Run PaddlePaddle model using OpenCV

These two demonstrations show how to inference PaddlePaddle model using OpenCV.

Environment Setup

```
pip install paddlepaddle-gpu
pip install paddlehub
pip install paddle2onnx
```

1. Run PaddlePaddle ResNet50 using OpenCV

Run PaddlePaddle model demo

Run the code sample as follows:

```
python paddle_resnet50.py
```

There are three parts to the process:

1. Export PaddlePaddle ResNet50 model to onnx format.
2. Use `cv2.dnn.readNetFromONNX` to load the model file.
3. Preprocess image file and do the inference.

2. Run PaddleSeg Portrait Segmentation using OpenCV

Convert to ONNX Model

1. Get Paddle Inference model For more details, please refer to PaddleSeg.

```
wget https://x2paddle.bj.bcebos.com/inference/models/humanseg_hrnet18_small_v1.zip
unzip humanseg_hrnet18_small_v1.zip
```

Notes:

- The exported model must have a fixed input shape, as dynamic is not supported at this moment.

2. Convert to ONNX model using paddle2onnx To convert the model, use the following command:

```
paddle2onnx --model_dir humanseg_hrnet18_small_v1 \
            --model_filename model.pdmodel \
            --params_filename model.pdiparams \
            --opset_version 11 \
            --save_file humanseg_hrnet18_tiny.onnx
```

The converted model can be found in the current directory by the name `humanseg_hrnet18_tiny.onnx` .

Run PaddleSeg Portrait Segmentation demo

Run the code sample as follows:

```
python paddle_humanseg.py
```

There are three parts to the process:

1. Use `cv2.dnn.readNetFromONNX` to load the model file.
2. Preprocess image file and do inference.
3. Postprocess image file and visualize.

The resulting file can be found at `data/result_test_human.jpg` .

Portrait segmentation visualization