background removal

1.Introduction

Background subtraction (also known as background subtraction, or salient object detection) generates a mask that separates the foreground and background of the image. You can use it to replace or blur the background (similar to video conferencing applications), and it can also help preprocess other visual DNNs, such as object detection/tracking or motion detection. The model used is a fully convolutional network U ²- Net。

The backgroundNet object obtains an image and outputs a foreground mask. BackgroundNet can be used from Python and C++. As an example of using the backgroundNet class, there are sample programs in C++and Python:

2.Example of operation

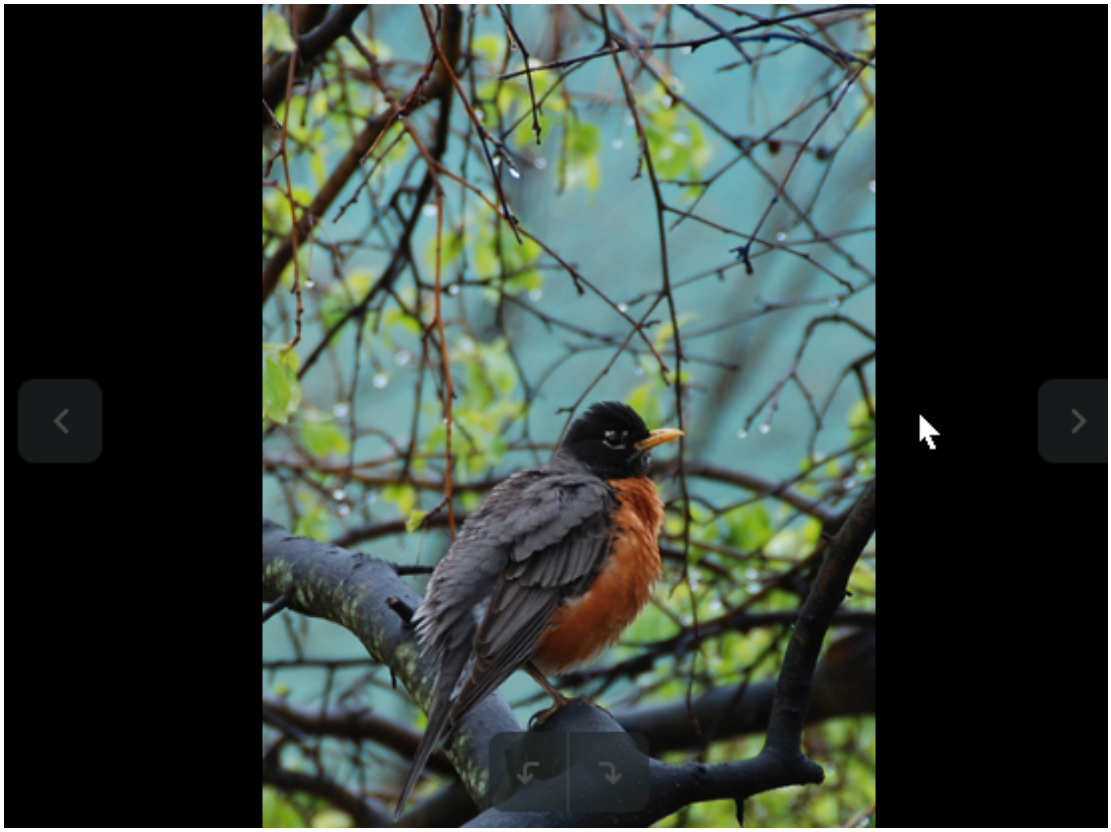
The following is an example of deleting and replacing image backgrounds:After building the project, please ensure that your terminal is located in the aarch64/bin directory:

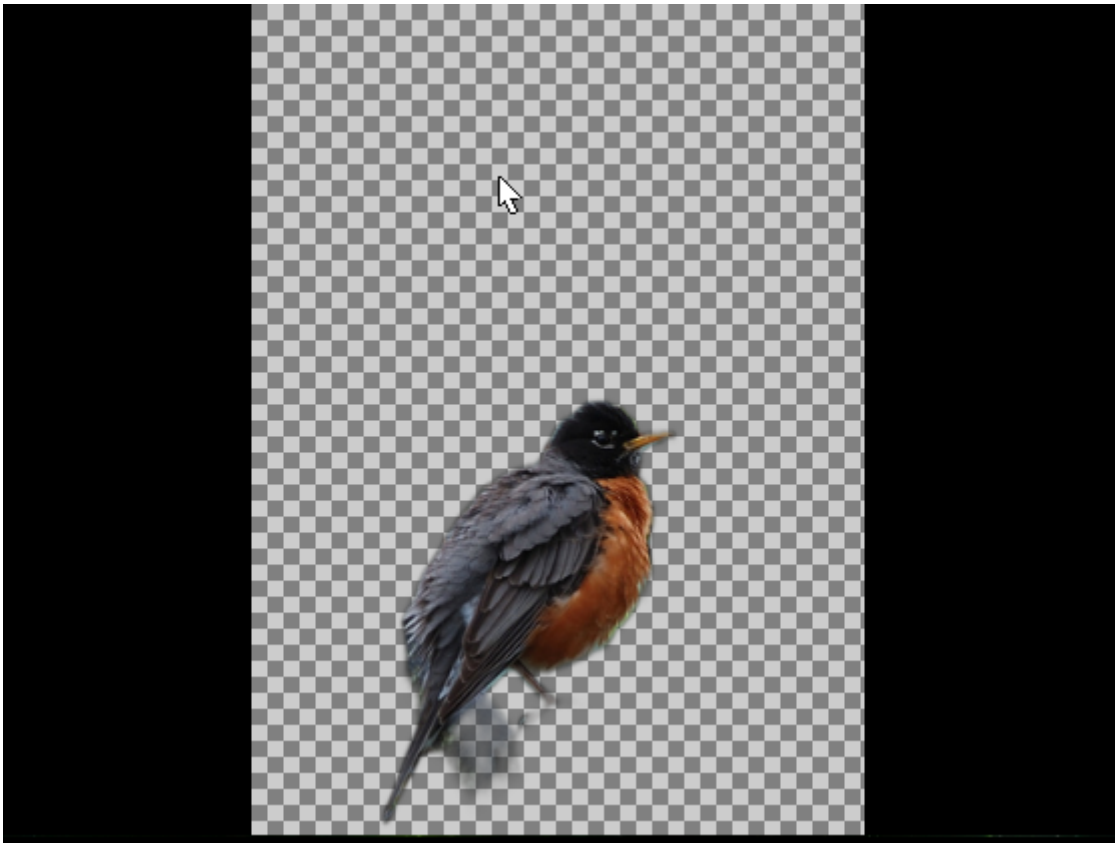
```
cd jetson-inference/build/aarch64/bin
```

```
# C++
$ ./backgroundnet images/bird_0.jpg images/test/bird_mask.png
            # remove the background (with alpha)
$ ./backgroundnet --replace=images/snow.jpg images/bird_0.jpg
images/test/bird_replace.jpg    # replace the background

# Python
$ ./backgroundnet.py images/bird_0.jpg images/test/bird_mask.png
             # remove the background (with alpha)
$ ./backgroundnet.py --replace=images/snow.jpg images/bird_0.jpg
images/test/bird_replace.jpg # replace the background
```

--The replace command line parameter accepts the file name of the image used to replace the background. It will be rescaled to the same resolution as the input





3.Real time video

To run background deletion or replacement on real-time camera streaming, please pass in the device from the "Camera Streaming and Multimedia" page:

```
# C++
$ ./backgroundnet /dev/video0                                # remove the
background
$ ./backgroundnet --replace=images/coral.jpg /dev/video0  # replace the
background

# Python
$ ./backgroundnet /dev/video0                                # remove the
background
$ ./backgroundnet --replace=images/coral.jpg /dev/video0  # replace the
background
```

By specifying the output stream, you can view it on the monitor (default setting), over the network (similar to WebRTC), or save it to a video file