Dental X-Ray Segmentation with Deep Learning using VGG16 and U-Net Architectures


```python
import numpy as np
import pandas as pd

import json
import numpy as np
import cv2
import os
import matplotlib.pyplot as plt

def load_json(json_path):
    with open(json_path, 'r') as f:
        data = json.load(f)
    return data

json_path = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/train_annotations.coco.json'
data = load_json(json_path)

def parse_json(data):
    categories = {cat['id']: cat['name'] for cat in
data['categories']}
    images = {img['id']: img['file_name'] for img in data['images']}

    return categories, images

categories, images = parse_json(data)
```

```python
print("Categorias:", categories)
print("Imagens:", images)

categories_df = pd.DataFrame(list(categories.items()),
columns=['Category_ID', 'Category_Name'])

images_df = pd.DataFrame(list(images.items()), columns=['Image_ID',
'File_Name'])

categories_df
```

```
    Category_ID        Category_Name
0             0               vzrad2
1             1                Caries
2             2                 Crown
3             3               Filling
4             4               Implant
5             5            Malaligned
6             6      Mandibular Canal
7             7         Missing teeth
8             8      Periapical lesion
9             9         Retained root
10           10   Root Canal Treatment
11           11            Root Piece
12           12                 croen
13           13         impacted tooth
14           14        maxillary sinus
```

```python
images_df
```

```
      Image_ID                                          File_Name
0             0  1452650000-jpg_png_jpg.rf.1d73675b99c6c1afe90c...
1             1  3975890000-jpg_png_jpg.rf.1d1b03af3734eba73e9d...
2             2  4054820000-jpg_png_jpg.rf.1d4a4d0a6fd081280376...
3             3  3794860000-jpg_png_jpg.rf.1cb8e683ddd8a1131d0f...
4             4  3867370000-jpg_png_jpg.rf.1d45c92826c5c0473400...
...         ...                                                ...
4767       4767  3743530000-jpg_png_jpg.rf.c51fe9f316538987da7d...
4768       4768  6d10fc03-Jalili_Hojat_48yo_15112020_155848_jpg...
4769       4769  3762090000-jpg_png_jpg.rf.c4a1faf7cc6ef1f08e48...
4770       4770  4164320000_jpg.rf.c508db7a248aa5d584ade3afecad...
4771       4771  cropped_JASPAL-SINGH_2023-10-21135902_1_png.rf...

[4772 rows x 2 columns]
```

```python
def load_image_and_mask(image_path, mask_path):
    image = cv2.imread(image_path)
    image = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
    mask = cv2.imread(mask_path, cv2.IMREAD_GRAYSCALE)
    return image, mask
```

```python
def plot_images_with_masks(images, masks, categories, category_names):
    fig, axes = plt.subplots(nrows=2, ncols=4, figsize=(10, 10))
    for i, (image_path, mask_path, category) in enumerate(zip(images,
masks, categories)):
        image, mask = load_image_and_mask(image_path, mask_path)
        row, col = divmod(i, 4)
        ax_image = axes[0, col]
        ax_image.imshow(image)
        ax_image.axis('off')
        ax_image.set_title(f"Categoria: {category_names[category]}")
        ax_mask = axes[1, col]
        ax_mask.imshow(image)
        ax_mask.imshow(mask, cmap='jet', alpha=0.55)
        ax_mask.axis('off')
    plt.subplots_adjust(wspace=0, hspace=0)
    plt.tight_layout()
    plt.show()

category_names = {0: 'vzrad2', 1: 'Caries', 2: 'Crown', 3: 'Filling'}

image_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/train'
mask_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/train/train_mask'

images = [
    os.path.join(image_dir, '0a4f2d22-
Hematian_Fariba_57y_31052021_132542_jpg.rf.6bfcf8cfb273a9a0767ea25499d
a98bc.jpg'),
    os.path.join(image_dir, '3975890000-
jpg_png_jpg.rf.1d1b03af3734eba73e9d12a295578027.jpg'),
    os.path.join(image_dir, '4054820000-
jpg_png_jpg.rf.1d4a4d0a6fd081280376d10fc085cffa.jpg'),
    os.path.join(image_dir, '3794860000-
jpg_png_jpg.rf.1cb8e683ddd8a1131d0ffd0c53ee4ac0.jpg')
]

masks = [
    os.path.join(mask_dir, '0a4f2d22-
Hematian_Fariba_57y_31052021_132542_jpg.rf.6bfcf8cfb273a9a0767ea25499d
a98bc.jpg_mask.png'),
    os.path.join(mask_dir, '3975890000-
jpg_png_jpg.rf.1d1b03af3734eba73e9d12a295578027.jpg_mask.png'),
    os.path.join(mask_dir, '4054820000-
jpg_png_jpg.rf.1d4a4d0a6fd081280376d10fc085cffa.jpg_mask.png'),
    os.path.join(mask_dir, '3794860000-
jpg_png_jpg.rf.1cb8e683ddd8a1131d0ffd0c53ee4ac0.jpg_mask.png')
]

categories = [0, 1, 2, 3]
```
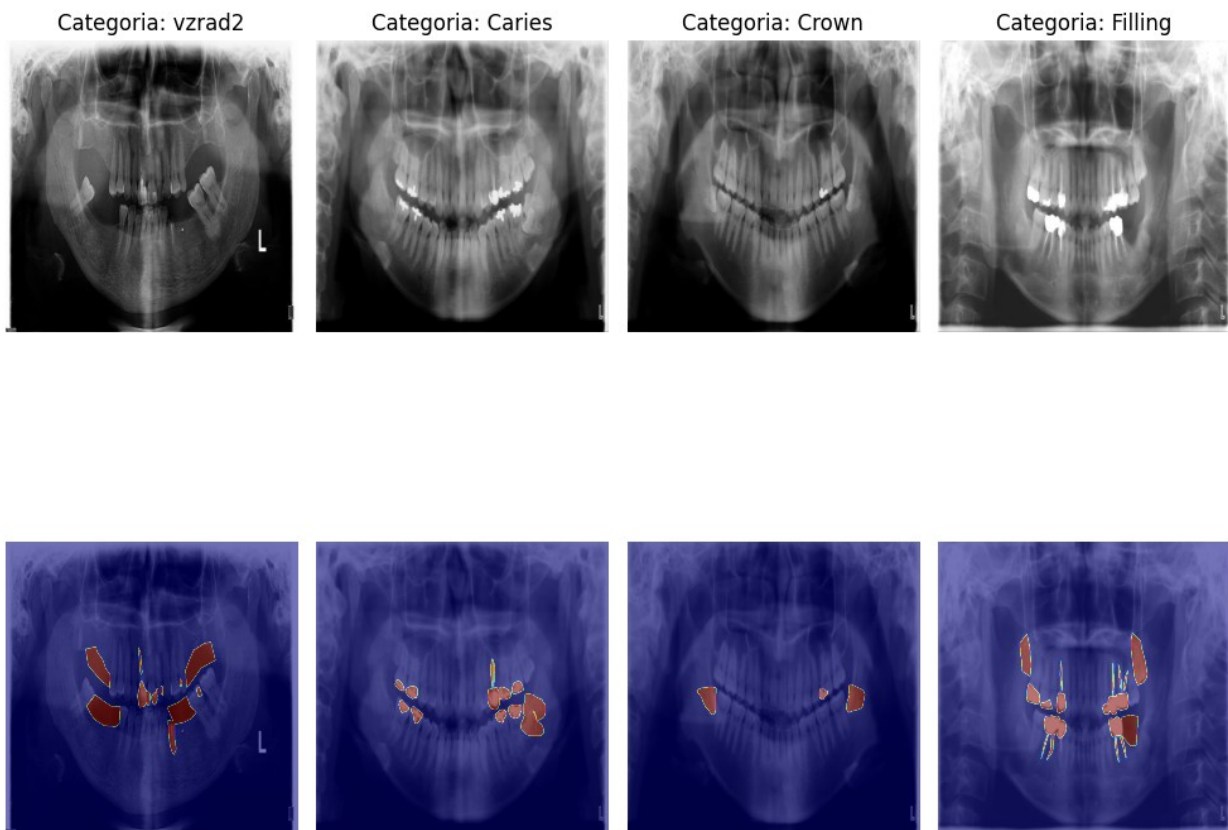
```
plot_images_with_masks(images, masks, categories, category_names)
```


Categoria: vzrad2   Categoria: Caries   Categoria: Crown   Categoria: Filling

```python
from PIL import Image
from tensorflow.keras.applications import VGG16
from tensorflow.keras.layers import Input, Conv2D, MaxPooling2D,
Conv2DTranspose, concatenate
from tensorflow.keras.models import Model
from tensorflow.keras.optimizers import Adam

def load_annotations(json_path):
    with open(json_path, 'r') as f:
        annotations = json.load(f)
    return annotations

def load_image_and_mask(image_path, mask_path, target_size=(256,
256)):
    image = Image.open(image_path).convert('RGB')
    mask = Image.open(mask_path).convert('L')
    image = image.resize(target_size, Image.Resampling.LANCZOS)
    mask = mask.resize(target_size, Image.Resampling.LANCZOS)
    image = np.array(image)
    mask = np.array(mask)
    return image, mask
```

```python
def visualize_batch(images, masks):
    batch_size = len(images)
    fig, axes = plt.subplots(batch_size, 2, figsize=(10, batch_size *
5))
    for i in range(batch_size):
        ax_image = axes[i, 0]
        ax_image.imshow(images[i])
        ax_image.axis('off')
        ax_mask = axes[i, 1]
        ax_mask.imshow(masks[i], cmap='gray')
        ax_mask.axis('off')
    plt.tight_layout()
    plt.show()

def dataset_generator(image_dir, mask_dir, annotations, batch_size,
target_size=(256, 256)):
    image_info = annotations['images']
    while True:
        np.random.shuffle(image_info)
        for batch_start in range(0, len(image_info), batch_size):
            images = []
            masks = []
            for i in range(batch_start, min(batch_start + batch_size,
len(image_info))):
                image_data = image_info[i]
                image_filename = image_data['file_name']
                image_path = os.path.join(image_dir, image_filename)
                mask_filename = f"{image_filename}_mask.png"
                mask_path = os.path.join(mask_dir, mask_filename)
                try:
                    image, mask = load_image_and_mask(image_path,
mask_path, target_size)
                except (FileNotFoundError, ValueError) as e:
                    print(f"Error loading image or mask: {e}")
                    continue
                images.append(image / 255.0)
                masks.append(mask / 255.0)
            yield np.array(images), np.array(masks)

def unet_vgg16_model(input_shape):
    vgg_base = VGG16(weights='imagenet', include_top=False,
input_shape=input_shape)
    for layer in vgg_base.layers:
        layer.trainable = False

    inputs = vgg_base.input
    c1 = vgg_base.get_layer('block1_conv2').output
    p1 = MaxPooling2D((2, 2))(c1)
    c2 = vgg_base.get_layer('block2_conv2').output
```

```python
    p2 = MaxPooling2D((2, 2))(c2)
    c3 = vgg_base.get_layer('block3_conv3').output
    c4 = vgg_base.get_layer('block4_conv3').output

    u5 = Conv2DTranspose(256, (2, 2), strides=(2, 2), padding='same')
(c4)
    u5 = concatenate([u5, c3])
    c5 = Conv2D(256, (3, 3), activation='relu', padding='same')(u5)
    c5 = Conv2D(256, (3, 3), activation='relu', padding='same')(c5)

    u6 = Conv2DTranspose(128, (2, 2), strides=(2, 2), padding='same')
(c5)
    u6 = concatenate([u6, c2])
    c6 = Conv2D(128, (3, 3), activation='relu', padding='same')(u6)
    c6 = Conv2D(128, (3, 3), activation='relu', padding='same')(c6)

    u7 = Conv2DTranspose(64, (2, 2), strides=(2, 2), padding='same')
(c6)
    u7 = concatenate([u7, c1])
    c7 = Conv2D(64, (3, 3), activation='relu', padding='same')(u7)
    c7 = Conv2D(64, (3, 3), activation='relu', padding='same')(c7)

    outputs = Conv2D(1, (1, 1), activation='sigmoid')(c7)
    model = Model(inputs=[inputs], outputs=[outputs])
    return model

input_shape = (256, 256, 3)
batch_size = 8

train_image_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/train'
train_mask_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/train/train_mask'
train_annotation_file = '/kaggle/input/dental-x-ray-computacional-
vision-segmentation/train_annotations.coco.json'

valid_image_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/valid'
valid_mask_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/valid/valid_mask'
valid_annotation_file = '/kaggle/input/dental-x-ray-computacional-
vision-segmentation/valid_annotations.coco.json'

train_annotations = load_annotations(train_annotation_file)
valid_annotations = load_annotations(valid_annotation_file)

train_data_gen = dataset_generator(train_image_dir, train_mask_dir,
train_annotations, batch_size, target_size=(256, 256))
valid_data_gen = dataset_generator(valid_image_dir, valid_mask_dir,
valid_annotations, batch_size, target_size=(256, 256))
```
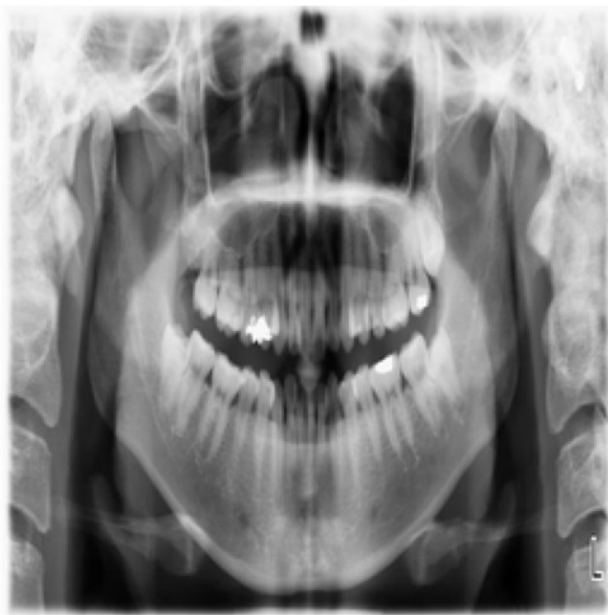
```
images, masks = next(train_data_gen)
visualize_batch(images, masks)

train_steps_per_epoch = len(train_annotations['images']) // batch_size
valid_steps_per_epoch = len(valid_annotations['images']) // batch_size
```

```python
model = unet_vgg16_model(input_shape)
model.compile(optimizer=Adam(), loss='binary_crossentropy',
metrics=['accuracy'])
```

Downloading data from https://storage.googleapis.com/tensorflow/keras-applications/vgg16/vgg16_weights_tf_dim_ordering_tf_kernels_notop.h5
58889256/58889256 ━━━━━━━━━━━━━━━━━━ 0s 0us/step

```python
history = model.fit(
    train_data_gen,
    steps_per_epoch=train_steps_per_epoch,
    validation_data=valid_data_gen,
    validation_steps=valid_steps_per_epoch,
    epochs=7,
    verbose=1
)
```

Epoch 1/7

WARNING: All log messages before absl::InitializeLog() is called are written to STDERR
I0000 00:00:1726821179.907524   150 service.cc:145] XLA service 0x7cc27c0090d0 initialized for platform CUDA (this does not guarantee that XLA will be used). Devices:
I0000 00:00:1726821179.907578   150 service.cc:153]   StreamExecutor device (0): Tesla T4, Compute Capability 7.5
I0000 00:00:1726821179.907582   150 service.cc:153]   StreamExecutor device (1): Tesla T4, Compute Capability 7.5
I0000 00:00:1726821209.950081   150 device_compiler.h:188] Compiled cluster using XLA! This line is logged at most once for the lifetime of the process.

596/596 ━━━━━━━━━━━━━━━━━━ 253s 369ms/step - accuracy: 0.9528 - loss: 0.1276 - val_accuracy: 0.9731 - val_loss: 0.0403
Epoch 2/7
596/596 ━━━━━━━━━━━━━━━━━━ 199s 335ms/step - accuracy: 0.9683 - loss: 0.0510 - val_accuracy: 0.9730 - val_loss: 0.0404
Epoch 3/7
596/596 ━━━━━━━━━━━━━━━━━━ 185s 311ms/step - accuracy: 0.9681 - loss: 0.0486 - val_accuracy: 0.9738 - val_loss: 0.0350
Epoch 4/7
596/596 ━━━━━━━━━━━━━━━━━━ 184s 309ms/step - accuracy: 0.9687 - loss: 0.0443 - val_accuracy: 0.9737 - val_loss: 0.0360
Epoch 5/7
596/596 ━━━━━━━━━━━━━━━━━━ 183s 307ms/step - accuracy: 0.9691 - loss: 0.0416 - val_accuracy: 0.9739 - val_loss: 0.0364
Epoch 6/7
596/596 ━━━━━━━━━━━━━━━━━━ 180s 303ms/step - accuracy: 0.9697 - loss: 0.0386 - val_accuracy: 0.9740 - val_loss: 0.0359
Epoch 7/7

```
596/596 ──────────────────────── 178s 299ms/step - accuracy: 0.9707 -
loss: 0.0357 - val_accuracy: 0.9737 - val_loss: 0.0350

from sklearn.metrics import f1_score, roc_auc_score

def plot_training_metrics(history):
    plt.figure(figsize=(14, 5))

    plt.subplot(1, 2, 1)
    plt.plot(history.history['accuracy'], label='Training Accuracy')
    plt.plot(history.history['val_accuracy'], label='Validation
Accuracy')
    plt.title('Accuracy during Training and Validation')
    plt.xlabel('Epochs')
    plt.ylabel('Accuracy')
    plt.legend()

    plt.subplot(1, 2, 2)
    plt.plot(history.history['loss'], label='Training Loss')
    plt.plot(history.history['val_loss'], label='Validation Loss')
    plt.title('Loss during Training and Validation')
    plt.xlabel('Epochs')
    plt.ylabel('Loss')
    plt.legend()

    plt.show()

plot_training_metrics(history)
```
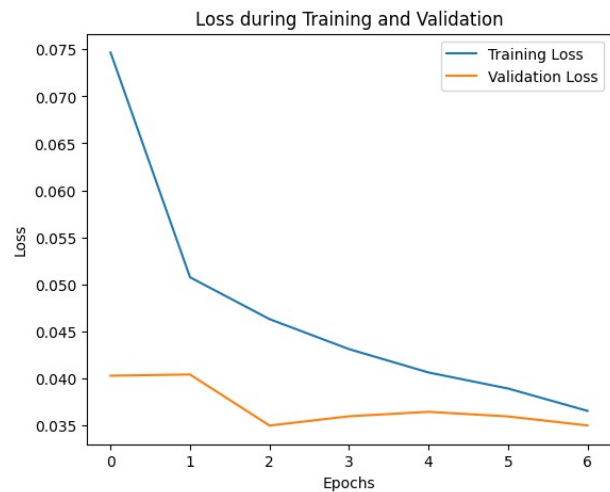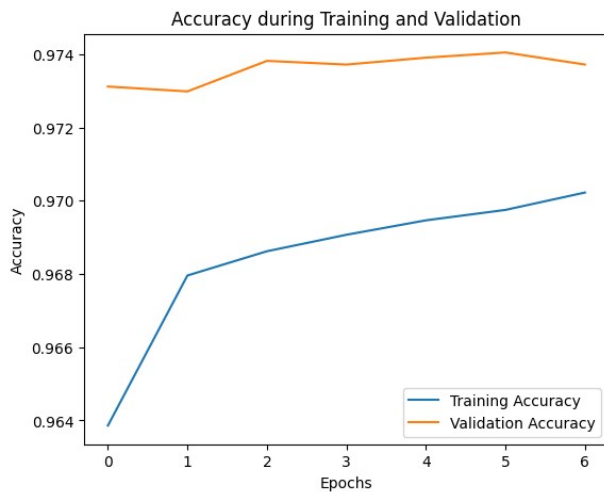


```
model.save('vgg16_unet_model.h5')
```

Test

```python
import numpy as np
import matplotlib.pyplot as plt
from sklearn.metrics import f1_score, roc_auc_score, roc_curve,
classification_report, accuracy_score

def evaluate_model(model, data_gen, steps):
    y_true = []
    y_pred = []

    for i in range(steps):
        x_batch, y_batch = next(data_gen)
        predictions = model.predict(x_batch)
        predictions_bin = (predictions >= 0.5).astype(np.int32)
        y_true.extend(y_batch.flatten())
        y_pred.extend(predictions_bin.flatten())

        if i % 20 == 0:
            plot_single_prediction(x_batch, y_batch, predictions_bin)

    y_true = np.array(y_true)
    y_pred = np.array(y_pred)

    print(f"Unique values in y_true: {np.unique(y_true)}")
    print(f"Unique values in y_pred: {np.unique(y_pred)}")

    if np.array_equal(np.unique(y_true), [0, 1]) and
np.array_equal(np.unique(y_pred), [0, 1]):
        f1 = f1_score(y_true, y_pred)
        auc = roc_auc_score(y_true, y_pred)

        print(f'F1-Score: {f1}')
        print(f'AUC: {auc}')

        fpr, tpr, _ = roc_curve(y_true, y_pred)
        plt.figure()
        plt.plot(fpr, tpr, marker='.')
        plt.title('ROC Curve')
        plt.xlabel('False Positive Rate')
        plt.ylabel('True Positive Rate')
        plt.show()

        print(classification_report(y_true, y_pred))
    else:
        print("Error: y_true or y_pred is not in the expected binary
format.")

def plot_single_prediction(images, masks_true, masks_pred):
    image = images[0]
```

```python
    mask_true = masks_true[0]
    mask_pred = masks_pred[0]
    mask_true_bin = (mask_true >= 0.5).astype(np.int32)
    accuracy = accuracy_score(mask_true_bin.flatten(),
mask_pred.flatten())

    fig, ax = plt.subplots(1, 3, figsize=(15, 5))
    ax[0].imshow(image)
    ax[0].set_title('Original Image')
    ax[0].axis('off')
    ax[1].imshow(mask_true.squeeze(), cmap='gray')
    ax[1].set_title('Original Mask')
    ax[1].axis('off')
    ax[2].imshow(image)
    ax[2].imshow(mask_pred.squeeze(), cmap='jet', alpha=0.5)
    ax[2].set_title(f'Predicted Mask (Accuracy: {accuracy:.2f})')
    ax[2].axis('off')
    plt.tight_layout()
    plt.show()

test_image_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/test'
test_mask_dir = '/kaggle/input/dental-x-ray-computacional-vision-
segmentation/Dental X_Ray/test/test_mask'
test_annotation_file = '/kaggle/input/dental-x-ray-computacional-
vision-segmentation/test_annotations.coco.json'
test_annotations = load_annotations(test_annotation_file)

test_data_gen = dataset_generator(test_image_dir, test_mask_dir,
test_annotations, batch_size, target_size=(256, 256))
test_steps = len(test_annotations['images']) // batch_size

evaluate_model(model, test_data_gen, test_steps)

Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2691340000-
jpg_png_jpg.rf.cb7c763aa81a2c4c5584af3d8be8c271.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2939710000-
jpg_png_jpg.rf.8fb9d5a77d7f6e30bdd8b93e0b50cfff.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/045b3b84-PIRI_NAJME_2020-02-
18184406_jpg.rf.b561dab76cb538a94536944cff81ef1c.jpg'

2024-09-20 08:58:20.754222: E
external/local_xla/xla/service/slow_operation_alarm.cc:65] Trying
algorithm eng12{k11=2} for conv (f32[5,128,128,128]{3,2,1,0}, u8[0]
```
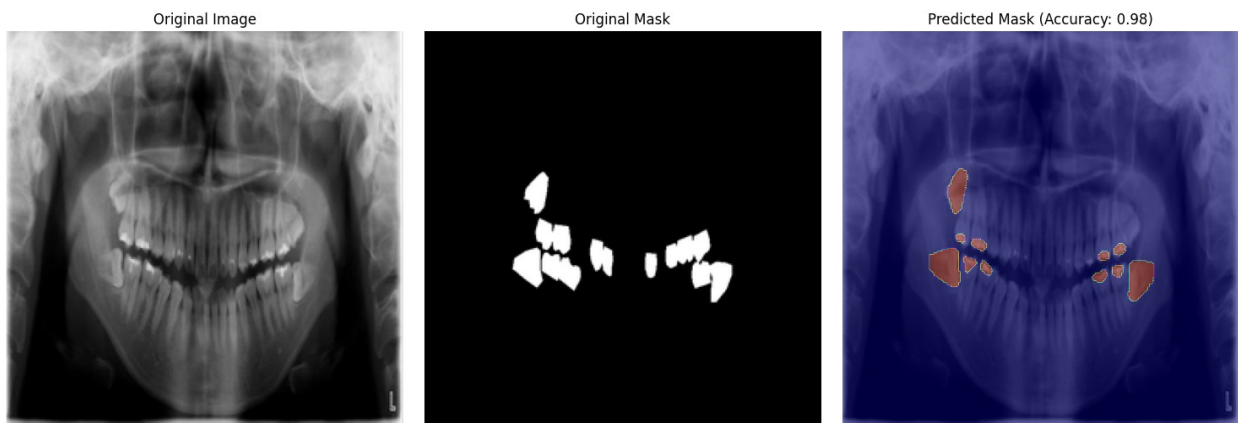
{0}) custom-call(f32[5,128,128,128]{3,2,1,0}, f32[128,128,3,3]
{3,2,1,0}, f32[128]{0}), window={size=3x3 pad=1_1x1_1},
dim_labels=bf01_oi01->bf01,
custom_call_target="__cudnn$convBiasActivationForward",
backend_config={"operation_queue_id":"0","wait_on_operation_queues":
[],"cudnn_conv_backend_config":
{"conv_result_scale":1,"activation_mode":"kRelu","side_input_scale":0,
"leakyrelu_alpha":0}} is taking a while...
2024-09-20 08:58:21.511911: E
external/local_xla/xla/service/slow_operation_alarm.cc:133] The
operation took 1.757894678s
Trying algorithm eng12{k11=2} for conv (f32[5,128,128,128]{3,2,1,0},
u8[0]{0}) custom-call(f32[5,128,128,128]{3,2,1,0}, f32[128,128,3,3]
{3,2,1,0}, f32[128]{0}), window={size=3x3 pad=1_1x1_1},
dim_labels=bf01_oi01->bf01,
custom_call_target="__cudnn$convBiasActivationForward",
backend_config={"operation_queue_id":"0","wait_on_operation_queues":
[],"cudnn_conv_backend_config":
{"conv_result_scale":1,"activation_mode":"kRelu","side_input_scale":0,
"leakyrelu_alpha":0}} is taking a while...
1/1 ━━━━━━━━━━━━━━━━━━━━ 12s 12s/step

Original Image   Original Mask   Predicted Mask (Accuracy: 0.98)

Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3238370000-
jpg_png_jpg.rf.6b28c1308c247280183c18693f38672b.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2849340000-
jpg_png_jpg.rf.2978359d325c70a3e646ac9ea0c3a016.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 13s 13s/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 236ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
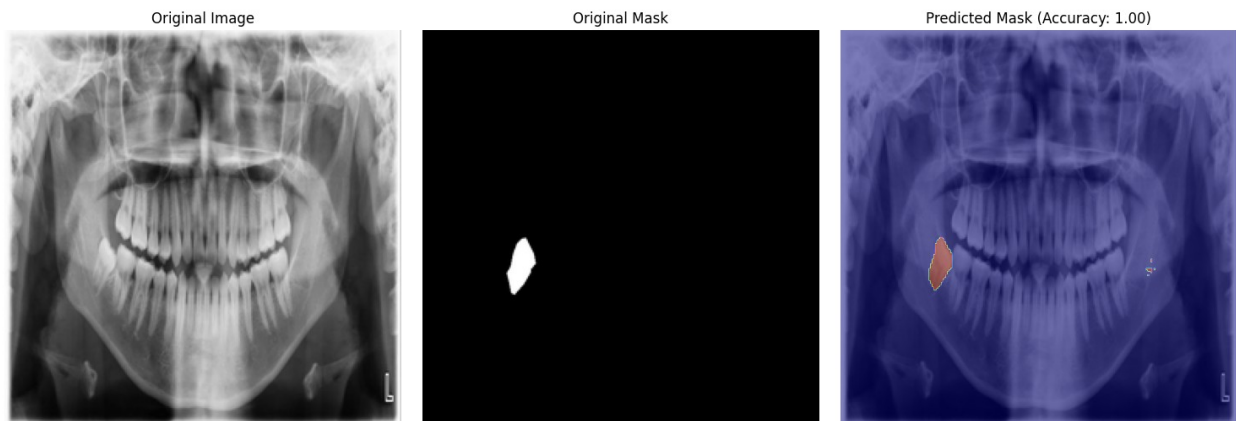X_Ray/test/2892140000-

```
jpg_png_jpg.rf.cc188cb96d0ef665d82415412ae96213.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2960970000-
jpg_png_jpg.rf.c636b07fcc121a067ad042e0a060b92f.jpg'
1/1 ──────────────── 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2991120000-
jpg_png_jpg.rf.c6850a0dcb6de84559db19bdb8cfaf4c.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2584880000-
jpg_png_jpg.rf.5e55c42021525bd0fe8a338f5f52a569.jpg'
1/1 ──────────────── 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1675950000-
jpg_png_jpg.rf.58c4d78d6a90166f3bf33c9d6da4354b.jpg'
1/1 ──────────────── 0s 220ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1168170000-
jpg_png_jpg.rf.06c06f4c69b1279a5dc3e11c9be856d6.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/225330000-
jpg_png_jpg.rf.ec48f2b4fdeef7185ac41fef8ee7c715.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1315950000-
jpg_png_jpg.rf.6304b7f0f940fe4a69ae3a4f0446e1db.jpg'
1/1 ──────────────── 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1647340000-
jpg_png_jpg.rf.84b350db2b1f1fbe681ba23be432f734.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/09381672-JAMASBI_DAVOOD_2020-08-
18114658_jpg.rf.96dae97f386d776f2cdb32eaaabce885.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3033440000-
jpg_png_jpg.rf.bae7e2b52c474d14856da24ccee1daeb.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1689640000-
```

```
jpg_png_jpg.rf.c46b45aa57c75fb13fd885f07e7b2464.jpg'
1/1 ──────────────── 0s 222ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2106320000-
jpg_png_jpg.rf.676873d0f427c181369c0f9d0af495a0.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3061010000-
jpg_png_jpg.rf.663ef7f9b69cf6866024163576819e47.jpg'
1/1 ──────────────── 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/16905307-BORJSAZ_KOBRA_2020-06-
09112036_jpg.rf.1cddc8ffe7cb542113bf1d4461c98efc.jpg'
1/1 ──────────────── 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1241450000-
jpg_png_jpg.rf.7f2348becc7425e4e6bdd865202e6b73.jpg'
1/1 ──────────────── 0s 23ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2678430000-
jpg_png_jpg.rf.9d9b86846a41f94bd61f0f726b2622d8.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1605900000-
jpg_png_jpg.rf.eaea8d37d07a42b70723cff28f18fc2b.jpg'
1/1 ──────────────── 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1261690000-
jpg_png_jpg.rf.e0ad4f32d9c23165c049e486f244db8e.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1421450000-
jpg_png_jpg.rf.9107f9b4fccedc4c97268d2be89c78f7.jpg'
1/1 ──────────────── 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1001160000-
jpg_png_jpg.rf.2d2d8bb5228df01f1c26b4bc37d11a5b.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
```

```
X_Ray/test/3031110000-
jpg_png_jpg.rf.d11fcaf928bfaac173db7b91fe3a3b0d.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1561550000-
jpg_png_jpg.rf.36d15e2ad125d78304fb1de7179e730f.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1110470000-
jpg_png_jpg.rf.675642d855ab402a4e70f62f46e6e078.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/0043783e-Asiadar_Leila_2022-06-
12141026_jpg.rf.6c123e312ec9ed9f03e1df7ecbd2c38b.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2916510000-
jpg_png_jpg.rf.a3d793072f19c296ff2c4092cb9a04f4.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 20ms/step
```

Original Image	Original Mask	Predicted Mask (Accuracy: 1.00)


```
1/1 ━━━━━━━━━━━━━━━━ 0s 22ms/step
1/1 ━━━━━━━━━━━━━━━━ 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1248230000-
jpg_png_jpg.rf.b0c1d79ba8958efa731da14f618d9186.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 22ms/step
1/1 ━━━━━━━━━━━━━━━━ 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3040580000-
jpg_png_jpg.rf.96e9e7d7bca6dab48888598547394317.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
```
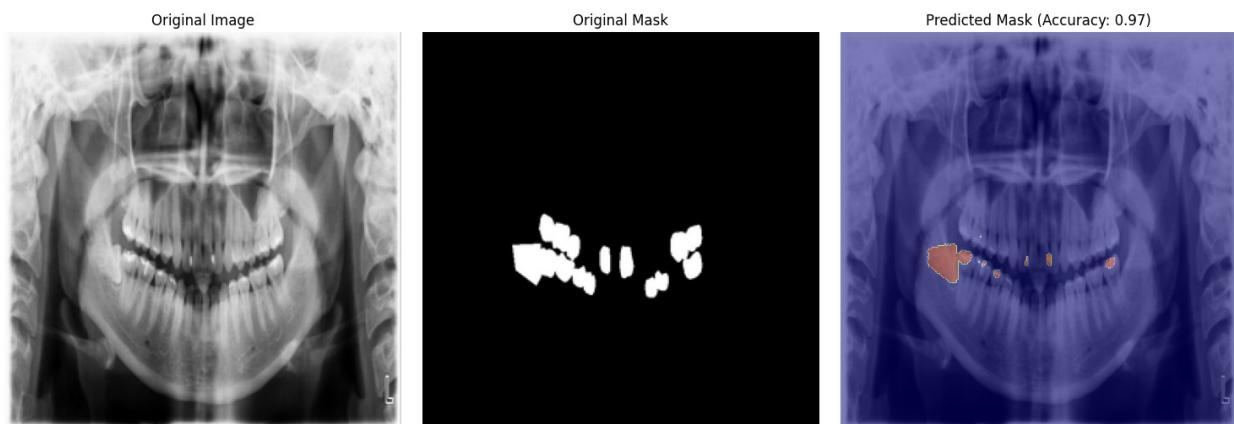
```
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1100250000-
jpg_png_jpg.rf.6e00b4e0f5039006295dd772bd6894e4.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1fd57604-Tanha_Mohammadreza_2022-05-
14203043_jpg.rf.5cdd4f985d04bd695a6764e5f5e788fa.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2655840000-
jpg_png_jpg.rf.ef41151161cd0c4ccbb7a2499ebfd838.jpg'
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/264d0857-Jalilvand_Yones_2022-06-
12142921_jpg.rf.d3116830db0f65f7dad8e4e5ce0351b0.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3057400000-
jpg_png_jpg.rf.784659f53e1da6cff08a87a79a72570b.jpg'
1/1 ──────────────── 0s 21ms/step
1/1 ──────────────── 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2a091e2c-Raygan_Shahab_2022-06-
12141350_jpg.rf.03147e553feb1877c2f4626a0afc26a2.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1526520000-
jpg_png_jpg.rf.e122f173f86ca0f2bd748d4bb0758f2d.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1942280000-
jpg_png_jpg.rf.0488525bc851045d63ab3dd80a0ef407.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2885630000-
jpg_png_jpg.rf.0c6ed2589009d6ca056599e61f7c06c4.jpg'
1/1 ──────────────── 0s 19ms/step
1/1 ──────────────── 0s 26ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1470310000-
jpg_png_jpg.rf.9915f441bc1d0d5693736973f05652e4.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
```

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X_Ray/test/1299780000-
jpg_png_jpg.rf.e0afbfcb3fe6605cf40a6803a875f5a9.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1471500000-
jpg_png_jpg.rf.ac4844c5c6d44911707fd18d04711c66.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/219940000-
jpg_png_jpg.rf.734f6f12e1407f79c842ea790202dded.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2258350000-
jpg_png_jpg.rf.0568e2b563a66a7145b93c587b4adc36.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2476210000-
jpg_png_jpg.rf.7b5bd7cb505f4925c2a751e00005d582.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2371350000-
jpg_png_jpg.rf.2c1abbd5b87161e61adeae873dbed174.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/25620af9-JAFARY_MALIHEH_2020-08-
19103421_jpg.rf.e1a1859f6a95b90292dcc0da050a1faf.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1301300000-
jpg_png_jpg.rf.6e3cf7397a9b1608856c6dbdc1301b18.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1789290000-
jpg_png_jpg.rf.deb72f38d2d0b6384a6044bab3010f34.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1692240000-
jpg_png_jpg.rf.57d9a897c8ea700a761422a0b6e71291.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3194000000-
jpg_png_jpg.rf.b948ca0ed66ee2b143bdae3c56bf347c.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
```

'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3095730000-
jpg_png_jpg.rf.f3313f4bf055614c14d3d8e597e1672b.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1527220000-
jpg_png_jpg.rf.3afe8ce9d8aae8192de9b5bc296fd3a0.jpg'
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1272020000-
jpg_png_jpg.rf.31b8b1d8fc2f2ad9d6a5786ec2a85921.jpg'
1/1 ──────────────── 0s 21ms/step

Original Image   Original Mask   Predicted Mask (Accuracy: 0.97)

Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1414180000-
jpg_png_jpg.rf.b027f273813c52959bbe094a38c9bc44.jpg'
1/1 ──────────────── 0s 21ms/step
1/1 ──────────────── 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/29430000-
jpg_png_jpg.rf.0772d6f692fa5f1fc8b7205fa973b4de.jpg'
1/1 ──────────────── 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1163710000-
jpg_png_jpg.rf.75f0505ab807b9d2a0cd479674af82dc.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2127480000-
jpg_png_jpg.rf.cb9055047cad1154edcfbca9fc175233.jpg'
1/1 ──────────────── 0s 24ms/step
1/1 ──────────────── 0s 22ms/step

```
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2dd3f662-SEDAGHAT_SAIIDEH_2020-07-
01104224_jpg.rf.366fc66c72a884a0928bce3a272bafbd.jpg'
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1050950000-
jpg_png_jpg.rf.028de4a17b746fadd1761f4a8d7591d9.jpg'
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2660860000-
jpg_png_jpg.rf.ed1d2114b6cdc9de5876ce6e733d52e4.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3229800000-
jpg_png_jpg.rf.aad3c694899240af7e935e751d010af3.jpg'
1/1 ───────────────── 0s 20ms/step
1/1 ───────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2964250000-
jpg_png_jpg.rf.3c0de7df9b542b5d49784ae3d4edb6c2.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2432720000-
jpg_png_jpg.rf.52bf4a891ac47893bc5a2d12e2c558e2.jpg'
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2183960000-
jpg_png_jpg.rf.8587f19338b58b87f6f4bf9cbaca2860.jpg'
1/1 ───────────────── 0s 21ms/step
1/1 ───────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/0ab29cbb-
Dahghani_sanij_Mani_16yo_02062021_122725_jpg.rf.8c467ca16fd4c0f2bdbb8e
310bf13024.jpg'
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2443490000-
jpg_png_jpg.rf.f6bfa6b03575faa4c29d1943414748b3.jpg'
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
```
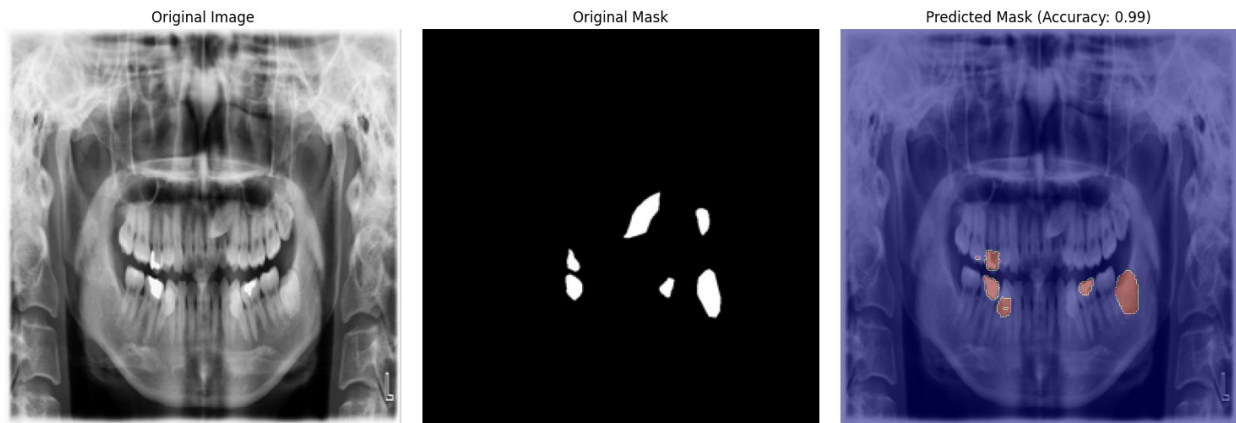
X_Ray/test/1392710000-
jpg_png_jpg.rf.ac9538b30176a543e32554be4710926b.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1563330000-
jpg_png_jpg.rf.59c02963d40eb0169b6322a515998e42.jpg'
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2838910000-
jpg_png_jpg.rf.4b00755807a02577ae18c1b8551522d4.jpg'
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2337860000-
jpg_png_jpg.rf.8c56cdcb32779c0e6938dbacaa63aa8d.jpg'
1/1 ──────────────── 0s 22ms/step

Original Image   Original Mask   Predicted Mask (Accuracy: 0.99)

1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1154870000-
jpg_png_jpg.rf.b58bc86b0009ff155104cacef61b4e4f.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1349770000-
jpg_png_jpg.rf.6c301ab6f5ee884a0202397a067cdb66.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2191100000-
jpg_png_jpg.rf.833f86ecb4709ab3bdc3feea57809f6e.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental

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X_Ray/test/2150780000-
jpg_png_jpg.rf.e637541571c35445a79d8b9ec7cb452f.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2091440000-
jpg_png_jpg.rf.cb5e0195cc8fd72bbd79b4b6f4fe8361.jpg'
1/1 ──────────────── 8s 8s/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2881100000-
jpg_png_jpg.rf.dda9e32e587f46e28e4b569387fb5f35.jpg'
1/1 ──────────────── 0s 21ms/step
1/1 ──────────────── 0s 22ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1838000000-
jpg_png_jpg.rf.acea8eaef2765103a32f8719975d3818.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2578900000-
jpg_png_jpg.rf.700a283bf3401712c85a63416107671b.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/23c69710-KHODADAD_KOSAR_2020-06-
06111342_jpg.rf.0f1cf39652d2f31869572ef503a3b098.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/05e07869-Rahimi_Moslem_2022-06-
12141630_jpg.rf.4b818460c79b1cebdf4a41deed2b72d5.jpg'
1/1 ──────────────── 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1053190000-
jpg_png_jpg.rf.bcd12bf069985bcfde4bff8ffb0967cc.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/07246a96-DIRIKVAND_REZA_2020-06-
29174111_jpg.rf.d26b7b3a95131fa2ac8f4509f1c4a3bf.jpg'
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1693350000-
jpg_png_jpg.rf.c81c073b71eb5a2b540510b54f743f5f.jpg'
1/1 ──────────────── 0s 22ms/step
1/1 ──────────────── 0s 22ms/step
```

```
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2439630000-
jpg_png_jpg.rf.a4cd75a78722be5189b6731cad35bed5.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2976060000-
jpg_png_jpg.rf.29344cdaa9f76ba6485e8dbcf3a7f5d1.jpg'
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2964180000-
jpg_png_jpg.rf.e3ddb48b16ab743b29d5b674739ab2e1.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2889670000-
jpg_png_jpg.rf.3cc19c21a1079fbd57030b980ba09cea.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1796390000-
jpg_png_jpg.rf.17fe4a919002f00a9021f8b25df0f75a.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1528440000-
jpg_png_jpg.rf.1abc31bd38dbcb05b972eeffbffbf81d.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2666090000-
jpg_png_jpg.rf.111fb37de723b401919c882ec969f2df.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2814480000-
jpg_png_jpg.rf.e34634b6a33683b15f8f995d9cf2b897.jpg'
1/1 ──────────────── 0s 23ms/step
1/1 ──────────────── 0s 21ms/step
```

Original Image Original Mask Predicted Mask (Accuracy: 0.99)

```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2932260000-
jpg_png_jpg.rf.5c9e86008db12ef8c4203de483707d92.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1d23b41f-
Jafari_Ahmad_ali_63yo_31052021_162307_jpg.rf.a430d512aa0c164cdecffb87e
95584cd.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1036000000-
jpg_png_jpg.rf.fbc0d8f23fc9262645855d2b759f957a.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 24ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/222010000-
jpg_png_jpg.rf.3deab447d054b1b2578267514d9daa7d.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2503190000-
jpg_png_jpg.rf.62ab835bc63c216bfdad34cd4693a324.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1337100000-
jpg_png_jpg.rf.59f7e637e602b57e4cf52f22d44901b3.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1123200000-
jpg_png_jpg.rf.314687b36a5ad0d607b4d306c53feb5f.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
```
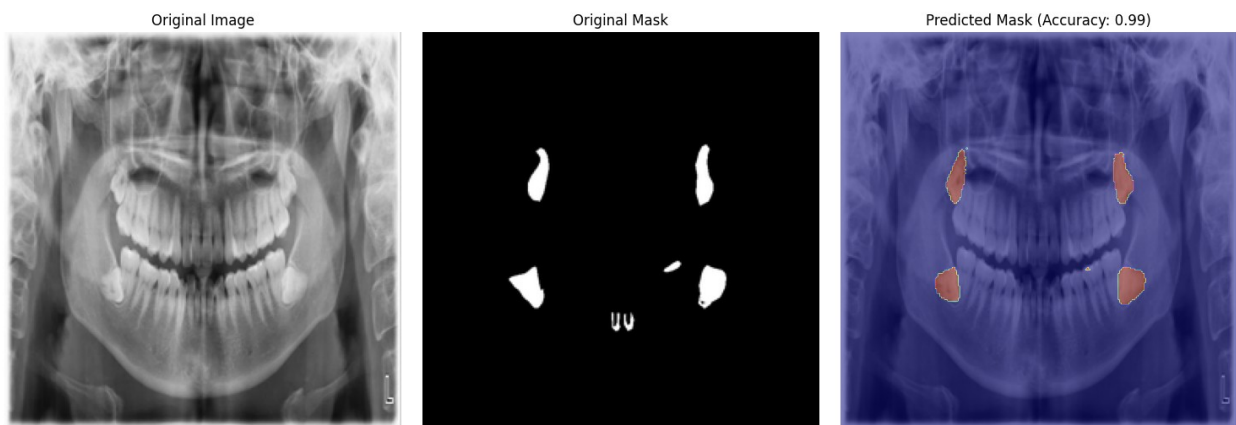
X_Ray/test/2436770000-
jpg_png_jpg.rf.8ba9efc95ad99856eff134300f47dcb9.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2664470000-
jpg_png_jpg.rf.b3d3debfe5cf26f31e2e4f372ffbeb08.jpg'
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/0a51382f-ZAREII_HAMDOLAH_2020-07-
19122324_jpg.rf.2990610a8272e47803baaac304786eff.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3165120000-
jpg_png_jpg.rf.74e9e493cb70e79297d00af65e71b656.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2197250000-
jpg_png_jpg.rf.3a77511cafb34935f0978a45200db392.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/253810000-
jpg_png_jpg.rf.16feeb9a901718b63f9d086d8d839b21.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2062930000-
jpg_png_jpg.rf.f89e2721cb4ab74dbc2bdc9a5901b287.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3150110000-
jpg_png_jpg.rf.41934cdb1f2f2555fb4a82c488eb4b54.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2684140000-
jpg_png_jpg.rf.f92523f6c385a15e7c5081daa906693a.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1877380000-
jpg_png_jpg.rf.10d37789da807e6798165eb10d055786.jpg'
1/1 ──────────────── 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2960320000-
jpg_png_jpg.rf.a0e4833a24256cff2c2ddb844c783061.jpg'

```
1/1 ───────────────── 0s 32ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1104270000-
jpg_png_jpg.rf.a7609208e95a8624f1bc754f2b796db1.jpg'
1/1 ───────────────── 0s 21ms/step
1/1 ───────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2439150000-
jpg_png_jpg.rf.ce0c02e55355a10837505b7a1f8d6a4e.jpg'
1/1 ───────────────── 0s 22ms/step
1/1 ───────────────── 0s 22ms/step
1/1 ───────────────── 0s 22ms/step
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3015530000-
jpg_png_jpg.rf.7020c2b37d89adbc67c0f4ffb25dd428.jpg'
1/1 ───────────────── 0s 21ms/step
```


Original Image   Original Mask   Predicted Mask (Accuracy: 0.99)

```
1/1 ───────────────── 0s 22ms/step
1/1 ───────────────── 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1743580000-
jpg_png_jpg.rf.bcc96090f893a17f87bac60700628ce9.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2780190000-
jpg_png_jpg.rf.00264583e4a1f8275d111a153cbffa72.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2144410000-
jpg_png_jpg.rf.749595b90b6ebf5f3e99ae2363adb955.jpg'
```
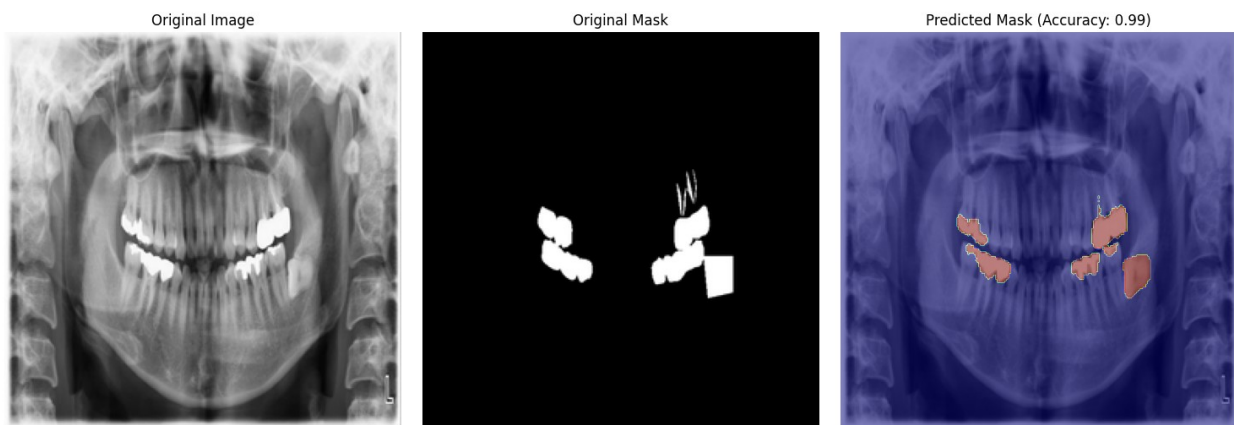
```
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2668820000-
jpg_png_jpg.rf.f9b3155347b68d5a9d1d5951907a964b.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2766650000-
jpg_png_jpg.rf.f29c11b5e8f8226a1282590525b444dc.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/320d6435-
Jadidi_Hosein_49yo_30052021_185639_jpg.rf.c0e51bfafb18a73a1c3569483e84
8c6a.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/211250000-
jpg_png_jpg.rf.7f9e832643f6846be4073b365979f993.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2366020000-
jpg_png_jpg.rf.357f3df763c32b5228f0ee9fea40bd6d.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2774360000-
jpg_png_jpg.rf.23855f4eec4f8859881bcfdcc30f53e9.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1197960000-
jpg_png_jpg.rf.9f3630b5aa21e2d46196dbdf06d2940a.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1614380000-
jpg_png_jpg.rf.8dc29a9dae0da825d88832d58d8ff72f.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2534280000-
jpg_png_jpg.rf.be058e1e0bae98d6d765a842ad30355b.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3176120000-
jpg_png_jpg.rf.1f065b4eded2d66c4555cde53e55ca91.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
```

```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2620510000-
jpg_png_jpg.rf.b88dda8d79b0afc6c03cb6dae9946922.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/26dc77d7-
Besharatirad_Babak_34yo_01062021_173728_jpg.rf.7e2950029e121f505a03fbc
6bdfbc506.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1012790000-
jpg_png_jpg.rf.5621cc89a96618c1f0a28157c75b2da7.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2385380000-
jpg_png_jpg.rf.5a2a01796581853041e374ae8f066280.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/248e304c-
Falah_nezhad_Nader_45yo_31052021_154519_jpg.rf.099b58214e0f3fff788948f
207c64844.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2582900000-
jpg_png_jpg.rf.7af5f39b7b32c46b3fcaea5659576dba.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1558610000-
jpg_png_jpg.rf.de645722ad38a52dad50ae0373d45e9d.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1181690000-
jpg_png_jpg.rf.d9f2ff174355fff2055ce7e19627d111.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/189590000-
jpg_png_jpg.rf.974af31fef8637d1bade724308cad283.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2652230000-
jpg_png_jpg.rf.16a9c06afbe03d9f80269606ebe72851.jpg'
```

```
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/000dc27f-NAJIB_MARDANLOO_MASUME_2020-07-
12185357_jpg.rf.adab6a526a5ec0225d2ce97c33095e8c.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1701300000-
jpg_png_jpg.rf.fc337c31500e4cb7fc9fb31a5474e169.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3257310000-
jpg_png_jpg.rf.1cfbf9dcc658b0a77766c711888dfa36.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
```


Original Image   Original Mask   Predicted Mask (Accuracy: 0.99)

```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2512130000-
jpg_png_jpg.rf.943a0201098b69f5e4d036e07c0a5b20.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1337530000-
jpg_png_jpg.rf.fb8cc3c78fd4472daa18a3375ff33037.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/066c800c-Norozi_syavazan_Atefeh_2022-06-
12142626_jpg.rf.87d0e87af0a6dbafa70ac290e820c38c.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1563320000-
jpg_png_jpg.rf.f49e9d37248a760b6e74e74ca9b3b9f9.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
```
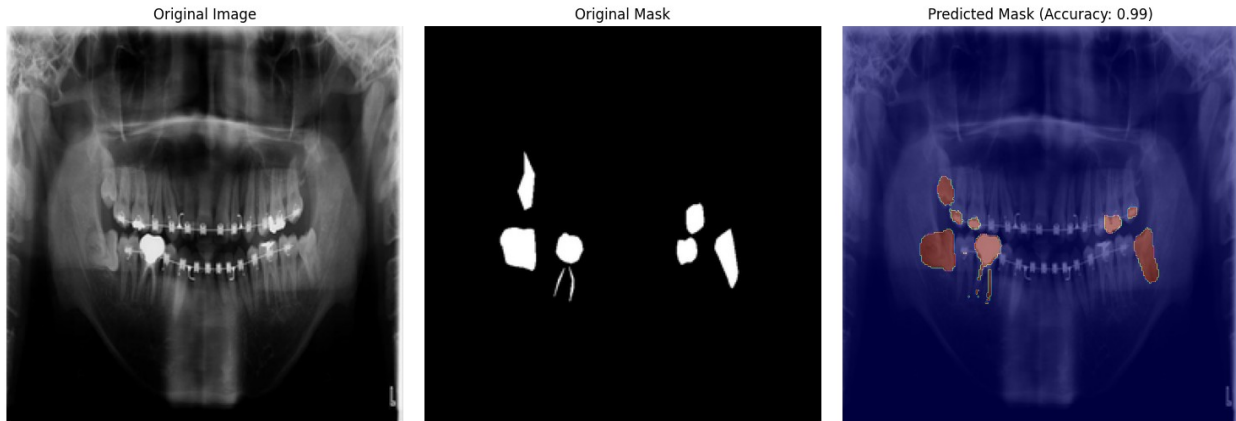
```
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1143600000-
jpg_png_jpg.rf.15edaba39711f753237d5f20636b22fe.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/22c4857c-
Hoseinian_amiri_Masoumeh_53y_31052021_095302_jpg.rf.4f06b3f340546c1043
b302af0ed753b6.jpg'
1/1 ───────────────── 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/258caa95-
Kheirie_Seyed_mostafa_36y_08062021_121854_jpg.rf.9869c1aba4ec8fad44b0d
a696ceea3ff.jpg'
1/1 ───────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2520700000-
jpg_png_jpg.rf.22208b5f6037cca56bdef4f32c3a36b3.jpg'
1/1 ───────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2742280000-
jpg_png_jpg.rf.b615537745873cbebee05fccf1ddbeb5.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2860000000-
jpg_png_jpg.rf.b3d9764c41243e02b02edb9a3d6444b8.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2226710000-
jpg_png_jpg.rf.92c014defe6c424cc7f1bee83b491811.jpg'
1/1 ───────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2793d946-RAJABI_MINA_2020-06-
09130704_jpg.rf.1b01cc152dbc9dd007fd7e943c90d0d3.jpg'
1/1 ───────────────── 0s 22ms/step
1/1 ───────────────── 0s 24ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1179640000-
jpg_png_jpg.rf.ad9250fbc495c032f387976a6d608900.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2407720000-
jpg_png_jpg.rf.f3c2d556d42a05b6820ce6c1a7c23484.jpg'
```

```
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2058800000-
jpg_png_jpg.rf.cc804f2e7221570d805947b40b76d828.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1007190000-
jpg_png_jpg.rf.65861d225e41a756c5b85234ca81feca.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2308780000-
jpg_png_jpg.rf.ddde82e4b69bbbd32617f4424f9ec6a6.jpg'
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/00cf39c1-
Karaptiyan_Robert_50yo_13032021_185908_jpg.rf.431ba12a0f81dea1ccf064d4
88dc5f57.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/06aceb48-Rahimi_Arefeh_2022-06-
12142023_jpg.rf.2928cac7315c53b134a6872e9f5f35ac.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1433980000-
jpg_png_jpg.rf.73300377737a99573622bca3920ea1be.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2103780000-
jpg_png_jpg.rf.d6d3c8a4991079ea92b1ecf30ff08faa.jpg'
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/003e5f80-MOHAMADI_ATEFEH_2020-06-
01173808_jpg.rf.d58185833fd258d087f0e42cbfdd7c37.jpg'
1/1 ──────────────── 0s 21ms/step
```

| Original Image | Original Mask | Predicted Mask (Accuracy: 0.99) |


```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1835960000-
jpg_png_jpg.rf.a86988de8345b0b0d8a15ba11778ca94.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3154390000-
jpg_png_jpg.rf.5e31cedd5b9c44a05ec850d7e52b1d5a.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3088390000-
jpg_png_jpg.rf.31463fcb2704aae97cb84aa56cd73361.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2297710000-
jpg_png_jpg.rf.51acba280e9d6673c8b7a57eca391086.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2868950000-
jpg_png_jpg.rf.da5cf5c8d76e14919e23094454cb336d.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1178800000-
jpg_png_jpg.rf.d6a89e46a6a8a8de931ef92ac3b33c39.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/227050000-
jpg_png_jpg.rf.3a0f8dace86919174985d46d68ece86b.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
```

```
X_Ray/test/2103240000-
jpg_png_jpg.rf.5145f0ca79781287826e4a03ec7ac6f8.jpg'
1/1 ──────────────────── 0s 20ms/step
1/1 ──────────────────── 0s 22ms/step
1/1 ──────────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1581220000-
jpg_png_jpg.rf.2458a06237218fc21a5975f4a137c452.jpg'
1/1 ──────────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1226290000-
jpg_png_jpg.rf.2210c0cc44136ab0fbc78cd83f2c8dd6.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2492790000-
jpg_png_jpg.rf.4f3acf9c0f6e13db03b0be969c149401.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/27fae94e-Sayah_Sobhan_2022-06-
12140959_jpg.rf.74fdeb3b80f3828fec848b65eabf26e2.jpg'
1/1 ──────────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1897920000-
jpg_png_jpg.rf.8892557f24581baf5c12460e8d6630df.jpg'
1/1 ──────────────────── 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1640550000-
jpg_png_jpg.rf.72f64a457535fd76b7a1d83dfcef9dfb.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1476450000-
jpg_png_jpg.rf.b13c98cc58bf6ba1bfd9faac1090467b.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/229520000-
jpg_png_jpg.rf.039b24c255120a67a8fd22ba8b4d900c.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2347790000-
jpg_png_jpg.rf.f18791f081b1c2ee85b174d1b0f3b325.jpg'
1/1 ──────────────────── 0s 19ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2454710000-
jpg_png_jpg.rf.81f0db0a14fe1067b46db138c7bf4e6f.jpg'
```
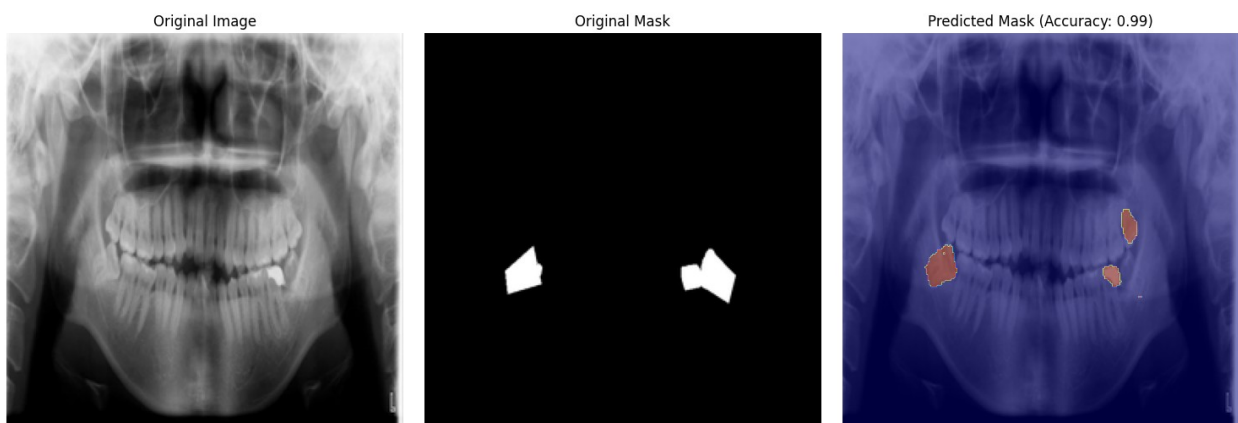
```
1/1 ━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1519610000-
jpg_png_jpg.rf.e851d357c81c2c9c3f6e4069cc4ecc97.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1553840000-
jpg_png_jpg.rf.09ac2ace05ac6f0181dbc6ee945f6252.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3104030000-
jpg_png_jpg.rf.098cc74395f615a1af5a033ef616ec48.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1993080000-
jpg_png_jpg.rf.7f741610971bcb800397bd2d13b32a6e.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 22ms/step
1/1 ━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1733370000-
jpg_png_jpg.rf.48565d2f31af2074fb68cc21a9906b46.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2011860000-
jpg_png_jpg.rf.af0a86498c1d8880ed239605fe9e021f.jpg'
1/1 ━━━━━━━━━━━━━━━━ 0s 20ms/step
1/1 ━━━━━━━━━━━━━━━━ 0s 21ms/step
1/1 ━━━━━━━━━━━━━━━━ 0s 22ms/step
```


Original Image   Original Mask   Predicted Mask (Accuracy: 0.99)

```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1f5792d4-
```

```
Ghorbani_ahoe_Fateme_40yo_31052021_171708_jpg.rf.2a77f46d1f40a75d78856
3c4d24e8435.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1746240000-
jpg_png_jpg.rf.38052bcd357276acd8ff870eb34f5a14.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2579470000-
jpg_png_jpg.rf.18b194b50247ee133d62146b33027298.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/0f323795-ASGARI_JAVAD_2020-07-
06201430_jpg.rf.7d0a13b4243523dda4d5bf68fc2a5939.jpg'
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 22ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1907550000-
jpg_png_jpg.rf.3f0c48e689d9751a57d8c394bce32367.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2145150000-
jpg_png_jpg.rf.c67cde5e80de9bd5b461462d13621f1f.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/23367870-Qanbari_Sosan_2022-06-
12140357_jpg.rf.476f26d4213ab9ba6becd8572b13dcfc.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2842000000-
jpg_png_jpg.rf.2b1b4f163932fc3b0e727d33752425ec.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/24f61afc-FARHAD_NARJES_2020-06-
13195857_jpg.rf.f371ba2995c9e5a4eb1a218041412e9e.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1293260000-
jpg_png_jpg.rf.bf3a479f5b4d356e8706eb179f559430.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/175e59fb-SHIRMOHAMADI_ZAHRA_2020-08-
18191828_jpg.rf.7933470bb570f439abc690ca9d7d61ee.jpg'
1/1 ──────────────── 0s 20ms/step
```

```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/113600000-
jpg_png_jpg.rf.a20449ebd093841cda7fc4f89c118175.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/000dc27f-NAJIB_MARDANLOO_MASUME_2020-07-
12185357_jpg.rf.f00e39f32edbca5c4cf42f39d9b0364c.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2129200000-
jpg_png_jpg.rf.e98f4ef6c823034534b47073d35bd9da.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1392610000-
jpg_png_jpg.rf.5e0ef9bfd28e7227b11dba07cb3cc079.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3238940000-
jpg_png_jpg.rf.b18286b2bfab54e12027d501ba4135c0.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1243780000-
jpg_png_jpg.rf.ee025ea5880fdaace9f98bf1c1b52f20.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3078830000-
jpg_png_jpg.rf.ca89b6b172d6c3659c91083c19f447f1.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1346740000-
jpg_png_jpg.rf.7db1fb632cd6d9e6441bd8485423e366.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2573690000-
jpg_png_jpg.rf.1e5fe35ba95ac4b0dfeac4ebcd7583e9.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1949510000-
jpg_png_jpg.rf.e4b72a8b9fdcd1ab0ead8a89cc32cf8a.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
```

```
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2698090000-
jpg_png_jpg.rf.bb8eaa50dd755119807aae3d7285e883.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2853940000-
jpg_png_jpg.rf.b894e4332b654f65f8afa519d8c892b4.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3198240000-
jpg_png_jpg.rf.cc39968027b64938439cf30c191ab9f3.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2832420000-
jpg_png_jpg.rf.fd9e3bbbe1165acac8f66fd76c3df0dc.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/0e39dd1f-SADRI_NAHID_2020-06-
14213242_jpg.rf.f40654b8e66b49d4526718b190c8cc19.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1844470000-
jpg_png_jpg.rf.0478f082027c82de6a54e8973dd1a605.jpg'
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1795790000-
jpg_png_jpg.rf.c8f12a4ab1c8a88d7336d1ddabd24e12.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1372210000-
jpg_png_jpg.rf.eb8e189e29964a2ce48249838f9e4ed7.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1114550000-
jpg_png_jpg.rf.ff92f3aa6f9bf4c65784ddabac766b20.jpg'
1/1 ──────────────── 0s 19ms/step
```

Original Image	Original Mask	Predicted Mask (Accuracy: 0.98)


```
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1508700000-
jpg_png_jpg.rf.10194482b41f04fcfc64e3e7ecb3dc5d.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1373350000-
jpg_png_jpg.rf.43feb324c8d9ecc68b0045d16b891d30.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3207240000-
jpg_png_jpg.rf.139d5dbf1979354ae659470d4c29715f.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/1990130000-
jpg_png_jpg.rf.1028e379c782169ce60d4329df84c938.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2856790000-
jpg_png_jpg.rf.f21c91b9372e66f050b46f8687298e9e.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2928980000-
jpg_png_jpg.rf.9edde711278fda040d0b55d35f33166f.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 25ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2028300000-
jpg_png_jpg.rf.1129617be9e1d142d211d0ea26e4ad49.jpg'
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 22ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
```

```
X_Ray/test/3221990000-
jpg_png_jpg.rf.d353bb09b636f684da433b968a538ce7.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3111110000-
jpg_png_jpg.rf.129509edbb9beae509b97fac9900059e.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/3016880000-
jpg_png_jpg.rf.59573de0d7e5e47be10c24e130277af2.jpg'
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 23ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2764390000-
jpg_png_jpg.rf.f7dd3e7d77d8e970749ce084afde5f0e.jpg'
1/1 ──────────────── 0s 21ms/step
1/1 ──────────────── 0s 21ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2648530000-
jpg_png_jpg.rf.06756bc0b0f620050a6ca1e2116772a4.jpg'
1/1 ──────────────── 0s 20ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2740430000-
jpg_png_jpg.rf.af3c4bebb861cdb679d66b16a5c1c568.jpg'
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/0d49ddb0-ZAFARY_ELAHEH_2020-08-
04121209_jpg.rf.0482562e5a11bda655443337bac4f22e.jpg'
1/1 ──────────────── 0s 20ms/step
1/1 ──────────────── 0s 21ms/step
Error loading image or mask: [Errno 2] No such file or directory:
'/kaggle/input/dental-x-ray-computacional-vision-segmentation/Dental
X_Ray/test/2364920000-
jpg_png_jpg.rf.7d601576b22a46021bb935321f661a5c.jpg'
1/1 ──────────────── 0s 21ms/step
Unique values in y_true: [0.          0.00392157 0.00784314 0.01176471
0.01568627 0.01960784
 0.02352941 0.02745098 0.03137255 0.03529412 0.03921569 0.04313725
 0.04705882 0.05098039 0.05490196 0.05882353 0.0627451  0.06666667
 0.07058824 0.0745098  0.07843137 0.08235294 0.08627451 0.09019608
 0.09411765 0.09803922 0.10196078 0.10588235 0.10980392 0.11372549
 0.11764706 0.12156863 0.1254902  0.12941176 0.13333333 0.1372549
 0.14117647 0.14509804 0.14901961 0.15294118 0.15686275 0.16078431
 0.16470588 0.16862745 0.17254902 0.17647059 0.18039216 0.18431373
```

```
 0.18823529 0.19215686 0.19607843 0.2        0.20392157 0.20784314
 0.21176471 0.21568627 0.21960784 0.22352941 0.22745098 0.23137255
 0.23529412 0.23921569 0.24313725 0.24705882 0.25098039 0.25490196
 0.25882353 0.2627451  0.26666667 0.27058824 0.2745098  0.27843137
 0.28235294 0.28627451 0.29019608 0.29411765 0.29803922 0.30196078
 0.30588235 0.30980392 0.31372549 0.31764706 0.32156863 0.3254902
 0.32941176 0.33333333 0.3372549  0.34117647 0.34509804 0.34901961
 0.35294118 0.35686275 0.36078431 0.36470588 0.36862745 0.37254902
 0.37647059 0.38039216 0.38431373 0.38823529 0.39215686 0.39607843
 0.4        0.40392157 0.40784314 0.41176471 0.41568627 0.41960784
 0.42352941 0.42745098 0.43137255 0.43529412 0.43921569 0.44313725
 0.44705882 0.45098039 0.45490196 0.45882353 0.4627451  0.46666667
 0.47058824 0.4745098  0.47843137 0.48235294 0.48627451 0.49019608
 0.49411765 0.49803922 0.50196078 0.50588235 0.50980392 0.51372549
 0.51764706 0.52156863 0.5254902  0.52941176 0.53333333 0.5372549
 0.54117647 0.54509804 0.54901961 0.55294118 0.55686275 0.56078431
 0.56470588 0.56862745 0.57254902 0.57647059 0.58039216 0.58431373
 0.58823529 0.59215686 0.59607843 0.6        0.60392157 0.60784314
 0.61176471 0.61568627 0.61960784 0.62352941 0.62745098 0.63137255
 0.63529412 0.63921569 0.64313725 0.64705882 0.65098039 0.65490196
 0.65882353 0.6627451  0.66666667 0.67058824 0.6745098  0.67843137
 0.68235294 0.68627451 0.69019608 0.69411765 0.69803922 0.70196078
 0.70588235 0.70980392 0.71372549 0.71764706 0.72156863 0.7254902
 0.72941176 0.73333333 0.7372549  0.74117647 0.74509804 0.74901961
 0.75294118 0.75686275 0.76078431 0.76470588 0.76862745 0.77254902
 0.77647059 0.78039216 0.78431373 0.78823529 0.79215686 0.79607843
 0.8        0.80392157 0.80784314 0.81176471 0.81568627 0.81960784
 0.82352941 0.82745098 0.83137255 0.83529412 0.83921569 0.84313725
 0.84705882 0.85098039 0.85490196 0.85882353 0.8627451  0.86666667
 0.87058824 0.8745098  0.87843137 0.88235294 0.88627451 0.89019608
 0.89411765 0.89803922 0.90196078 0.90588235 0.90980392 0.91372549
 0.91764706 0.92156863 0.9254902  0.92941176 0.93333333 0.9372549
 0.94117647 0.94509804 0.94901961 0.95294118 0.95686275 0.96078431
 0.96470588 0.96862745 0.97254902 0.97647059 0.98039216 0.98431373
 0.98823529 0.99215686 0.99607843 1.        ]
Unique values in y_pred: [0 1]
Error: y_true or y_pred is not in the expected binary format.
```