfg
yolo solutions help

Docs: <https://docs.ultralytics.com>
Solutions: <https://docs.ultralytics.com/solutions/>
Community: <https://community.ultralytics.com>
GitHub: <https://github.com/ultralytics/ultralytics>

```
from ultralytics.data.utils import check_det_dataset
```

```
yaml_path = "/content/oralvis_project/data.yaml"
dataset_info = check_det_dataset(yaml_path)
```

```
print("✅ Dataset loaded successfully!")
print(dataset_info)
```

```

FileNotFoundError
/tmp/ipython-input-1922233976.py in <cell line: 0>()
    2
    3 yaml_path = "/content/oralvis_project/data.yaml"
--> 4 dataset_info = check_det_dataset(yaml_path)
    5
    6 print("✅ Dataset loaded successfully!")

/usr/local/lib/python3.12/dist-packages/ultralytics/data/utils.py in check_det_dataset(dataset, autodownload)
    327         else:
    328             m += f"\nNote dataset download directory is '{DATASETS_DIR}'. You can update this in '{SETTINGS_FILE}'"
--> 329             raise FileNotFoundError(m)
    330         t = time.time()
    331         r = None # success

FileNotFoundError:
Dataset '/content/oralvis_project/data.yaml' images not found ⚠️, missing path '/content/oralvis_project/dataset/val/images'
Note dataset download directory is '/content/datasets'. You can update this in '/root/.config/Ultralytics/settings.json'

```

Next steps: [Explain error](#)

```

import os, glob, shutil
from sklearn.model_selection import train_test_split

# Source folders
images_dir = "/content/oralvis_project/dental_data/images"
labels_dir = "/content/oralvis_project/dental_data/labels"

# Target folders
base_dir = "/content/oralvis_project/dataset"
for split in ["train", "val", "test"]:
    os.makedirs(os.path.join(base_dir, split, "images"), exist_ok=True)
    os.makedirs(os.path.join(base_dir, split, "labels"), exist_ok=True)

# Get all image files
images = glob.glob(os.path.join(images_dir, "*.jpg"))

# Split into train (70%), val (20%), test (10%)
train_imgs, temp_imgs = train_test_split(images, test_size=0.3, random_state=42)
val_imgs, test_imgs = train_test_split(temp_imgs, test_size=0.33, random_state=42)

def copy_files(img_list, split):
    for img in img_list:
        fname = os.path.basename(img)
        label = os.path.join(labels_dir, fname.replace(".jpg", ".txt"))
        if os.path.exists(label):
            shutil.copy
```

```

ValueError
/tmp/ipython-input-4032773138.py in <cell line: 0>()
    16
    17 # Split into train (70%), val (20%), test (10%)
--> 18 train_imgs, temp_imgs = train_test_split(images, test_size=0.3, random_state=42)
    19 val_imgs, test_imgs = train_test_split(temp_imgs, test_size=0.33, random_state=42)
    20

----- 2 frames -----
/usr/local/lib/python3.12/dist-packages/sklearn/model_selection/_split.py in _validate_shuffle_split(n_samples, test_size, train_size, default_test_size)
    2479
    2480     if n_train == 0:
--> 2481         raise ValueError(
    2482             "With n_samples={}, test_size={} and train_size={}, the "
    2483             "resulting train set will be empty. Adjust any of the "

```

ValueError: With n_samples=0, test_size=0.3 and train_size=None, the resulting train set will be empty. Adjust any of the

Next steps: [Explain error](#)

```

import glob, os

images_dir = "/content/oralvis_project/dental_data/images"
all_files = os.listdir(images_dir)

print("Total files:", len(all_files))
print(all_files[:20]) # show first 20 files
```

```
FileNotFoundError: Traceback (most recent call last)
/tmp/ipython-input-1437075407.py in <cell line: 0>()
      2
      3 images_dir = "/content/oralvis_project/dental_data/images"
----> 4 all_files = os.listdir(images_dir)
      5
      6 print("Total files:", len(all_files))

FileNotFoundError: [Errno 2] No such file or directory: '/content/oralvis_project/dental_data/images'
```

Next steps: [Explain error](#)

```
import os

print(os.listdir("/content/oralvis_project"))

→ ['data.yaml', 'dataset']

print(os.listdir("/content/oralvis_project/dental_data"))

→ FileNotFoundError: Traceback (most recent call last)
/tmp/ipython-input-2900091168.py in <cell line: 0>()
----> 1 print(os.listdir("/content/oralvis_project/dental_data"))

FileNotFoundError: [Errno 2] No such file or directory: '/content/oralvis_project/dental_data'
```

Next steps: [Explain error](#)

```
import os

print("Contents of /content/oralvis_project:")
print(os.listdir("/content/oralvis_project"))

→ Contents of /content/oralvis_project:
['data.yaml', 'dataset']

import os

print("Contents of dataset folder:")
print(os.listdir("/content/oralvis_project/dataset"))

→ Contents of dataset folder:
['test', 'val', 'train']

import os

print("Contents of dataset folder:")
print(os.listdir("/content/oralvis_project/dataset"))

→ Contents of dataset folder:
['test', 'val', 'train']

yaml_content = """
train: /content/oralvis_project/dataset/train/images
val: /content/oralvis_project/dataset/val/images
test: /content/oralvis_project/dataset/test/images

nc: 32 # number of classes (update if different)
names: [tooth_1, tooth_2, tooth_3, tooth_4, tooth_5, tooth_6, tooth_7, tooth_8,
       tooth_9, tooth_10, tooth_11, tooth_12, tooth_13, tooth_14, tooth_15, tooth_16,
       tooth_17, tooth_18, tooth_19, tooth_20, tooth_21, tooth_22, tooth_23, tooth_24,
       tooth_25, tooth_26, tooth_27, tooth_28, tooth_29, tooth_30, tooth_31, tooth_32]
"""

with open("/content/oralvis_project/data.yaml", "w") as f:
    f.write(yaml_content)

print("✅ data.yaml created successfully")
```

→ ✓ data.yaml created successfully

```
from ultralytics import YOLO

# Load small YOLOv8 model
model = YOLO("yolov8s.pt")

# Train
model.train(
    data="/content/oralvis_project/data.yaml",
    epochs=60,
    imgsz=640,
    batch=16,
    name="oralvis_yolov8s_v1"
)
```

→ New <https://pypi.org/project/ultralytics/8.3.189> available 😊 Update with 'pip install -U ultralytics'
 Ultralytics 8.3.40 * Python-3.12.11 torch-2.8.0+cu126 CPU (Intel Xeon 2.20GHz)
engine/trainer: task=detect, mode=train, model=yolov8s.pt, data=/content/oralvis_project/data.yaml, epochs=60, time=None, patience
 Downloading <https://ultralytics.com/assets/Arial.ttf> to '/root/.config/Ultralytics/Arial.ttf'...
 100% [██████████] 755k/755k [00:00<00:00, 32.5MB/s]
 Overriding model.yaml nc=80 with nc=32

	from	n	params	module	arguments
0		-1	1	928 ultralytics.nn.modules.conv.Conv	[3, 32, 3, 2]
1		-1	1	18560 ultralytics.nn.modules.conv.Conv	[32, 64, 3, 2]
2		-1	1	29056 ultralytics.nn.modules.block.C2f	[64, 64, 1, True]
3		-1	1	73984 ultralytics.nn.modules.conv.Conv	[64, 128, 3, 2]
4		-1	2	197632 ultralytics.nn.modules.block.C2f	[128, 128, 2, True]
5		-1	1	295424 ultralytics.nn.modules.conv.Conv	[128, 256, 3, 2]
6		-1	2	788480 ultralytics.nn.modules.block.C2f	[256, 256, 2, True]
7		-1	1	1180672 ultralytics.nn.modules.conv.Conv	[256, 512, 3, 2]
8		-1	1	1838080 ultralytics.nn.modules.block.C2f	[512, 512, 1, True]
9		-1	1	656896 ultralytics.nn.modules.block.SPPF	[512, 512, 5]
10		-1	1	0 torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
11		[-1, 6]	1	0 ultralytics.nn.modules.conv.Concat	[1]
12		-1	1	591360 ultralytics.nn.modules.block.C2f	[768, 256, 1]
13		-1	1	0 torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
14		[-1, 4]	1	0 ultralytics.nn.modules.conv.Concat	[1]
15		-1	1	148224 ultralytics.nn.modules.block.C2f	[384, 128, 1]
16		-1	1	147712 ultralytics.nn.modules.conv.Conv	[128, 128, 3, 2]
17		[-1, 12]	1	0 ultralytics.nn.modules.conv.Concat	[1]
18		-1	1	493056 ultralytics.nn.modules.block.C2f	[384, 256, 1]
19		-1	1	590336 ultralytics.nn.modules.conv.Conv	[256, 256, 3, 2]
20		[-1, 9]	1	0 ultralytics.nn.modules.conv.Concat	[1]
21		-1	1	1969152 ultralytics.nn.modules.block.C2f	[768, 512, 1]
22		[15, 18, 21]	1	2128432 ultralytics.nn.modules.head.Detect	[32, [128, 256, 512]]

Model summary: 225 layers, 11,147,984 parameters, 11,147,968 gradients, 28.7 GFLOPS

Transferred 349/355 items from pretrained weights
TensorBoard: Start with 'tensorboard --logdir runs/detect/oralvis_yolov8s_v13', view at <http://localhost:6006/>
 Freezing layer 'model.22.dfl.conv.weight'

AssertionError Traceback (most recent call last)
[/usr/local/lib/python3.12/dist-packages/ultralytics/data/base.py](#) in get_img_files(self, img_path)
 124 # self.img_files = sorted([x for x in f if x.suffix[1:].lower() in IMG_FORMATS]) # pathlib
--> 125 assert im_files, f"{self.prefix}No images found in {img_path}. {FORMATS_HELP_MSG}"
 126 except Exception as e:

AssertionError: train: No images found in /content/oralvis_project/dataset/train/images. Supported formats are:
 images: {'tif', 'dng', 'mpo', 'pfm', 'png', 'jpg', 'heic', 'bmp', 'webp', 'jpeg', 'tiff'}
 videos: {'m4v', 'ts', 'mpeg', 'mkv', 'avi', 'webm', 'gif', 'mov', 'wmv', 'mp4', 'mpg', 'asf'}

The above exception was the direct cause of the following exception:

FileNotFoundException Traceback (most recent call last)
 ↓ 10 frames ↓
[/usr/local/lib/python3.12/dist-packages/ultralytics/data/base.py](#) in get_img_files(self, img_path)
 125 assert im_files, f"{self.prefix}No images found in {img_path}. {FORMATS_HELP_MSG}"
 126 except Exception as e:
--> 127 raise FileNotFoundError(f"{self.prefix}Error loading data from {img_path}\n{HELP_URL}") from e
 128 if self.fraction < 1:
 129 im_files = im_files[: round(len(im_files) * self.fraction)] # retain a fraction of the dataset

FileNotFoundException: train: Error loading data from /content/oralvis_project/dataset/train/images
 See <https://docs.ultralytics.com/datasets> for dataset formatting guidance.

Next steps: [Explain error](#)

```
import os, glob

train_path = "/content/oralvis_project/dataset/train/images"
```

```
print("Files inside train/images:", os.listdir(train_path)[:20])
print("Total image files:", len(glob.glob(train_path + "/*")))
```

↳ Files inside train/images: []
Total image files: 0

```
import glob
```

```
files = glob.glob("/content/oralvis_project/dataset/**/*.jpg", recursive=True)
print("Found", len(files), "JPG images")
print(files[:10])
```

↳ Found 0 JPG images
[]

```
files = glob.glob("/content/oralvis_project/dataset/**/*.png", recursive=True)
print("Found", len(files), "PNG images")
print(files[:10])
```

↳ Found 0 PNG images
[]

```
import glob
```

```
# Search for JPG images
jpgs = glob.glob("/content/oralvis_project/dataset/**/*.jpg", recursive=True)
print("Found", len(jpgs), "JPG images")
print(jpgs[:10])
```

↳ Found 0 JPG images
[]

```
# Search for PNG images
pngs = glob.glob("/content/oralvis_project/dataset/**/*.png", recursive=True)
print("Found", len(pngs), "PNG images")
print(pngs[:10])
```

↳ Found 0 PNG images
[]

```
!ls -lh /content
```

↳ total 22M
drwxr-xr-x 3 root root 4.0K Aug 29 21:43 oralvis_project
drwxr-xr-x 3 root root 4.0K Aug 29 21:36 runs
drwxr-xr-x 1 root root 4.0K Aug 28 13:43 sample_data
-rw-r--r-- 1 root root 22M Aug 29 21:36 yolov8s.pt

```
from google.colab import files
uploaded = files.upload()
```

↳ Choose Files ToothNumb...kDataset.zip
• **ToothNumber_TaskDataset.zip**(application/x-zip-compressed) - 42629954 bytes, last modified: 8/29/2025 - 100% done
Saving ToothNumber_TaskDataset.zip to ToothNumber_TaskDataset.zip

```
!unzip -q oralvis_dataset.zip -d /content/oralvis_project/
```

↳ unzip: cannot find or open oralvis_dataset.zip, oralvis_dataset.zip.zip or oralvis_dataset.zip.ZIP.

```
!ls /content/oralvis_project
!ls /content/oralvis_project/dataset | head
```

↳ dataset data.yaml
test
train
val

```
!ls /content/oralvis_project/dataset | head
```

```
→ test  
train  
val
```

```
yaml_content = """  
train: /content/oralvis_project/dataset/train/images  
val: /content/oralvis_project/dataset/val/images  
test: /content/oralvis_project/dataset/test/images  
  
nc: 32 # number of classes  
names: [tooth_1, tooth_2, tooth_3, tooth_4, tooth_5, tooth_6, tooth_7, tooth_8,  
       tooth_9, tooth_10, tooth_11, tooth_12, tooth_13, tooth_14, tooth_15, tooth_16,  
       tooth_17, tooth_18, tooth_19, tooth_20, tooth_21, tooth_22, tooth_23, tooth_24,  
       tooth_25, tooth_26, tooth_27, tooth_28, tooth_29, tooth_30, tooth_31, tooth_32]  
"""  
  
with open("/content/oralvis_project/data.yaml", "w") as f:  
    f.write(yaml_content)  
  
print("✅ data.yaml updated successfully")
```

```
→ ✅ data.yaml updated successfully
```

```
from ultralytics import YOLO  
  
model = YOLO("yolov8s.pt")  
  
model.train(  
    data="/content/oralvis_project/data.yaml",  
    epochs=10,          # fast test run  
    imgsz=320,         # smaller image size  
    batch=32,          # bigger batch for speed  
    name="oralvis_yolov8s_fast"  
)
```

New <https://pypi.org/project/ultralytics/8.3.189> available 😊 Update with 'pip install -U ultralytics'
 Ultralytics 8.3.40 Python-3.12.11 torch-2.8.0+cu126 CPU (Intel Xeon 2.20GHz)
engine/trainer: task=detect, mode=train, model=yolov8s.pt, data=/content/oralvis_project/data.yaml, epochs=10, time=None, patience
 Overriding model.yaml nc=80 with nc=32

	from	n	params	module	arguments
0		-1	1	928 ultralytics.nn.modules.conv.Conv	[3, 32, 3, 2]
1		-1	1	18560 ultralytics.nn.modules.conv.Conv	[32, 64, 3, 2]
2		-1	1	29056 ultralytics.nn.modules.block.C2f	[64, 64, 1, True]
3		-1	1	73984 ultralytics.nn.modules.conv.Conv	[64, 128, 3, 2]
4		-1	2	197632 ultralytics.nn.modules.block.C2f	[128, 128, 2, True]
5		-1	1	295424 ultralytics.nn.modules.conv.Conv	[128, 256, 3, 2]
6		-1	2	788480 ultralytics.nn.modules.block.C2f	[256, 256, 2, True]
7		-1	1	1180672 ultralytics.nn.modules.conv.Conv	[256, 512, 3, 2]
8		-1	1	1838080 ultralytics.nn.modules.block.C2f	[512, 512, 1, True]
9		-1	1	656896 ultralytics.nn.modules.block.SPFF	[512, 512, 5]
10		-1	1	0 torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
11		[-1, 6]	1	0 ultralytics.nn.modules.conv.Concat	[1]
12		-1	1	591360 ultralytics.nn.modules.block.C2f	[768, 256, 1]
13		-1	1	0 torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
14		[-1, 4]	1	0 ultralytics.nn.modules.conv.Concat	[1]
15		-1	1	148224 ultralytics.nn.modules.block.C2f	[384, 128, 1]
16		-1	1	147712 ultralytics.nn.modules.conv.Conv	[128, 128, 3, 2]
17		[-1, 12]	1	0 ultralytics.nn.modules.conv.Concat	[1]
18		-1	1	493056 ultralytics.nn.modules.block.C2f	[384, 256, 1]
19		-1	1	590336 ultralytics.nn.modules.conv.Conv	[256, 256, 3, 2]
20		[-1, 9]	1	0 ultralytics.nn.modules.conv.Concat	[1]
21		-1	1	1969152 ultralytics.nn.modules.block.C2f	[768, 512, 1]
22		[15, 18, 21]	1	2128432 ultralytics.nn.modules.head.Detect	[32, [128, 256, 512]]

Model summary: 225 layers, 11,147,984 parameters, 11,147,968 gradients, 28.7 GFLOPS

Transferred 349/355 items from pretrained weights

TensorBoard: Start with 'tensorboard --logdir runs/detect/oralvis_yolov8s_fast', view at <http://localhost:6006/>
 Freezing layer 'model.22.dfl.conv.weight'

```
AssertionError                                     Traceback (most recent call last)
/usr/local/lib/python3.12/dist-packages/ultralytics/data/base.py in get_img_files(self, img_path)
 124         # self.img_files = sorted([x for x in f if x.suffix[1:].lower() in IMG_FORMATS]) # pathlib
--> 125         assert im_files, f'{self.prefix}No images found in {img_path}. {FORMATS_HELP_MSG}'
 126     except Exception as e:
```

AssertionError: `train`: No images found in /content/oralvis_project/dataset/train/images. Supported formats are:
 images: {'tif', 'dng', 'mpo', 'pfm', 'png', 'jpg', 'heic', 'bmp', 'webp', 'jpeg', 'tiff'}
 videos: {'m4v', 'ts', 'mpeg', 'mkv', 'avi', 'webm', 'gif', 'mov', 'wmv', 'mp4', 'mpg', 'asf'}

The above exception was the direct cause of the following exception:

```
FileNotFoundException                                Traceback (most recent call last)
<__main__.DataAugmentation>: ~~~~~ 10 frames ~~~~~
/usr/local/lib/python3.12/dist-packages/ultralytics/data/base.py in get_img_files(self, img_path)
 125         assert im_files, f'{self.prefix}No images found in {img_path}. {FORMATS_HELP_MSG}'
--> 126     except Exception as e:
 127         raise FileNotFoundError(f'{self.prefix}Error loading data from {img_path}\n{HELP_URL}') from e
 128     if self.fraction < 1:
 129         im_files = im_files[: round(len(im_files) * self.fraction)] # retain a fraction of the dataset
```

FileNotFoundException: `train`: Error loading data from /content/oralvis_project/dataset/train/images
 See <https://docs.ultralytics.com/datasets> for dataset formatting guidance.

Next steps: [Explain error](#)

```
import zipfile
import os

zip_path = "/content/oralvis_dataset.zip" # <-- replace with actual uploaded file name
extract_path = "/content/oralvis_project/dataset"

with zipfile.ZipFile(zip_path, 'r') as zip_ref:
    zip_ref.extractall(extract_path)

print("✅ Dataset extracted successfully!")

# Check structure
for root, dirs, files in os.walk(extract_path):
    level = root.replace(extract_path, "").count(os.sep)
    indent = " " * 2 * level
    print(f"{indent}{os.path.basename(root)}/")
    subindent = " " * 2 * (level + 1)
    for f in files[:5]:
```

```
File "/tmp/ipython-input-40114389.py", line 18
  for f in files[:5]:
    ^
SyntaxError: incomplete input
```

Next steps: [Explain error](#)

```
import zipfile
import os

# Change this to the exact filename of your uploaded zip
zip_path = "/content/oralvis_dataset.zip"
extract_path = "/content/oralvis_project/dataset"

# Unzip dataset
with zipfile.ZipFile(zip_path, 'r') as zip_ref:
    zip_ref.extractall(extract_path)

print("✅ Dataset extracted successfully!")

# Show folder structure
for root, dirs, files in os.walk(extract_path):
    level = root.replace(extract_path, "").count(os.sep)
    indent = " " * 2 * level
    print(f"{indent}{os.path.basename(root)}/")
    subindent = " " * 2 * (level + 1)
    for f in files[:5]: # only show first 5 files per folder
        print(f"{subindent}{f}")
```

```
FileNotFoundError: Traceback (most recent call last)
/tmp/ipython-input-1257136369.py in <cell line: 0>()
    7
    8 # Unzip dataset
----> 9 with zipfile.ZipFile(zip_path, 'r') as zip_ref:
     10     zip_ref.extractall(extract_path)
     11

/usr/lib/python3.12/zipfile/_init_.py in __init__(self, file, mode, compression, allowZip64, compresslevel, strict_timestamps,
metadata_encoding)
    1334         while True:
    1335             try:
-> 1336                 self.fp = io.open(file, filemode)
    1337             except OSError:
    1338                 if filemode in modeDict:
```

FileNotFoundError: [Errno 2] No such file or directory: '/content/oralvis_dataset.zip'

Next steps: [Explain error](#)

```
!gdown --id 1BJ0F9upmZ97NlVK8jW7epb7YUwFDmM13 -O /content/oralvis_dataset.zip
```

```
/usr/local/lib/python3.12/dist-packages/gdown/__main__.py:140: FutureWarning: Option `--id` was deprecated in version 4.3.1 and will
warnings.warn(
Download...
From (original): https://drive.google.com/uc?id=1BJ0F9upmZ97NlVK8jW7epb7YUwFDmM13
From (redirected): https://drive.google.com/uc?id=1BJ0F9upmZ97NlVK8jW7epb7YUwFDmM13&confirm=t&uuid=06774b78-a693-49ab-b332-570ad396f
To: /content/oralvis_dataset.zip
100% 42.6M/42.6M [00:00<00:00, 43.3MB/s]
```

```
import zipfile, os

zip_path = "/content/oralvis_dataset.zip"
extract_path = "/content/oralvis_project/dataset"

with zipfile.ZipFile(zip_path, 'r') as zip_ref:
    zip_ref.extractall(extract_path)

print("✅ Extracted!")

# Check structure
for root, dirs, files in os.walk(extract_path):
    level = root.replace(extract_path, "").count(os.sep)
    indent = " " * 2 * level
    print(f"{indent}{os.path.basename(root)}/")
    subindent = " " * 2 * (level + 1)
    for f in files[:5]:
        print(f"{subindent}{f}")
```

```
→  Extracted!
dataset/
  labels/
    cate4-00094.jpg.rf.566e53592bf2d7c502cd122e6ff0a4d8.txt
    cate2-00035.jpg.rf.05a008269ed935a5c2d110783387856a.txt
    cate2-00040.jpg.rf.10df1c6a1bf0dd15c52662e6445e19e3.txt
    cate1-00017.jpg.rf.3dd93f8441ac070e8ba7f26ffae1c7a.txt
    cate7-00104.jpg.rf.755fdeda3d9dbaff1c7be18013a48.txt
  test/
    labels/
    images/
  val/
    labels/
    images/
  images/
    cate7-00105.jpg.rf.daf2fd9f3c80a1d37415747e5e83a068.jpg
    cate1-00059.jpg.rf.5274a2e90f902b214f5a4f9add2c447f.jpg
    cate8-00296.jpg.rf.95e9e4fa74799d3cdc335c02e04d23bf.jpg
    cate2-00010.jpg.rf.8deab81916101ce7c23a61d31df4459b.jpg
    cate2-00031.jpg.rf.0ed22bc14c06241172f64aba42211818.jpg
train/
  labels/
  images/

yaml_content = """
train: /content/oralvis_project/dataset/train/images
val: /content/oralvis_project/dataset/val/images
test: /content/oralvis_project/dataset/test/images

nc: 32 # number of classes (update if needed)
names: ['tooth_0', 'tooth_1', 'tooth_2', 'tooth_3', 'tooth_4', 'tooth_5', 'tooth_6', 'tooth_7', 'tooth_8', 'tooth_9', 'tooth_10', 'tooth_11']

with open("/content/oralvis_project/data.yaml", "w") as f:
    f.write(yaml_content)

print(" data.yaml updated")
→  data.yaml updated

from ultralytics import YOLO

model = YOLO("yolov8s.pt") # small, fast model
results = model.train(
    data="/content/oralvis_project/data.yaml",
    epochs=10, # fast, increase later (e.g., 50-100)
    imgsz=320, # smaller image size = faster
    batch=32,
    name="oralvis_yolov8s_fast"
)
```

New <https://pypi.org/project/ultralytics/8.3.189> available 😊 Update with 'pip install -U ultralytics'
 Ultralytics 8.3.40 ✨ Python-3.12.11 torch-2.8.0+cu126 CPU (Intel Xeon 2.20GHz)
engine/trainer: task=detect, mode=train, model=yolov8s.pt, data=/content/oralvis_project/data.yaml, epochs=10, time=None, patience
 Overriding model.yaml nc=80 with nc=32

	from	n	params	module	arguments
0		-1	1	928 ultralytics.nn.modules.conv.Conv	[3, 32, 3, 2]
1		-1	1	18560 ultralytics.nn.modules.conv.Conv	[32, 64, 3, 2]
2		-1	1	29056 ultralytics.nn.modules.block.C2f	[64, 64, 1, True]
3		-1	1	73984 ultralytics.nn.modules.conv.Conv	[64, 128, 3, 2]
4		-1	2	197632 ultralytics.nn.modules.block.C2f	[128, 128, 2, True]
5		-1	1	295424 ultralytics.nn.modules.conv.Conv	[128, 256, 3, 2]
6		-1	2	788480 ultralytics.nn.modules.block.C2f	[256, 256, 2, True]
7		-1	1	1180672 ultralytics.nn.modules.conv.Conv	[256, 512, 3, 2]
8		-1	1	1838080 ultralytics.nn.modules.block.C2f	[512, 512, 1, True]
9		-1	1	656896 ultralytics.nn.modules.block.SPFF	[512, 512, 5]
10		-1	1	0 torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
11		[-1, 6]	1	0 ultralytics.nn.modules.conv.Concat	[1]
12		-1	1	591360 ultralytics.nn.modules.block.C2f	[768, 256, 1]
13		-1	1	0 torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
14		[-1, 4]	1	0 ultralytics.nn.modules.conv.Concat	[1]
15		-1	1	148224 ultralytics.nn.modules.block.C2f	[384, 128, 1]
16		-1	1	147712 ultralytics.nn.modules.conv.Conv	[128, 128, 3, 2]
17		[-1, 12]	1	0 ultralytics.nn.modules.conv.Concat	[1]
18		-1	1	493056 ultralytics.nn.modules.block.C2f	[384, 256, 1]
19		-1	1	590336 ultralytics.nn.modules.conv.Conv	[256, 256, 3, 2]
20		[-1, 9]	1	0 ultralytics.nn.modules.conv.Concat	[1]
21		-1	1	1969152 ultralytics.nn.modules.block.C2f	[768, 512, 1]
22		[15, 18, 21]	1	2128432 ultralytics.nn.modules.head.Detect	[32, [128, 256, 512]]

Model summary: 225 layers, 11,147,984 parameters, 11,147,968 gradients, 28.7 GFLOPS

Transferred 349/355 items from pretrained weights

TensorBoard: Start with 'tensorboard --logdir runs/detect/oralvis_yolov8s_fast3', view at <http://localhost:6006/>
 Freezing layer 'model.22.dfl.conv.weight'

```
AssertionError                                     Traceback (most recent call last)
/usr/local/lib/python3.12/dist-packages/ultralytics/data/base.py in get_img_files(self, img_path)
 124         # self.img_files = sorted([x for x in f if x.suffix[1:].lower() in IMG_FORMATS]) # pathlib
--> 125         assert im_files, f'{self.prefix}No images found in {img_path}. {FORMATS_HELP_MSG}'
 126     except Exception as e:
```

AssertionError: `train`: No images found in /content/oralvis_project/dataset/train/images. Supported formats are:
 images: {'tif', 'dng', 'mpo', 'pfm', 'png', 'jpg', 'heic', 'bmp', 'webp', 'jpeg', 'tiff'}
 videos: {'m4v', 'ts', 'mpeg', 'mkv', 'avi', 'webm', 'gif', 'mov', 'wmv', 'mp4', 'mpg', 'asf'}

The above exception was the direct cause of the following exception:

```
FileNotFoundException                                Traceback (most recent call last)
<__main__.Data class>                            ▲ 10 frames
/usr/local/lib/python3.12/dist-packages/ultralytics/data/base.py in get_img_files(self, img_path)
 125         assert im_files, f'{self.prefix}No images found in {img_path}. {FORMATS_HELP_MSG}'
--> 126     except Exception as e:
 127         raise FileNotFoundError(f'{self.prefix}Error loading data from {img_path}\n{HELP_URL}') from e
 128     if self.fraction < 1:
 129         im_files = im_files[: round(len(im_files) * self.fraction)] # retain a fraction of the dataset
```

FileNotFoundException: `train`: Error loading data from /content/oralvis_project/dataset/train/images
 See <https://docs.ultralytics.com/datasets> for dataset formatting guidance.

Next steps: [Explain error](#)

```
import os, shutil, glob
from sklearn.model_selection import train_test_split

# Paths
base = "/content/oralvis_project/dataset"
images_path = os.path.join(base, "images")
labels_path = os.path.join(base, "labels")

# Collect all images
all_images = glob.glob(os.path.join(images_path, "*.jpg"))
print("Total images found:", len(all_images))

# Train/val/test split (70/20/10)
train_imgs, temp_imgs = train_test_split(all_images, test_size=0.3, random_state=42)
val_imgs, test_imgs = train_test_split(temp_imgs, test_size=0.33, random_state=42)

splits = {
    "train": train_imgs,
    "val": val_imgs,
    "test": test_imgs}
```

```
File "/tmp/ipython-input-532525274.py", line 20
    "test": test
      ^
SyntaxError: incomplete input
```

Next steps: [Explain error](#)

```
import os, shutil, glob
from sklearn.model_selection import train_test_split

# Paths
base = "/content/oralvis_project/dataset"
images_path = os.path.join(base, "images")
labels_path = os.path.join(base, "labels")

# Collect all images
all_images = glob.glob(os.path.join(images_path, "*.jpg"))
print("Total images found:", len(all_images))

# Train/val/test split (70/20/10)
train_imgs, temp_imgs = train_test_split(all_images, test_size=0.3, random_state=42)
val_imgs, test_imgs = train_test_split(temp_imgs, test_size=0.33, random_state=42)

# Correct dictionary ✅
splits = {
    "train": train_imgs,
    "val": val_imgs,
    "test": test_imgs
}

# Create folders and move files
for split, img_list in splits.items():
    for img in img_list:
        # image destination
        img_name = os.path.basename(img)
        img_dest = os.path.join(base, split, "images", img_name)
        os.makedirs(os.path.dirname(img_dest), exist_ok=True)
        shutil.copy(img, img_dest)

        # label destination
        label_name = os.path.splitext(img_name)[0] + ".txt"
        label_src = os.path.join(labels_path, label_name)
        if os.path.exists(label_src):
            label_dest = os.path.join(base, split, "labels", label_name)
            os.makedirs(os.path.dirname(label_dest), exist_ok=True)
            shutil.copy(label_src, label_dest)

print("✅ Dataset reorganized into train/val/test correctly!")
```

```
→ Total images found: 497
✅ Dataset reorganized into train/val/test correctly!
```

```
import os

# Paths
base_path = "/content/oralvis_project/dataset"
splits = ["train", "val", "test"]

for split in splits:
    img_dir = os.path.join(base_path, split, "images")
    lbl_dir = os.path.join(base_path, split, "labels")

    img_files = [os.path.splitext(f)[0] for f in os.listdir(img_dir) if f.endswith((".jpg", ".png", ".jpeg"))]
    lbl_files = [os.path.splitext(f)[0] for f in os.listdir(lbl_dir) if f.endswith(".txt")]

    missing_labels = set(img_files) - set(lbl_files)
    missing_images = set(lbl_files) - set(img_files)

    print(f"\n📁 Checking {split} set:")
    print(f"  Total images: {len(img_files)} | Total labels: {len(lbl_files)}")
    if missing_labels:
        print(f"  ⚠️ Missing labels for {len(missing_labels)} images: {list(missing_labels)[:5]} ...")
    if missing_images:
        print(f"  ⚠️ Missing images for {len(missing_images)} labels: {list(missing_images)[:5]} ...")
    if not missing_labels and not missing_images:
        print("  ✅ All images have matching labels")
```



Checking train set:
Total images: 347 | Total labels: 347
✓ All images have matching labels

Checking val set:
Total images: 100 | Total labels: 100
✓ All images have matching labels

Checking test set:
Total images: 50 | Total labels: 50
✓ All images have matching labels

```
import os
```

```
# Paths
base_path = "/content/oralvis_project/dataset"
splits = ["train", "val", "test"]

for split in splits:
    img_dir = os.path.join(base_path, split, "images")
    lbl_dir = os.path.join(base_path, split, "labels")

    img_files = [os.path.splitext(f)[0] for f in os.listdir(img_dir) if f.endswith((".jpg", ".png", ".jpeg"))]
    lbl_files = [os.path.splitext(f)[0] for f in os.listdir(lbl_dir) if f.endswith(".txt")]

    missing_labels = set(img_files) - set(lbl_files)
    missing_images = set(lbl_files) - set(img_files)

    print(f"\n📁 Checking {split} set:")
    print(f"  Total images: {len(img_files)} | Total labels: {len(lbl_files)}")
    if missing_labels:
        print(f"  ⚠️ Missing labels for {len(missing_labels)} images: {list(missing_labels)[:5]} ...")
    if missing_images:
        print(f"  ⚠️ Missing images for {len(missing_images)} labels: {list(missing_images)[:5]} ...")
    if not missing_labels and not missing_images:
        print("  ✓ All images have matching labels")
```



Checking train set:
Total images: 347 | Total labels: 347
✓ All images have matching labels

Checking val set:
Total images: 100 | Total labels: 100
✓ All images have matching labels

Checking test set:
Total images: 50 | Total labels: 50
✓ All images have matching labels

```
!yolo detect train model=yolov8s.pt data=/content/oralvis_project/data.yaml epochs=5 batch=16 imgs=256 name=oralvis_yolov8s_test
```



tooth_12	82	82	0.0833	0.0388	0.0962	0.0478
tooth_13	93	93	0.166	0.258	0.102	0.0503
tooth_14	91	91	0.158	0.769	0.226	0.137
tooth_15	81	81	1	0	0.0542	0.0338
tooth_16	88	88	0.123	0.477	0.13	0.0643
tooth_17	98	100	0.107	0.53	0.123	0.0625
tooth_18	97	97	0	0	0.136	0.0595
tooth_19	91	91	0.193	0.495	0.199	0.0986
tooth_20	88	88	0.205	0.932	0.241	0.165
tooth_21	85	85	0.219	0.741	0.387	0.227
tooth_22	82	83	0.196	0.916	0.272	0.197
tooth_23	82	82	0.201	0.902	0.373	0.3
tooth_24	85	85	0.119	0.0706	0.138	0.0788
tooth_25	84	84	1	0	0.0739	0.0362
tooth_26	87	87	0.137	0.471	0.126	0.0826
tooth_27	90	91	0.171	0.418	0.153	0.0907
tooth_28	77	77	0.21	0.74	0.287	0.175
tooth_29	75	75	0.196	0.707	0.301	0.166
tooth_30	78	78	0.297	0.718	0.399	0.255
tooth_31	73	73	0.347	0.743	0.351	0.197

Speed: 0.6ms preprocess, 164.1ms inference, 0.0ms loss, 13.2ms postprocess per image

Saving runs/detect/oralvis_yolov8s_test/predictions.json...

Evaluating lvis mAP using runs/detect/oralvis_yolov8s_test/predictions.json and /content/oralvis_project/annotations/lvis_v1_val.j

lvis unable to run: /content/oralvis_project/annotations/lvis_v1_val.json file not found

Results saved to runs/detect/oralvis_yolov8s_test

💡 Learn more at <https://docs.ultralytics.com/modes/train>

```
# Run inference on validation set
!yolo detect predict model=runs/detect/oralvis_yolov8s_test/weights/best.pt \
source=/content/oralvis_project/dataset/val/images \
imgsz=256 save=True name=oralvis_yolov8s_preds
```

```
image 47/100 /content/oralvis_project/dataset/val/images/cate2-00120.jpg.rf.3eaeb08aff6b2d5c27fa9d58fba44a4e.jpg: 256x256 6 tooth_
image 48/100 /content/oralvis_project/dataset/val/images/cate2-00127.jpg.rf.aaba4e5e69cf5a828885a05115aa8d11.jpg: 256x256 1 tooth_
image 49/100 /content/oralvis_project/dataset/val/images/cate2-00134.jpg.rf.176f9f3dc7fcfcc35fb2abddd10065e3.jpg: 256x256 2 tooth_
image 50/100 /content/oralvis_project/dataset/val/images/cate2-00136.jpg.rf.5436d3c7bd9d034e430a58cdb02ca6d9.jpg: 256x256 1 tooth_
image 51/100 /content/oralvis_project/dataset/val/images/cate3-00019.jpg.rf.99434bff32d2808f7633e6b301ab854f.jpg: 256x256 2 tooth_
image 52/100 /content/oralvis_project/dataset/val/images/cate4-00091.jpg.rf.bf7c1497519e5357b7eca5796144544e.jpg: 256x256 1 tooth_
```

Results saved to runs/detect/oralvis_yolov8s_preds
💡 Learn more at <https://docs.ultralytics.com/modes/predict>

```
from google.colab import files
uploaded = files.upload()
```

→ Choose Files ChatGPT I...4_59 AM.png
• ChatGPT Image Aug 30, 2025, 04_04_59 AM.png(image/png) - 3038828 bytes, last modified: 8/30/2025 - 100% done
Saving ChatGPT Image Aug 30, 2025, 04_04_59 AM.png to ChatGPT Image Aug 30, 2025, 04_04_59 AM.png

```
import glob
from IPython.display import Image, display

preds = glob.glob("runs/detect/oralvis_yolov8s_custom/*.jpg")
for p in preds[:5]: # show first 5 predictions
    display(Image(filename=p))
```

```
from google.colab import files

# Upload an image from your local system
uploaded = files.upload()
```

→ Choose Files ChatGPT I...4_59 AM.png
• ChatGPT Image Aug 30, 2025, 04_04_59 AM.png(image/png) - 3038828 bytes, last modified: 8/30/2025 - 100% done
Saving ChatGPT Image Aug 30, 2025, 04_04_59 AM.png to ChatGPT Image Aug 30, 2025, 04_04_59 AM (1).png

```
from ultralytics import YOLO
import matplotlib.pyplot as plt

# Load your trained model
model = YOLO("/content/runs/detect/oralvis_yolov8s_test/weights/best.pt")

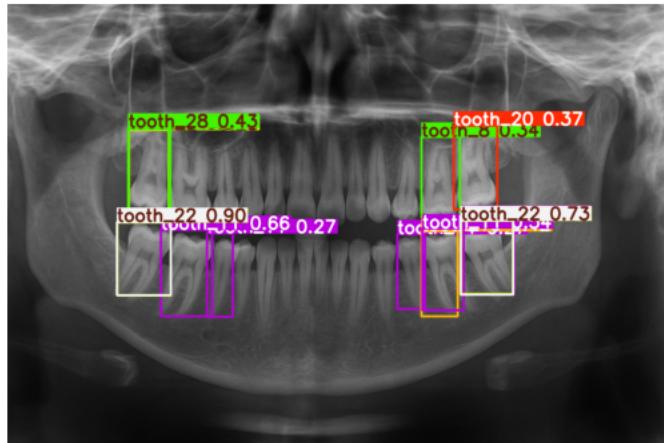
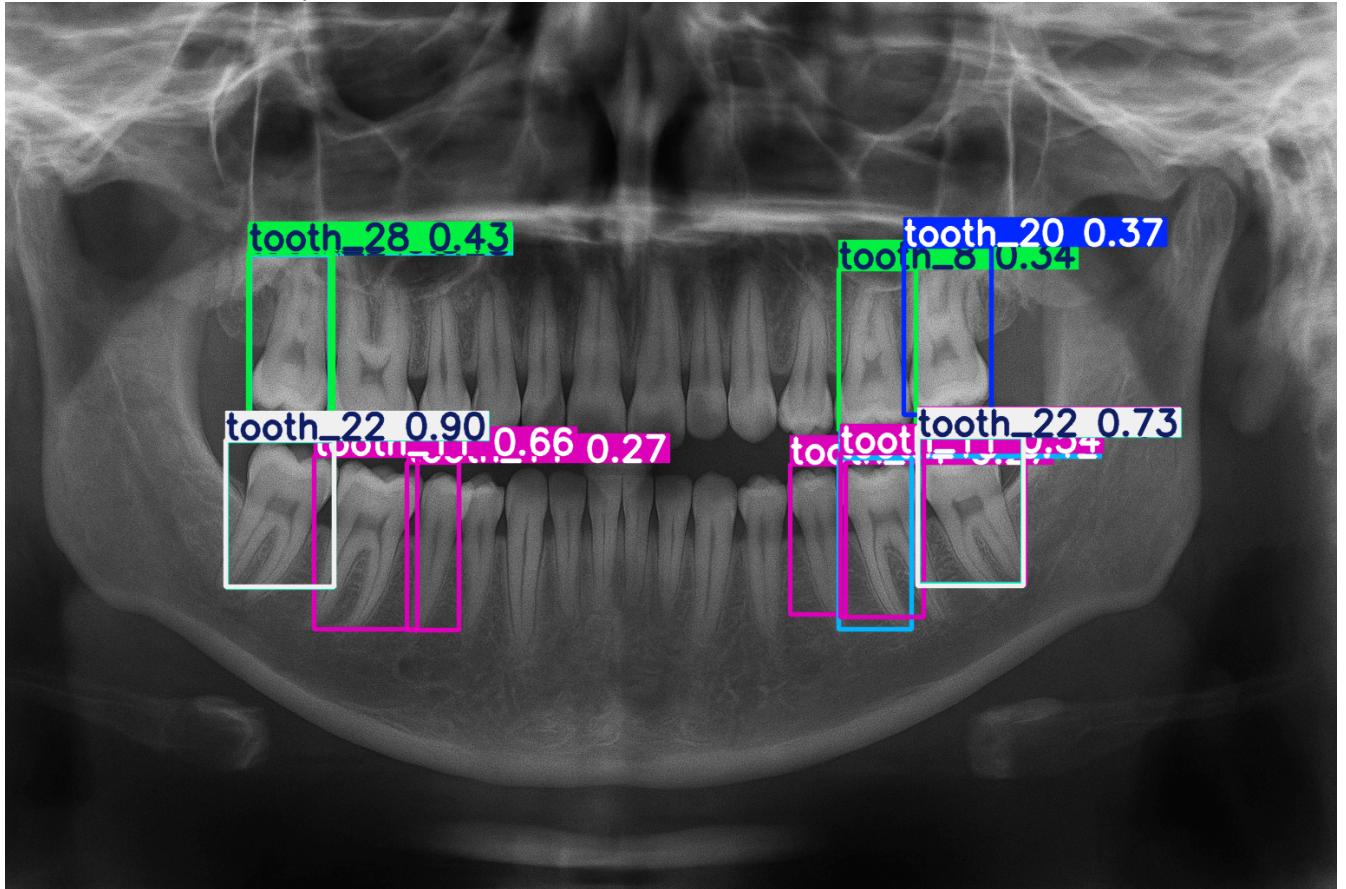
# Run detection on your uploaded image
results = model.predict(
    source="/content/ChatGPT Image Aug 30, 2025, 04_04_59 AM (1).png",
    save=True,
    conf=0.25
)

# Show result
results[0].show()

# Or plot using matplotlib
plt.imshow(results[0].plot())
plt.axis("off")
plt.show()
```



image 1/1 /content/ChatGPT Image Aug 30, 2025, 04_04_59 AM (1).png: 192x256 2 tooth_8s, 1 tooth_10, 4 tooth_11s, 1 tooth_20, 1 too
Speed: 1.9ms preprocess, 165.8ms inference, 2.3ms postprocess per image at shape (1, 3, 192, 256)
Results saved to runs/detect/predict

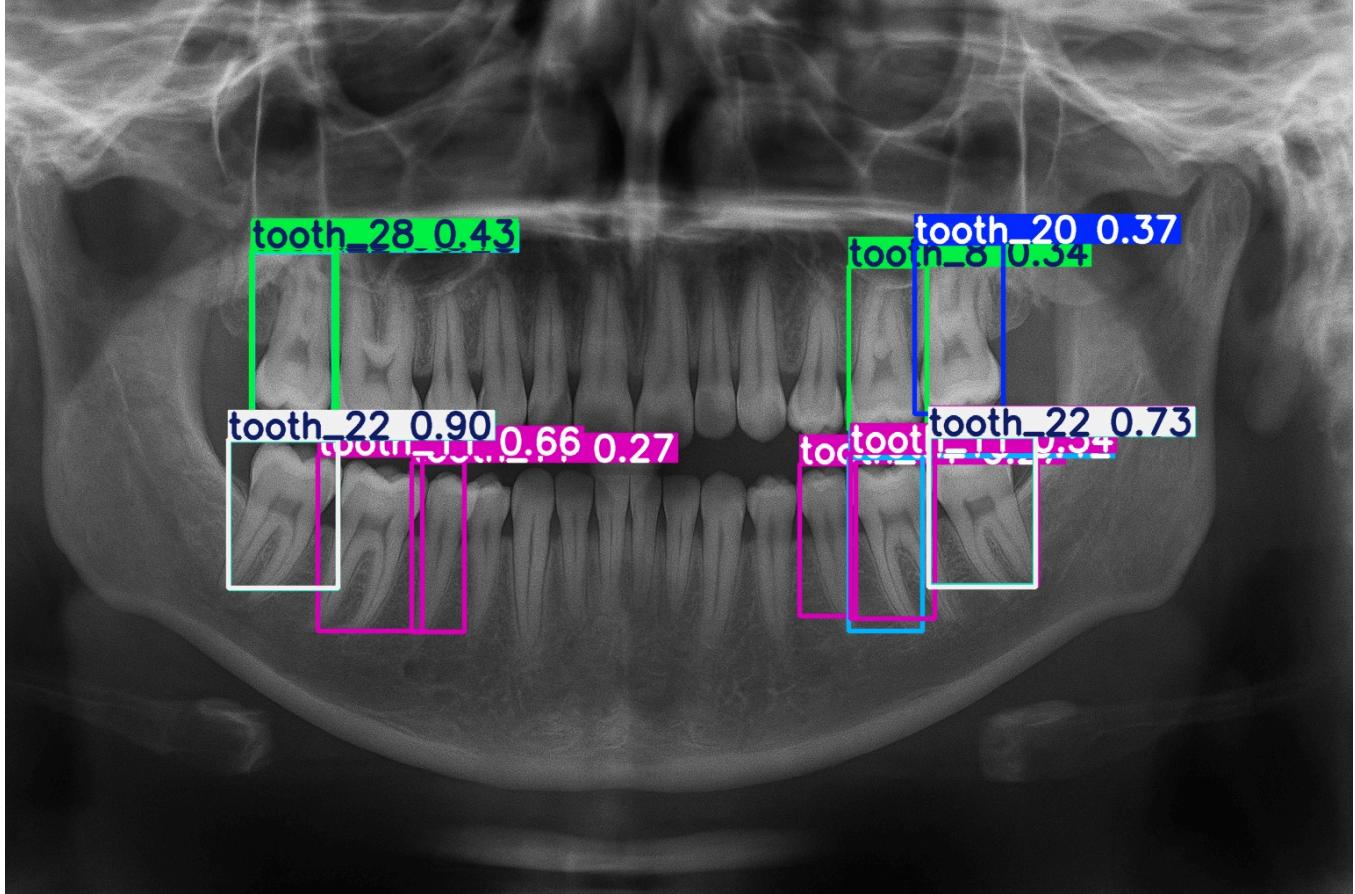


```
import os
from IPython.display import Image, display

# Check where YOLO saved predictions
output_dir = "runs/detect/predict"
print("Files in prediction folder:", os.listdir(output_dir))

# Show the first predicted image
pred_img = os.path.join(output_dir, os.listdir(output_dir)[0])
display(Image(filename=pred_img))
```

Files in prediction folder: ['ChatGPT Image Aug 30, 2025, 04_04_59 AM (1).jpg']



```
# Run inference on the entire test set
results = model.predict(
    source="/content/oralvis_project/dataset/test/images",
    save=True,
    conf=0.25
)
```

image 1/50 /content/oralvis_project/dataset/test/images/061339f1-20240911-110938655.jpg: 256x256 1 tooth_9, 1 tooth_10, 3 tooth_20s,
 image 2/50 /content/oralvis_project/dataset/test/images/1fc5e51d-20241219-142523942.jpg: 256x256 1 tooth_2, 1 tooth_5, 1 tooth_9, 1
 image 3/50 /content/oralvis_project/dataset/test/images/23f1d012-20240628-115132889.jpg: 256x256 1 tooth_8, 1 tooth_9, 2 tooth_10s,
 image 4/50 /content/oralvis_project/dataset/test/images/32bf2ab8-20250429-143954461.jpg: 256x256 2 tooth_9s, 1 tooth_10, 1 tooth_11,
 image 5/50 /content/oralvis_project/dataset/test/images/3eb9bb4a-20240713-104413422.jpg: 256x256 1 tooth_9, 1 tooth_10, 1 tooth_11,
 image 6/50 /content/oralvis_project/dataset/test/images/5ac74e43-20240917-113511459.jpg: 256x256 2 tooth_9s, 3 tooth_10s, 3 tooth_11
 image 7/50 /content/oralvis_project/dataset/test/images/6f2e436d-20240911-130622990.jpg: 256x256 2 tooth_0s, 1 tooth_8, 1 tooth_16,
 image 8/50 /content/oralvis_project/dataset/test/images/77cbfd44-20250507-104302199.jpg: 256x256 1 tooth_10, 1 tooth_11, 3 tooth_20s
 image 9/50 /content/oralvis_project/dataset/test/images/77cf60c6-20250502-152837733.jpg: 256x256 5 tooth_20s, 1 tooth_21, 3 tooth_21
 image 10/50 /content/oralvis_project/dataset/test/images/868e37bc-20240801-122009445.jpg: 256x256 2 tooth_9s, 2 tooth_11s, 2 tooth_11
 image 11/50 /content/oralvis_project/dataset/test/images/a5a8d054-20240812-120305115.jpg: 256x256 1 tooth_0, 4 tooth_9s, 2 tooth_11s
 image 12/50 /content/oralvis_project/dataset/test/images/cate1-00008.jpg.rf.bd52f3e93a205ce4f81a74a113d8677d.jpg: 256x256 2 tooth_8s
 image 13/50 /content/oralvis_project/dataset/test/images/cate1-00029.jpg.rf.97fe17da11f631d02b8290db8b4c8de.jpg: 256x256 3 tooth_9s
 image 14/50 /content/oralvis_project/dataset/test/images/cate10-00056.jpg.rf.8122111fefdf7c62440c200a8d0d004c2.jpg: 256x256 (no detect)
 image 15/50 /content/oralvis_project/dataset/test/images/cate10-00070.jpg.rf.314fc4568fa0ea36e4854bc770c55005.jpg: 256x256 1 tooth_6
 image 16/50 /content/oralvis_project/dataset/test/images/cate10-00113.jpg.rf.b8bd7fe7443cc844b2fc3b38bea5256.jpg: 256x256 1 tooth_2
 image 17/50 /content/oralvis_project/dataset/test/images/cate2-00003.jpg.rf.afa79e0ec99e842018d86d31b5cbdf52.jpg: 256x256 2 tooth_2s
 image 18/50 /content/oralvis_project/dataset/test/images/cate2-00036.jpg.rf.04475dac8669951e56ad23596433a278.jpg: 256x256 3 tooth_9s
 image 19/50 /content/oralvis_project/dataset/test/images/cate2-00126.jpg.rf.1eb0b757ac52e5c637422ab727326ae5.jpg: 256x256 1 tooth_2,
 image 20/50 /content/oralvis_project/dataset/test/images/cate2-00134.jpg.rf.a9bff963bec7e92f2aa5199494cc1e16.jpg: 256x256 3 tooth_9s
 image 21/50 /content/oralvis_project/dataset/test/images/cate3-00008.jpg.rf.758b1b82f2f13e5bee30274c1c295f1.jpg: 256x256 4 tooth_2s
 image 22/50 /content/oralvis_project/dataset/test/images/cate4-00108.jpg.rf.0059dac135a8379dfe298cecffbd0e3.jpg: 256x256 1 tooth_0,
 image 23/50 /content/oralvis_project/dataset/test/images/cate5-00036.jpg.rf.560839067a44932020f5a0d9134a9091.jpg: 256x256 1 tooth_2,
 image 24/50 /content/oralvis_project/dataset/test/images/cate5-00054.jpg.rf.fb644e04630366b966998bf6cd7560e3.jpg: 256x256 2 tooth_2s
 image 25/50 /content/oralvis_project/dataset/test/images/cate5-00055.jpg.rf.5182bc213333ceae7598c178b0cc42ff.jpg: 256x256 (no detect)
 image 26/50 /content/oralvis_project/dataset/test/images/cate5-00078.jpg.rf.00ab602ee40aaa203757588ec19bd491.jpg: 256x256 1 tooth_1s
 image 27/50 /content/oralvis_project/dataset/test/images/cate5-00078.jpg.rf.50b897f0b510710a35cce5750bb37da1.jpg: 256x256 1 tooth_2,
 image 28/50 /content/oralvis_project/dataset/test/images/cate5-00079.jpg.rf.eeb07010eb5e2c5dd34fb10df79959b6.jpg: 256x256 2 tooth_9s
 image 29/50 /content/oralvis_project/dataset/test/images/cate5-00109.jpg.rf.427468e498777c6dbb3fc098cf5ec1e.jpg: 256x256 1 tooth_2,

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image 30/50 /content/oralvis_project/dataset/test/images/cate6-00063.jpg.rf.1de234c2cdc9079dd4ea04770d464153.jpg: 256x256 1 tooth_1€
image 31/50 /content/oralvis_project/dataset/test/images/cate6-00065.jpg.rf.098061df411a43ab45e50349d23fc1aa.jpg: 256x256 1 tooth_8,
image 32/50 /content/oralvis_project/dataset/test/images/cate7-00002.jpg.rf.261b61cdff53632dae02509f163d684.jpg: 256x256 1 tooth_8,
image 33/50 /content/oralvis_project/dataset/test/images/cate7-00002.jpg.rf.f08b4f058e2184b7ecb9b193c5634d7b.jpg: 256x256 1 tooth_8,
image 34/50 /content/oralvis_project/dataset/test/images/cate7-00062.jpg.rf.3f2b9aa095949c194a1376f20d1f8805.jpg: 256x256 2 tooth_0€
image 35/50 /content/oralvis_project/dataset/test/images/cate7-00104.jpg.rf.755fda6da3d9dbafaff1c7be18013a48.jpg: 256x256 1 tooth_2,
image 36/50 /content/oralvis_project/dataset/test/images/cate8-00023.jpg.rf.b2e358f22850af1b16d860cc49bd25fc.jpg: 256x256 1 tooth_0,
image 37/50 /content/oralvis_project/dataset/test/images/cate8-00051.jpg.rf.dc01f9a2d611518110f41bf9f67a7ea9.jpg: 256x256 1 tooth_9,
image 38/50 /content/oralvis_project/dataset/test/images/cate8-00101.jpg.rf.3d707b62cf05fb548590cee862bd3e89.jpg: 256x256 3 tooth_9€
image 39/50 /content/oralvis_project/dataset/test/images/cate8-00131.jpg.rf.9755ad7a2010d677500a57fe7291285f.jpg: 256x256 1 tooth_8,
image 40/50 /content/oralvis_project/dataset/test/images/cate8-00137.jpg.rf.34823f8760ec5c1519d7ca8cdc4c4de2.jpg: 256x256 1 tooth_2,
image 41/50 /content/oralvis_project/dataset/test/images/cate8-00179.jpg.rf.42c525b0e06616caf26bd93fbaba770.jpg: 256x256 1 tooth_2,
image 42/50 /content/oralvis_project/dataset/test/images/cate8-00325.jpg.rf.6cbdfaffbfa225a907e3780fe83894ef.jpg: 256x256 1 tooth_3,
image 43/50 /content/oralvis_project/dataset/test/images/cate8-00353.jpg.rf.5ddc91c4b0ba05042c4a423556c633a4.jpg: 256x256 3 tooth_9€
image 44/50 /content/oralvis_project/dataset/test/images/cate8-00382.jpg.rf.6509b2217ce00a598880c341bf23b72f.jpg: 256x256 2 tooth_9€
image 45/50 /content/oralvis_project/dataset/test/images/cate8-00449.jpg.rf.72feb8270b91216f84095920bc81854a.jpg: 256x256 1 tooth_2,
image 46/50 /content/oralvis_project/dataset/test/images/cate9-00004.jpg.rf.a84c049fd7c8c3ba18a4155a6c9e0bde.jpg: 256x256 1 tooth_0,
image 47/50 /content/oralvis_project/dataset/test/images/cate9-00010.jpg.rf.5c4a5d1756220eb669d901f88d804346.jpg: 256x256 1 tooth_8,
image 48/50 /content/oralvis_project/dataset/test/images/dab67210-20240903-122607126.jpg: 256x256 4 tooth_9s, 1 tooth_10, 4 tooth_11
image 49/50 /content/oralvis_project/dataset/test/images/e962bd4f-20240909-110814899.jpg: 256x256 2 tooth_9s, 2 tooth_11s, 2 tooth_11
image 50/50 /content/oralvis_project/dataset/test/images/f0c433c8-20240704-131443960.jpg: 256x256 1 tooth_8, 1 tooth_9, 1 tooth_10,
Speed: 1.4ms preprocess, 145.2ms inference, 1.0ms postprocess per image at shape (1, 3, 256, 256)
Results saved to runs/detect/predict
```

```
import os
from IPython.display import Image, display

output_dir = "runs/detect/predict"
for img_name in os.listdir(output_dir)[:5]: # show first 5 results
    display(Image(filename=os.path.join(output_dir, img_name)))
```

