

Network 종류 변경하여 비교해보기

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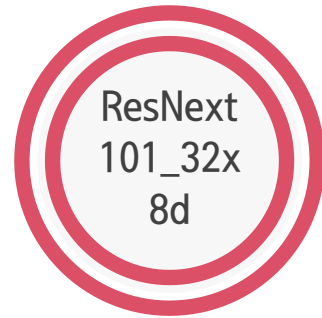
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1 Network 종류와 기본 설정

- Network 종류
- 기본 설정

1 Network 종류와 기본 설정 - Network 종류





1 Network 종류와 기본 설정

- Network 종류
- 기본 설정

1 Network 종류와 기본 설정 - 기본 설정

● 설정

- Batch_size = 1, Epoch = 300으로 고정.
- Epoch를 늘리고 싶었으나, 시간이 너무 오래 걸려 하지 못함.
- resnet 50과 resnet34의 경우, 총 65개의 이미지를 학습시킴. 그러나 시간이 너무 오래 걸려 그 외 나머지는 총 20개의 이미지만 학습시킴.

● 실행할 수 없는 Network

- 다음의 경우, 코드가 실행되지 않았다. 메모리 문제인 것 같다.
- Resnet152
- ResNext101_32x8d
- DenseNet 169, DenseNet 161, DenseNet 201

1 Network 종류와 기본 설정 - 기본 설정

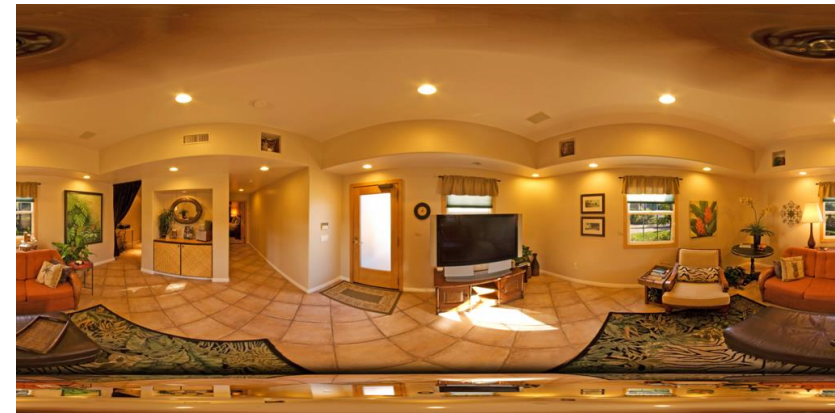
● 입력 이미지



Pano_01.png



Pano_07.png



Pano_13.png



Pano_15.png



Pano_18.png



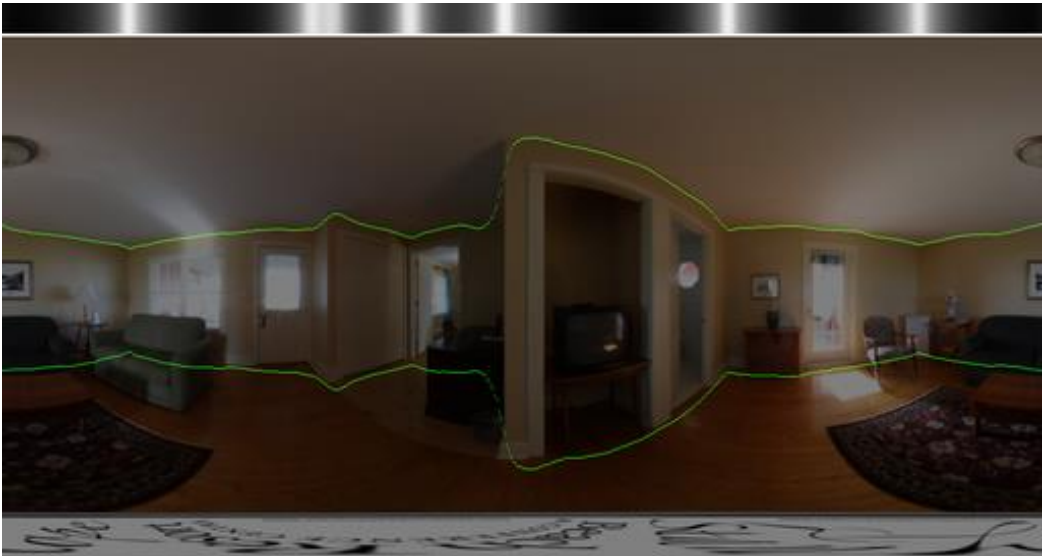

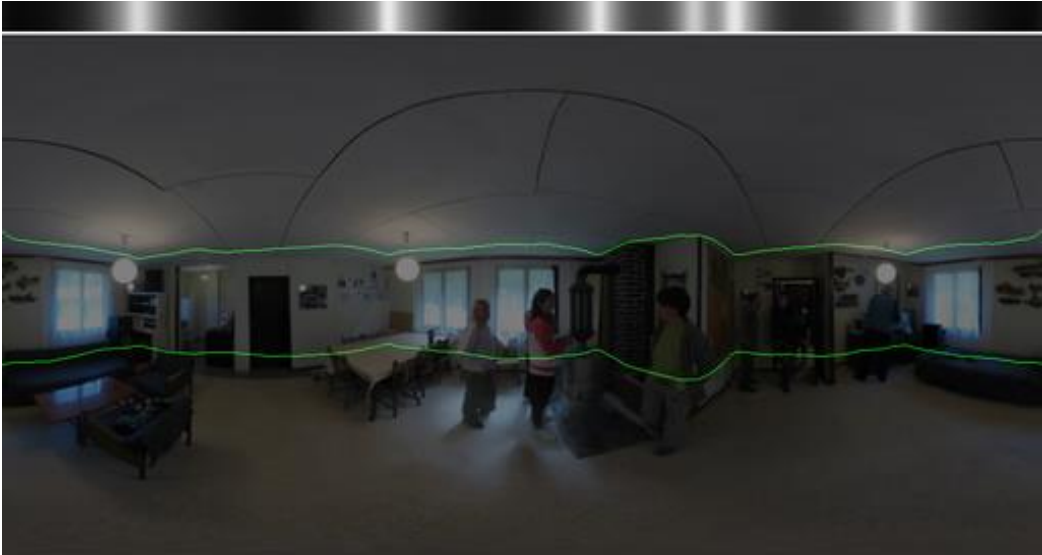

Pano_20.png







2 ResNet

- **ResNet18**
- ResNet50
- ResNet101
- ResNet34
- ResNet152



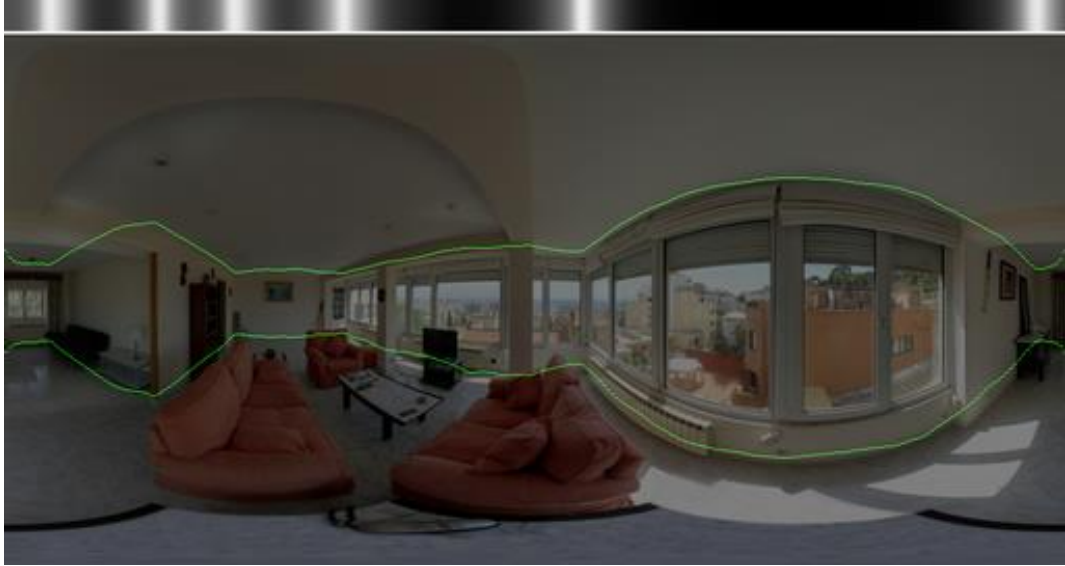

2 ResNet - resnet18

Img_name	Estimating layout	결과
Pano_01	 A panoramic view of a living room. The room features a wooden floor, a large rug, and a fireplace. Green lines are overlaid on the image, indicating the estimated layout of the room, including the walls, floor, and furniture.	 A 3D perspective view of the living room layout. The room is shown from a high angle, with the walls, floor, and furniture represented by colored blocks. The layout is clearly visible, showing the arrangement of the room and the placement of the furniture.
Pano_07	 A panoramic view of a large hall. The room has a high ceiling with arched windows and a large rug. Green lines are overlaid on the image, indicating the estimated layout of the room, including the walls, floor, and furniture.	 A 3D perspective view of the hall layout. The room is shown from a high angle, with the walls, floor, and furniture represented by colored blocks. The layout is clearly visible, showing the arrangement of the room and the placement of the furniture.

2 ResNet - resnet18

Img_name	Estimating layout	결과
Pano_13		
Pano_15		

2 ResNet - resnet18

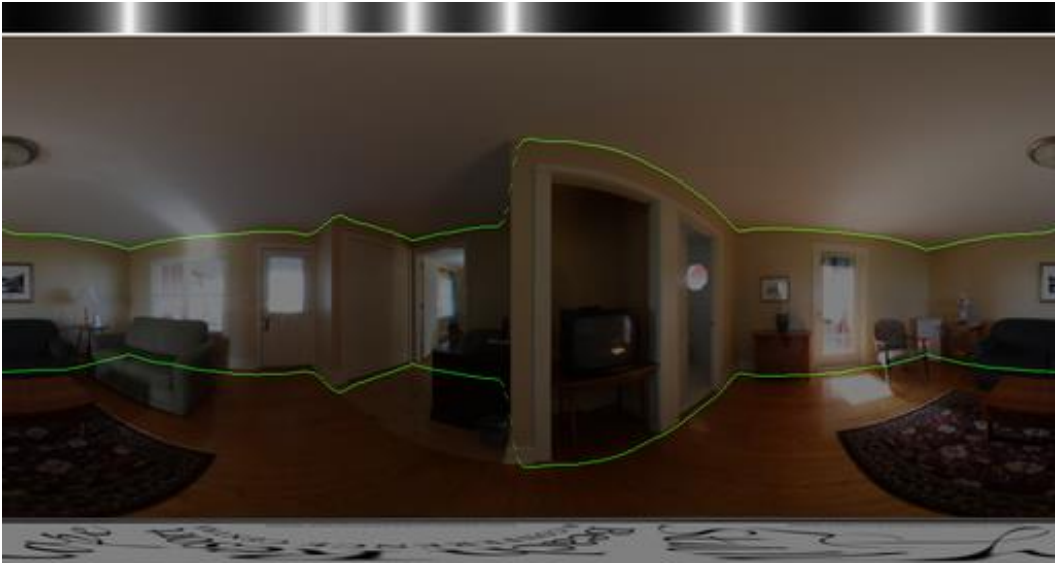



Img_name	Estimating layout	결과
Pano_18		
Pano_20		



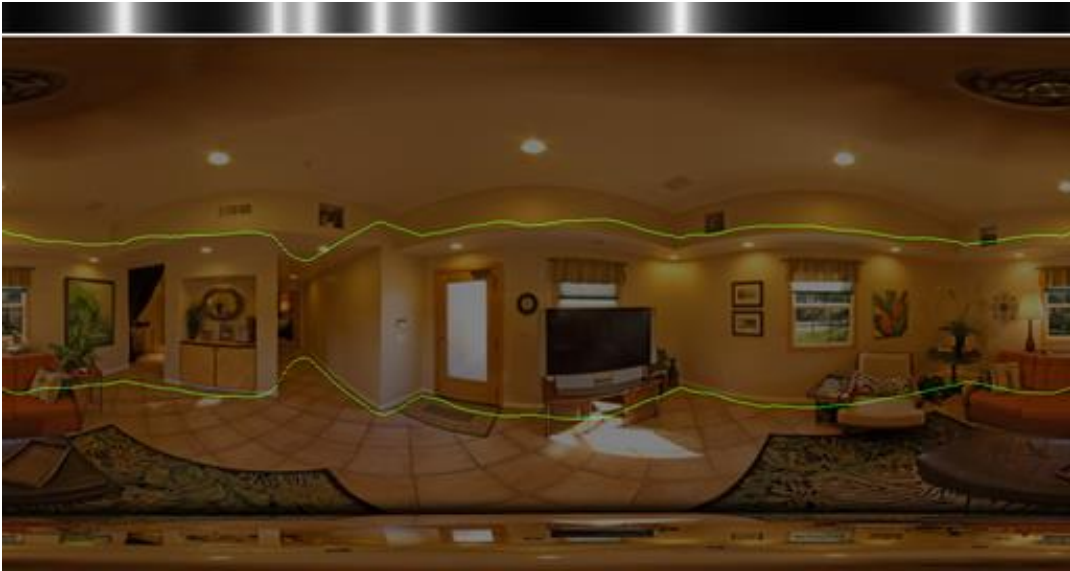



2 ResNet

- ResNet18
- **ResNet50**
- ResNet101
- ResNet34
- ResNet152

2 ResNet - resnet50

Img_name	Estimating layout	결과
Pano_01	 A panoramic view of a living room with wooden floors, a patterned rug, and a fireplace. Green lines are overlaid on the image, indicating the estimated layout of the room.	 A 3D floor plan visualization of the living room, showing the layout of the furniture and the room's structure. The visualization is rendered in a perspective view, showing the room's depth and the placement of the furniture.
Pano_07	 A panoramic view of a large hall with a high ceiling and large windows. Green lines are overlaid on the image, indicating the estimated layout of the room.	 A 3D floor plan visualization of the large hall, showing the layout of the furniture and the room's structure. The visualization is rendered in a perspective view, showing the room's depth and the placement of the furniture.

2 ResNet - resnet50

Img_name	Estimating layout	결과
Pano_13		
Pano_15		

2 ResNet - resnet50

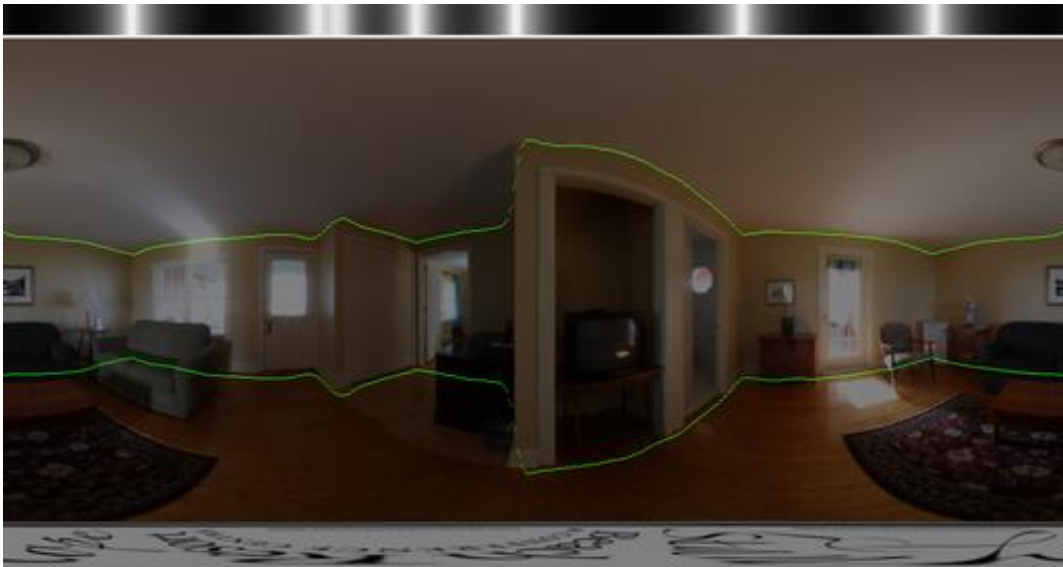



Img_name	Estimating layout	결과
Pano_18		
Pano_20		



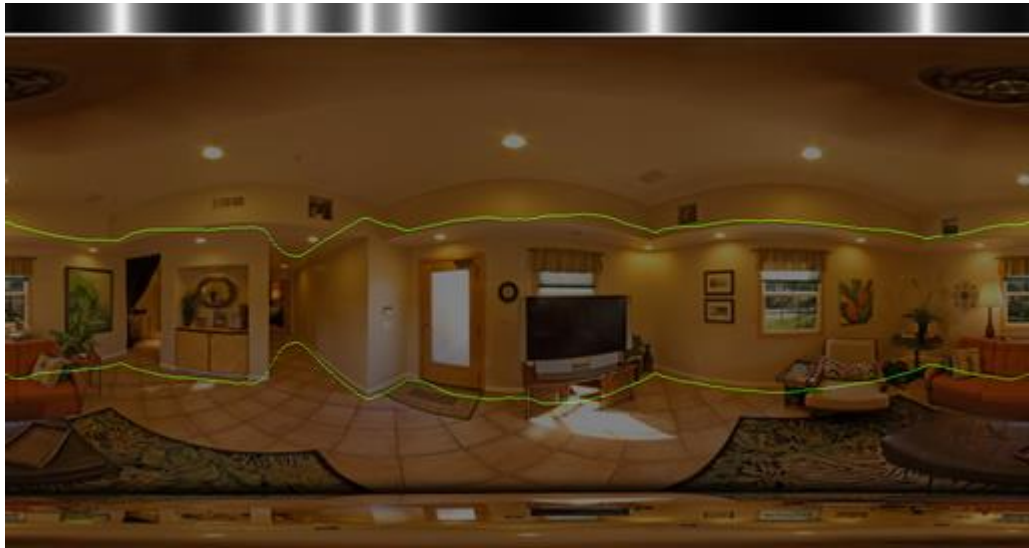



2 ResNet

- ResNet18
- ResNet50
- **ResNet101**
- ResNet34
- ResNet152





2 ResNet - resnet101

Img_name	Estimating layout	결과
Pano_01	 A panoramic photograph of a living room. The room features a wooden floor, a large rug, and a fireplace. Green lines are overlaid on the image, indicating the estimated layout of the room, including the walls, floor, and furniture.	 A 3D floor plan visualization of the living room shown in Pano_01. The plan shows the layout of the room, including the walls, floor, and furniture, with a central area highlighted in red.
Pano_07	 A panoramic photograph of a large hall or gymnasium. The room has a high ceiling with a curved structure and large windows. Green lines are overlaid on the image, indicating the estimated layout of the room, including the walls, floor, and furniture.	 A 3D floor plan visualization of the large hall shown in Pano_07. The plan shows the layout of the room, including the walls, floor, and furniture, with a central area highlighted in red.

2 ResNet - resnet101

Img_name	Estimating layout	결과
Pano_13		
Pano_15		

2 ResNet - resnet101

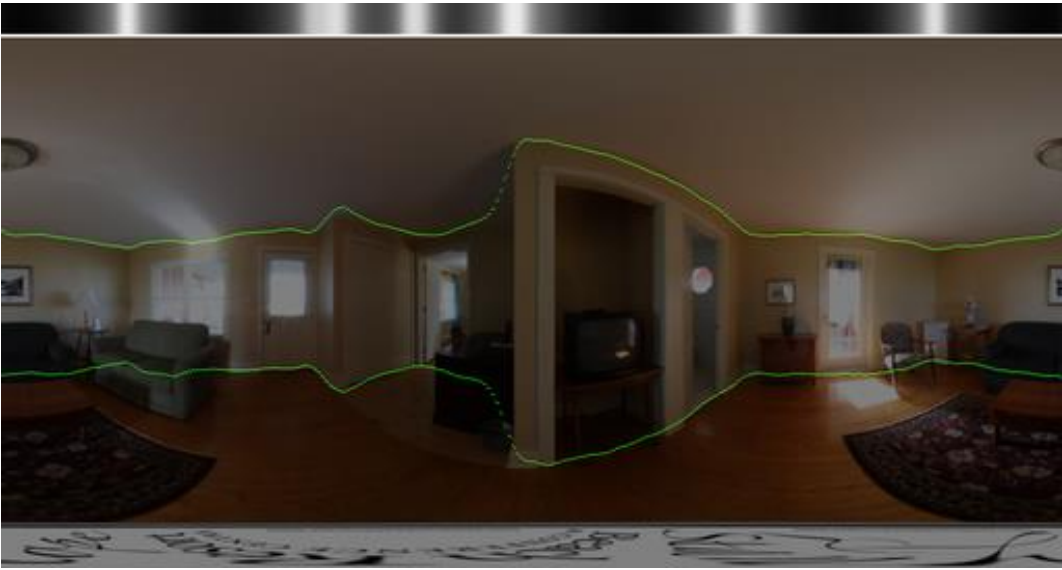

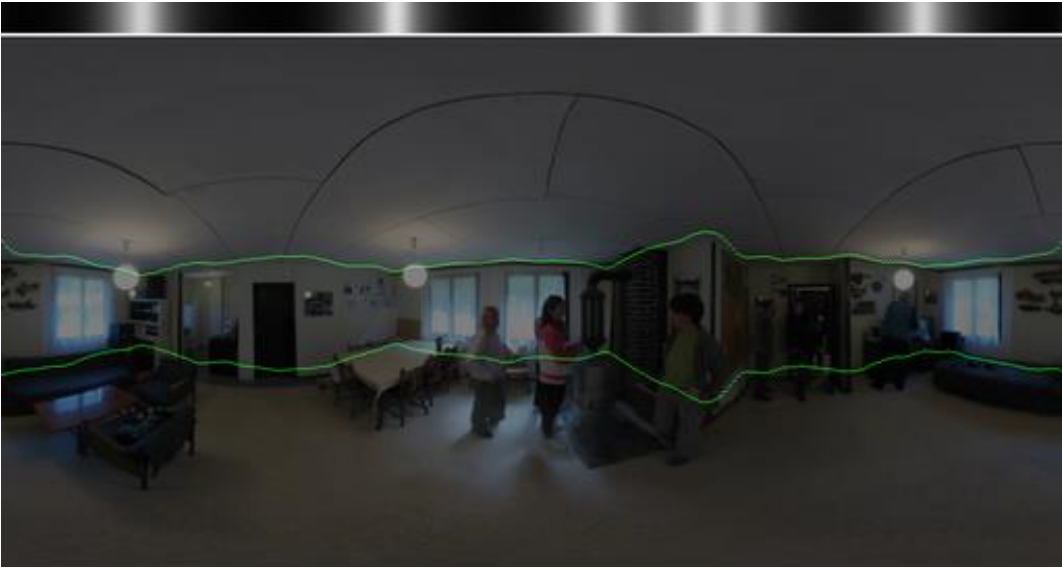

Img_name	Estimating layout	결과
Pano_18		
Pano_20		



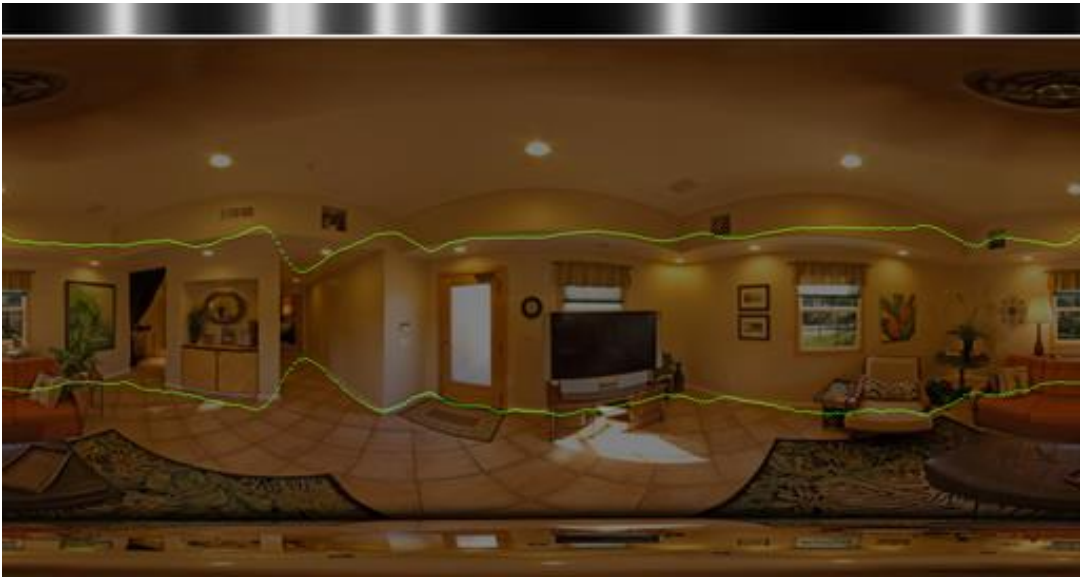
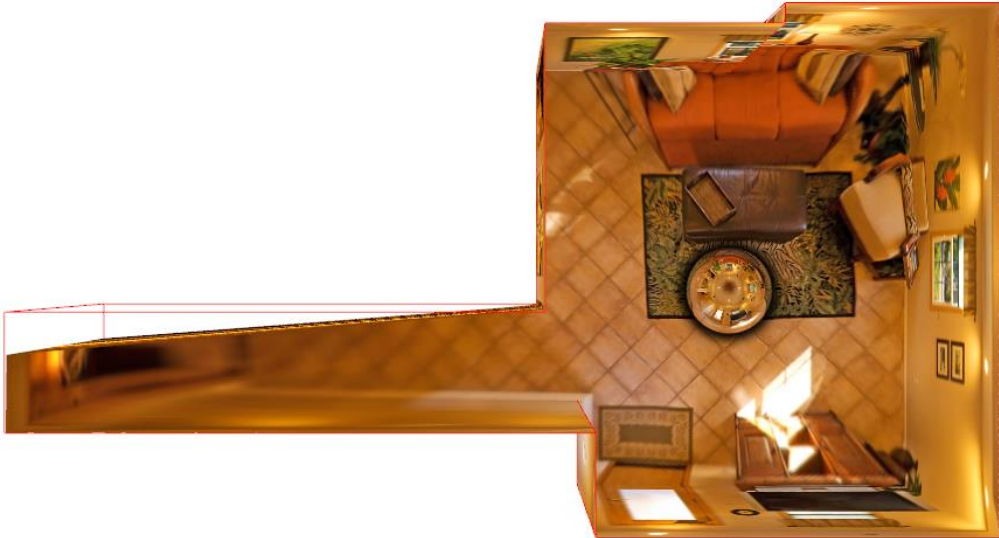


2 ResNet

- ResNet18
- ResNet50
- ResNet101
- **ResNet34**
- ResNet152



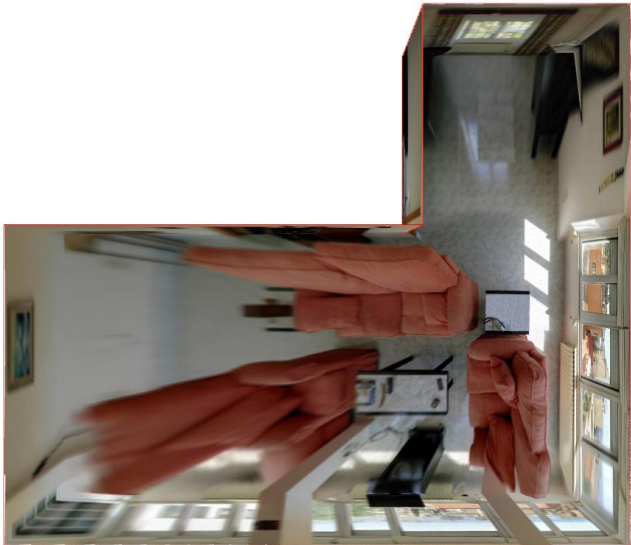
2 ResNet - resnet34

Img_name	Estimating layout	결과
Pano_01		
Pano_07		

2 ResNet - resnet34

Img_name	Estimating layout	결과
Pano_13	 A panoramic view of a living room. The room features a large television on a stand, a sofa, and a coffee table. A green line overlay indicates the estimated layout of the room, showing the boundaries of the furniture and the overall room shape.	 A 3D perspective view of the living room layout. The room is shown from a high angle, with the furniture and layout elements rendered in a 3D format. The layout is color-coded, with different colors representing different furniture types or materials.
Pano_15	 A panoramic view of a bedroom. The room features a bed, a desk, and a chair. A green line overlay indicates the estimated layout of the room, showing the boundaries of the furniture and the overall room shape.	 A 3D perspective view of the bedroom layout. The room is shown from a high angle, with the furniture and layout elements rendered in a 3D format. The layout is color-coded, with different colors representing different furniture types or materials.

2 ResNet - resnet34

Img_name	Estimating layout	결과
Pano_18		
Pano_20		



2 ResNet

- ResNet18
- ResNet50
- ResNet101
- ResNet34
- **ResNet152**

2 ResNet - resnet152

- 다음의 에러가 발생하여 진행하지 못함. 메모리 문제인가..? 😞

```
C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\functional.py:718: UserWarning: Named tensors and all their associated APIs are an experimental feature and subject to change. Please do not use them for anything important until they are released as stable. (Triggered internally at ..\c10\core\TensorImpl.h:1156.)
  return torch.max_pool2d(input, kernel_size, stride, padding, dilation, ceil_mode)

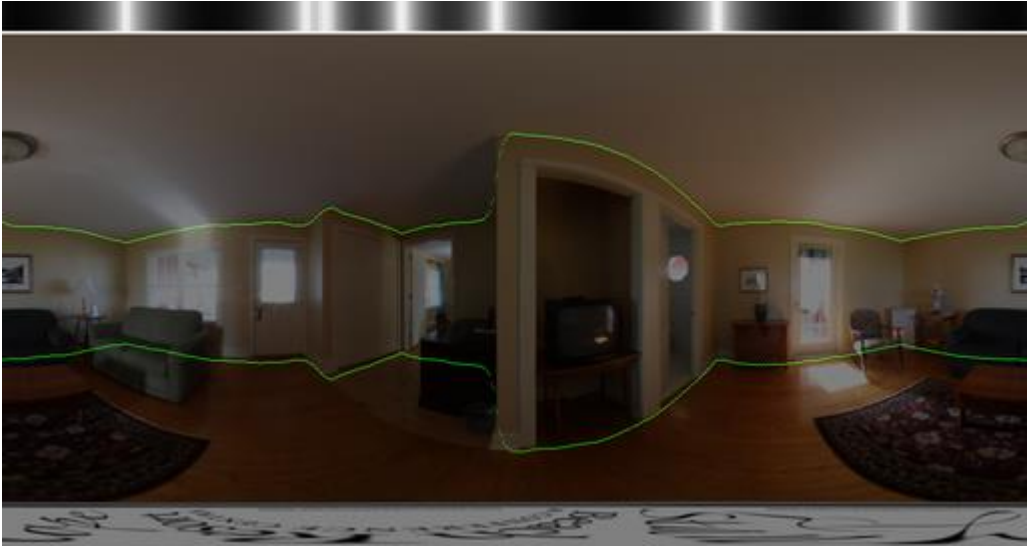

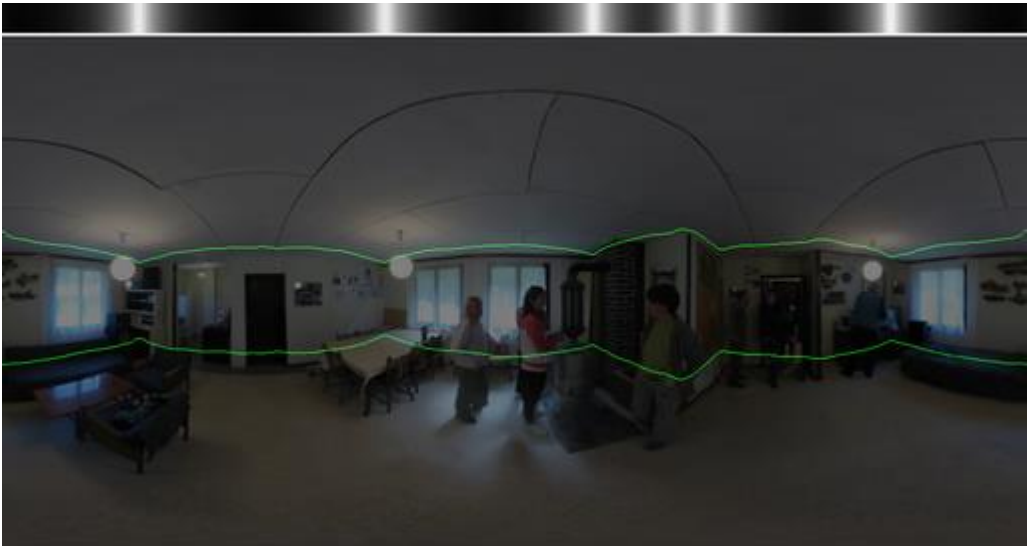

Epoch:  0% | 0/500 [00:01<?, ?ep/s]
Traceback (most recent call last):
  File "train.py", line 190, in <module>
    losses = feed_forward(net, x, y_bon, y_cor)
  File "train.py", line 26, in feed_forward
    y_bon_, y_cor_ = net(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 242, in forward
    feature = self.reduce_height_module(conv_list, x.shape[3]//self.step_cols)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 164, in forward
    feature = torch.cat([
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 165, in <listcomp>
    f(x, out_w).reshape(bs, -1, out_w)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 138, in forward
    x = self.layer(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\container.py", line 139, in forward
    input = module(input)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 124, in forward
    return self.layers(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\container.py", line 139, in forward
    input = module(input)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 31, in forward
    return lr_pad(x, self.padding)
  File "C:\Users\user\PycharmProjects\HorizonNet-resnet152\HorizonNet\model.py", line 21, in lr_pad
    return torch.cat([x[..., -padding:], x, x[..., :padding]], dim=3)
RuntimeError: CUDA out of memory. Tried to allocate 34.00 MiB (GPU 0; 12.00 GiB total capacity; 2.33 GiB already allocated; 27.40 MiB free; 2.41 GiB reserved in total by PyTorch)
```







3 ResNext

- ResNext50_32x4d
- ResNext101_32x8d


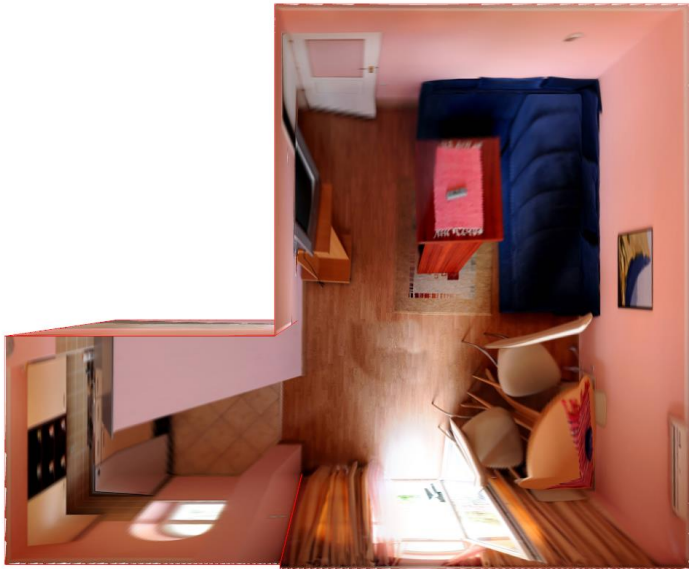


3 ResNext - ResNext50_32x4d

Img_name	Estimating layout	결과
Pano_01	 A panoramic view of a living room. The room features a wooden floor, a large rug, and a fireplace. Green lines are overlaid on the image, indicating the estimated layout of the room, including the walls, floor, and furniture.	 A top-down view of the living room layout. The layout is shown as a 2D floor plan with a circular area highlighted in the center, representing the estimated layout of the room.
Pano_07	 A panoramic view of a large hall. The room features a high ceiling, large windows, and several people standing in the center. Green lines are overlaid on the image, indicating the estimated layout of the room, including the walls, floor, and furniture.	 A top-down view of the hall layout. The layout is shown as a 2D floor plan with a rectangular area highlighted in the center, representing the estimated layout of the room.

3 ResNext - ResNext50_32x4d

Img_name	Estimating layout	결과
Pano_13		
Pano_15		

3 ResNext - ResNext50_32x4d

Img_name	Estimating layout	결과
Pano_18		
Pano_20		



3 ResNext

- ResNext50_32x4d
- **ResNext101_32x8d**

3 ResNext - ResNext101_32x8d

- 다음의 에러가 발생하여 진행하지 못함. 메모리 문제인듯..? 😞

```
(venv) C:\Users\user\PycharmProjects\HorizonNet-ResNext101\HorizonNet>python train.py --train_root_dir epoch_batch_dataset/train --valid_root_dir epoch_batch_dataset/valid --batch_size_train 1 --num_workers 0 --id model_bs1 --epochs 30
0 --backbone resnext101_32x8d
C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\functional.py:718: UserWarning: Named tensors and all their associated APIs are an experimental feature and subject to change. Please do not use them f
or anything important until they are released as stable. (Triggered internally at ..\c10\core\TensorImpl.h:1156.)
  return torch.max_pool2d(input, kernel_size, stride, padding, dilation, ceil_mode)
Train ep1:  5%|██████████|
Epoch:  0%|
| 1/20 [00:02<00:39,  2.07s/it]
| 0/300 [00:02<?, ?ep/s]
Traceback (most recent call last):
  File "train.py", line 190, in <module>
    losses = feed_forward(net, x, y_bon, y_cor)
  File "train.py", line 26, in feed_forward
    y_bon_, y_cor_ = net(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\HorizonNet\model.py", line 241, in forward
    conv_list = self.feature_extractor(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\HorizonNet\model.py", line 69, in forward
    x = self.encoder.layer3(x); features.append(x) # 1/16
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\container.py", line 139, in forward
    input = module(input)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torchvision\models\resnet.py", line 132, in forward
    out = self.conv3(out)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\conv.py", line 443, in forward
    return self._conv_forward(input, self.weight, self.bias)
  File "C:\Users\user\PycharmProjects\HorizonNet-ResNext101\venv\lib\site-packages\torch\nn\modules\conv.py", line 439, in _conv_forward
    return F.conv2d(input, weight, bias, self.stride,
RuntimeError: CUDA out of memory. Tried to allocate 20.00 MiB (GPU 0; 12.00 GiB total capacity; 4.91 GiB already allocated; 12.80 MiB free; 5.30 GiB reserved in total by PyTorch)
```



4 DenseNet

- DenseNet 121
- DenseNet 169
- DenseNet 161
- DenseNet 201

4 DenseNet - DenseNet121

- 이 rnn만 돌리면 자꾸 블루 스크린이 뜬다..😓



4 DenseNet

- DenseNet 121
- DenseNet 169
- DenseNet 161
- DenseNet 201

4 DenseNet - DenseNet169

- 다음의 에러가 발생하여 진행하지 못함. 메모리 문제인듯..? 😞

```
(venv) C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet>python train.py --train_root_dir epoch_batch_dataset/train --valid_root_dir epoch_batch_dataset/valid --batch_size_train 1 --num_workers 0 --id model_bs1 --epochs 300 --backbone densenet169
C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\functional.py:718: UserWarning: Named tensors and all their associated APIs are an experimental feature and subject to change. Please do not use them for anything important until they are released as stable. (Triggered internally at ..\c10\core\TensorImpl.h:1156.)
  return torch.max_pool2d(input, kernel_size, stride, padding, dilation, ceil_mode)
Train ep1:  5%|███████|                                     | 1/20 [00:02<00:49,  2.58s/it]
Epoch:  0%|                                                    | 0/300 [00:02<?, ?ep/s]
Traceback (most recent call last):
  File "train.py", line 190, in <module>
    losses = feed_forward(net, x, y_bon, y_cor)
  File "train.py", line 26, in feed_forward
    y_bon_, y_cor_ = net(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet\model.py", line 241, in forward
    conv_list = self.feature_extractor(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet\model.py", line 94, in forward
    x = m(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 127, in forward
    new_features = layer(features)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 92, in forward
    bottleneck_output = self.bn_function(prev_features)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 52, in bn_function
    concatenated_features = torch.cat(inputs, 1)
RuntimeError: CUDA out of memory. Tried to allocate 20.00 MiB (GPU 0; 12.00 GiB total capacity; 2.48 GiB already allocated; 2.76 MiB free; 2.52 GiB reserved in total by PyTorch)
```

4 DenseNet - DenseNet161

- 다음의 에러가 발생하여 진행하지 못함. 메모리 문제인듯..? 😞

```
(venv) C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet>python train.py --train_root_dir epoch_batch_dataset/train --valid_root_dir epoch_batch_dataset/valid --batch_size_train 1 --num_workers 0 --id model_bs1 --epochs 300 --backbone densenet161
Downloading: "https://download.pytorch.org/models/densenet161-8d451a50.pth" to C:\Users\user\.cache\torch\hub\checkpoints\densenet161-8d451a50.pth
100%|#####| 110M/110M [00:18<00:00, 6.23MB/s]
C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\functional.py:718: UserWarning: Named tensors and all their associated APIs are an experimental feature and subject to change. Please do not use them for anything important until they are released as stable. (Triggered internally at ..\c10\core\TensorImpl.h:1156.)
  return torch.max_pool2d(input, kernel_size, stride, padding, dilation, ceil_mode)
Train ep1: 0%|#####| 0/20 [00:00<?, ?it/s]
Epoch: 0%|#####| 0/300 [00:00<?, ?ep/s]
Traceback (most recent call last):
  File "train.py", line 190, in <module>
    losses = feed_forward(net, x, y_bon, y_cor)
  File "train.py", line 26, in feed_forward
    y_bon_, y_cor_ = net(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet\model.py", line 241, in forward
    conv_list = self.feature_extractor(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet\model.py", line 94, in forward
    x = m(x)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 127, in forward
    new_features = layer(features)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 94, in forward
    new_features = self.conv2(self.relu2(self.norm2(bottleneck_output)))
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\module.py", line 1051, in _call_impl
    return forward_call(*input, **kwargs)
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\batchnorm.py", line 167, in forward
    return F.batch_norm(
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\functional.py", line 2281, in batch_norm
    return torch.batch_norm(
RuntimeError: CUDA out of memory. Tried to allocate 20.00 MiB (GPU 0; 12.00 GiB total capacity; 2.59 GiB already allocated; 0 bytes free; 2.60 GiB reserved in total by PyTorch)
```

4 DenseNet - DenseNet201

- 다음의 예러가 발생하여 진행하지 못함. 메모리 문제인듯...? 😞

```
(venv) C:\Users\user\PycharmProjects\HorizonNet-densenet169>python train.py --train_dir epoch_batch_dataset/train --valid_root_dir epoch_batch_dataset/valid --batch_size_train 1 -num_workers 0 --id model_bs1 --epochs 3  
00 --backbone densenet201  
Downloading: "https://download.pytorch.org/models/densenet201-c1103571.pth" to C:\Users\user\.cache\torch\hub\checkpoints\densenet201-c1103571.pth  
100%|██████████████████████████████████████████████████████████████████████████████| 77.4M/77.4M [00:13<00:00, 5.82MB/s]  
C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\functional.py:718: UserWarning: Named tensors and all their associated APIs are an experimental feature and subject to change. Please do not use them  
for anything important until they are released as stable. (Triggered internally at ..\c10\core\TensorImpl.h:1156.)  
    return torch.max_pool2d(input, kernel_size, stride, padding, dilation, ceil_mode)  
Train ep1:   0%|███████████████████████████████████████████████████████████████████████████████| 0/20 [00:01<?, ?it/s]  
Epoch:   0%|███████████████████████████████████████████████████████████████████████████████| 0/300 [00:01<?, ?ep/s]  
  
Traceback (most recent call last):  
  File "train.py", line 190, in <module>  
    losses = feed_forward(net, x, y_bon, y_cor)  
  File "train.py", line 26, in feed_forward  
    y_bon_, y_cor_ = net(x)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\Module.py", line 1051, in _call_impl  
    return forward_call(*input, **kwargs)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet\model.py", line 241, in forward  
    conv_list = self.feature_extractor(x)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\Module.py", line 1051, in _call_impl  
    return forward_call(*input, **kwargs)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\HorizonNet\model.py", line 94, in forward  
    x = m(x)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\Module.py", line 1051, in _call_impl  
    return forward_call(*input, **kwargs)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 127, in forward  
    new_features = layer(features)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\Module.py", line 1051, in _call_impl  
    return forward_call(*input, **kwargs)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torchvision\models\densenet.py", line 94, in forward  
    new_features = self.conv2(self.relu2(self.norm2(bottleneck_output)))  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\Module.py", line 1051, in _call_impl  
    return forward_call(*input, **kwargs)  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\modules\BatchNorm.py", line 167, in forward  
    return F.batch_norm(  
  File "C:\Users\user\PycharmProjects\HorizonNet-densenet169\venv\lib\site-packages\torch\nn\functional.py", line 2281, in batch_norm  
    return torch.batch_norm(  
RuntimeError: CUDA out of memory. Tried to allocate 2.00 MiB (GPU 0; 12.00 GiB total capacity; 2.53 GiB already allocated; 1.94 MiB free; 2.54 GiB reserved in total by PyTorch)
```









5 결과 분석

- 결과 분석
- 결과 비교





5 결과 분석 - 결과 분석

- 육안으로 확인 시, 액자의 위치 등을 고려하여 벽을 추정해봤을 때 ResNet50이나 ResNext50_32x4d이 대체적으로 성능이 좋아 보임.
- Network 종류마다 사진의 가로 세로 비율이 다름. → 😞 원인이 뭐징..?
- Densenet은 대체적으로 코드 실행이 어려웠다. 계속 블루스크린이 떴고, 메모리 초과 오류가 발생하였다.

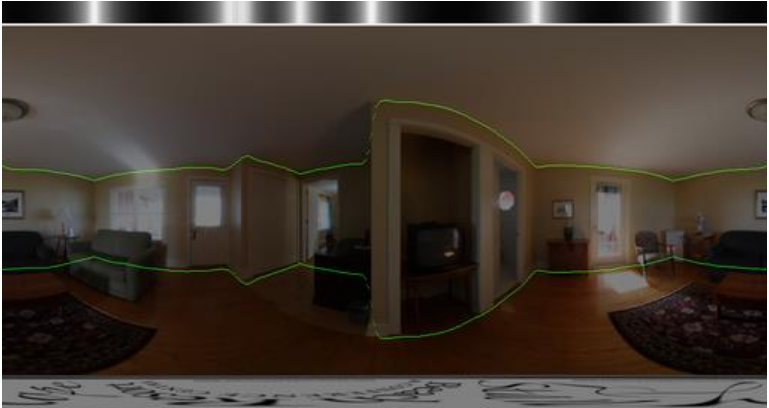
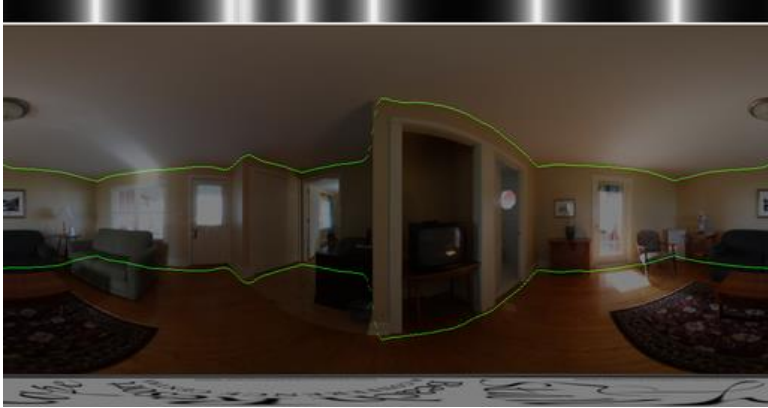
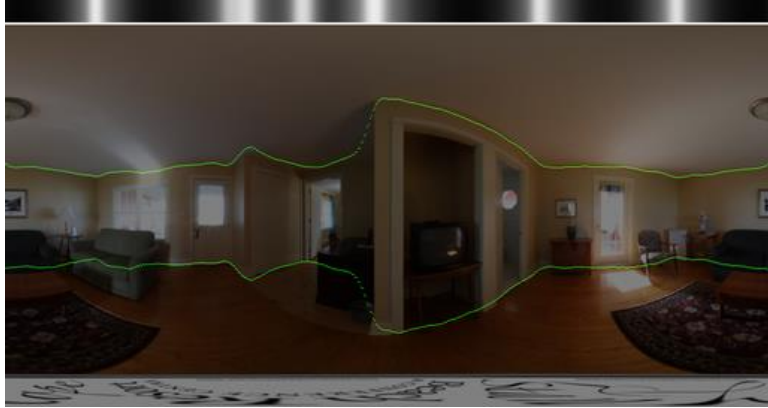
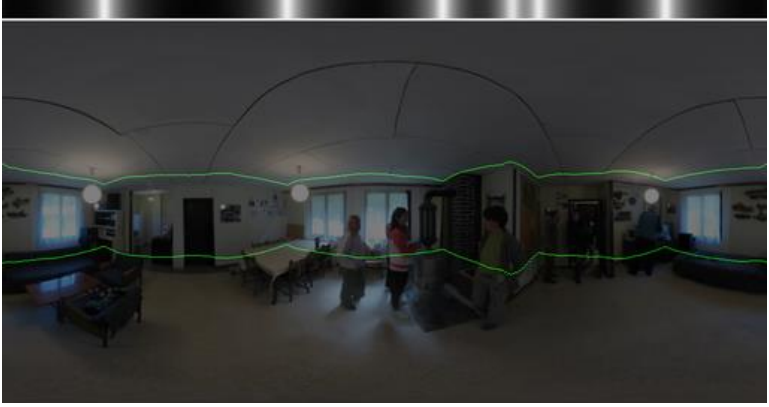
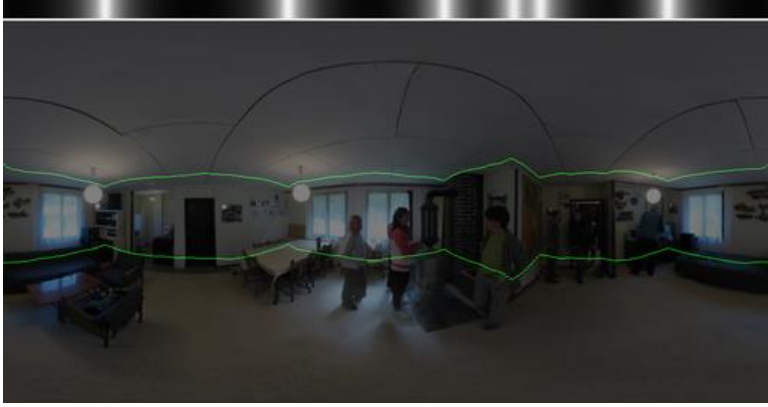

5 결과 분석 - 결과 비교

Img_name	resnet50	resnet101	resnet34
Pano_01			
Pano_07			

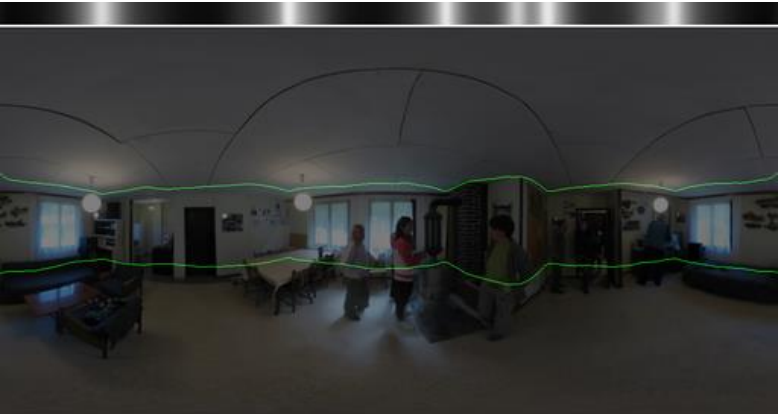
5 결과 분석 - 결과 비교

Img_name	resnet18	ResNext50_32x4d	DenseNet 121
Pano_01	 A 360-degree panoramic reconstruction of a living room using the resnet18 model. The image shows a green sofa, a wooden coffee table, a patterned rug, and a fireplace. The reconstruction is slightly blurry and has some artifacts, particularly around the edges of the furniture.	 A 360-degree panoramic reconstruction of a living room using the ResNext50_32x4d model. The image shows a green sofa, a wooden coffee table, a patterned rug, and a fireplace. The reconstruction is sharper and more detailed than the resnet18 version, with better edge definition and less blurring.	
Pano_07	 A 360-degree panoramic reconstruction of a library or study area using the resnet18 model. The image shows bookshelves, a desk, and a person sitting at a table. The reconstruction is blurry and has significant artifacts, particularly around the edges of the bookshelves and the person.	 A 360-degree panoramic reconstruction of a library or study area using the ResNext50_32x4d model. The image shows bookshelves, a desk, and a person sitting at a table. The reconstruction is sharper and more detailed than the resnet18 version, with better edge definition and less blurring.	

5 결과 분석 - 결과 비교

Img_name	resnet50	resnet101	resnet34
Pano_01	 A panoramic view of a living room with green segmentation masks. The masks are somewhat blocky and do not follow the architectural lines of the room perfectly.	 A panoramic view of a living room with green segmentation masks. The masks are smoother and follow the architectural lines of the room more accurately than the resnet50 result.	 A panoramic view of a living room with green segmentation masks. The masks are very smooth and follow the architectural lines of the room very accurately, similar to the resnet101 result.
Pano_07	 A panoramic view of a large hall with a high, arched ceiling and green segmentation masks. The masks are blocky and do not follow the curved lines of the ceiling or the figures of the people in the room.	 A panoramic view of a large hall with a high, arched ceiling and green segmentation masks. The masks are smoother and follow the curved lines of the ceiling and the figures of the people more accurately than the resnet50 result.	 A panoramic view of a large hall with a high, arched ceiling and green segmentation masks. The masks are very smooth and follow the curved lines of the ceiling and the figures of the people very accurately, similar to the resnet101 result.

5 결과 분석 - 결과 비교

Img_name	resnet18	ResNext50_32x4d	DenseNet 121
Pano_01			
Pano_07			

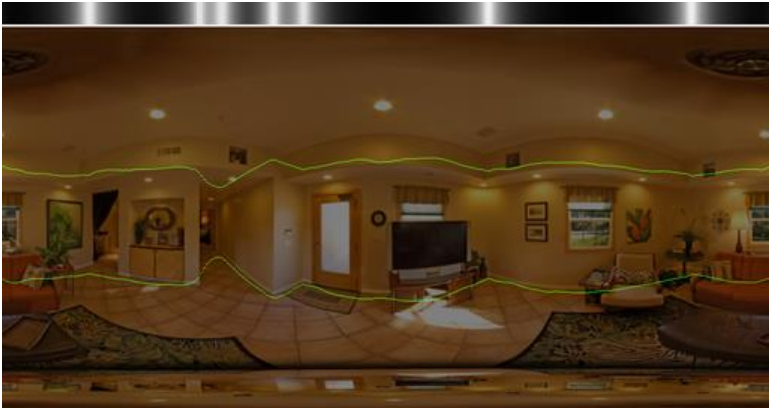

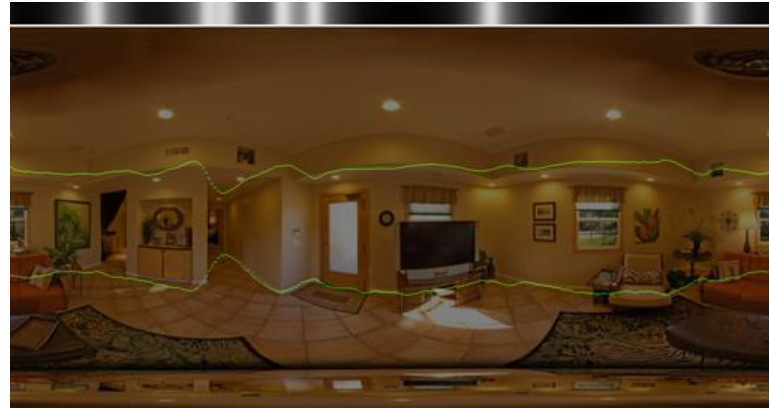
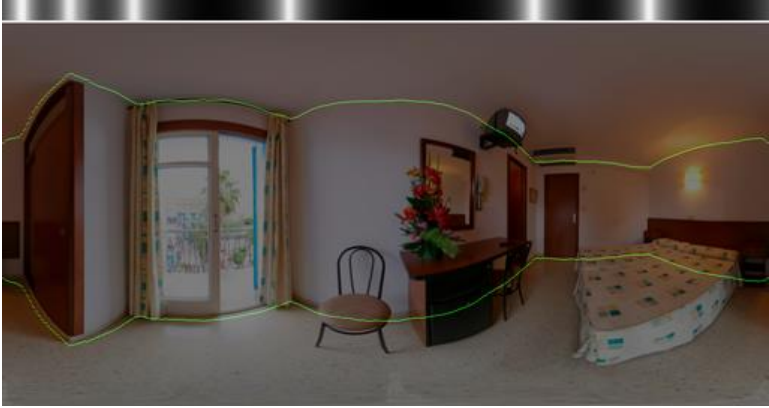


5 결과 분석 - 결과 비교

Img_name	resnet50	resnet101	resnet34
Pano_13			
Pano_15			

5 결과 분석 - 결과 비교

Img_name	Resnet18	ResNext50_32x4d	DenseNet 121
Pano_13	 A 360-degree panoramic view of a living room, rotated 90 degrees clockwise. The room features a large orange sofa, a dark wood coffee table with a round glass top, and a patterned rug. The floor is made of light-colored tiles. The walls are yellow and decorated with several framed pictures.	 A 360-degree panoramic view of a living room, rotated 90 degrees clockwise. The room features a large orange sofa, a dark wood coffee table with a round glass top, and a patterned rug. The floor is made of light-colored tiles. The walls are yellow and decorated with several framed pictures.	
Pano_15	 A 360-degree panoramic view of a dining room, rotated 90 degrees clockwise. The room features a wooden dining table with a black tablecloth, a white lamp, and a window with a patterned curtain. The walls are light-colored and decorated with a framed picture.	 A 360-degree panoramic view of a dining room, rotated 90 degrees clockwise. The room features a wooden dining table with a black tablecloth, a white lamp, and a window with a patterned curtain. The walls are light-colored and decorated with a framed picture.	

5 결과 분석 - 결과 비교

Img_name	resnet50	resnet101	resnet34
Pano_13	 A panoramic view of a living room with a large TV, sofa, and coffee table. The image is processed by resnet50, showing green segmentation lines.	 A panoramic view of a living room with a large TV, sofa, and coffee table. The image is processed by resnet101, showing green segmentation lines.	 A panoramic view of a living room with a large TV, sofa, and coffee table. The image is processed by resnet34, showing green segmentation lines.
Pano_15	 A panoramic view of a bedroom with a bed, desk, and chair. The image is processed by resnet50, showing green segmentation lines.	 A panoramic view of a bedroom with a bed, desk, and chair. The image is processed by resnet101, showing green segmentation lines.	 A panoramic view of a bedroom with a bed, desk, and chair. The image is processed by resnet34, showing green segmentation lines.

5 결과 분석 - 결과 비교

Img_name	Resnet18	ResNext50_32x4d	DenseNet 121
Pano_13	 A panoramic view of a living room with a green segmentation mask. The mask outlines the walls, ceiling, floor, and furniture, showing some minor artifacts in the stitching.	 A panoramic view of a living room with a green segmentation mask. The mask outlines the walls, ceiling, floor, and furniture, showing some minor artifacts in the stitching.	
Pano_15	 A panoramic view of a bedroom with a green segmentation mask. The mask outlines the walls, ceiling, floor, and furniture, showing some minor artifacts in the stitching.	 A panoramic view of a bedroom with a green segmentation mask. The mask outlines the walls, ceiling, floor, and furniture, showing some minor artifacts in the stitching.	




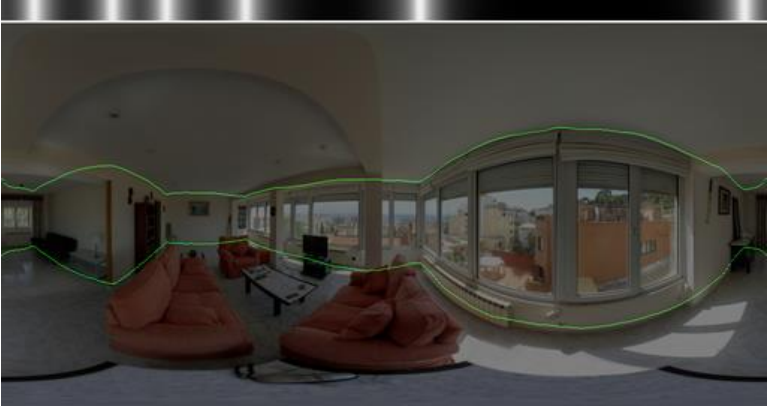
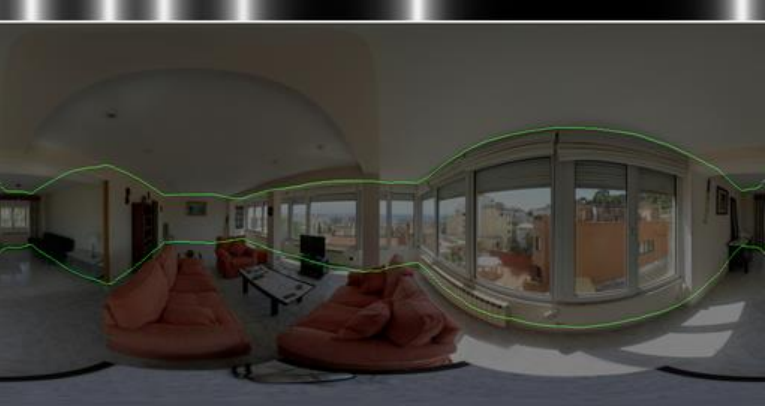

5 결과 분석 - 결과 비교

Img_name	resnet50	resnet101	resnet34
Pano_18			
Pano_20			



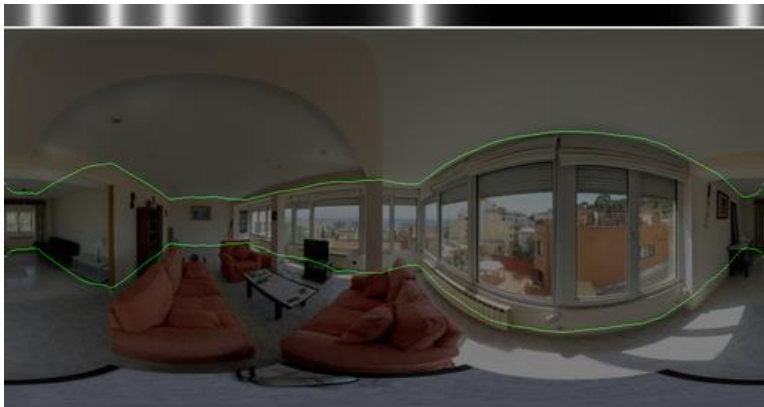
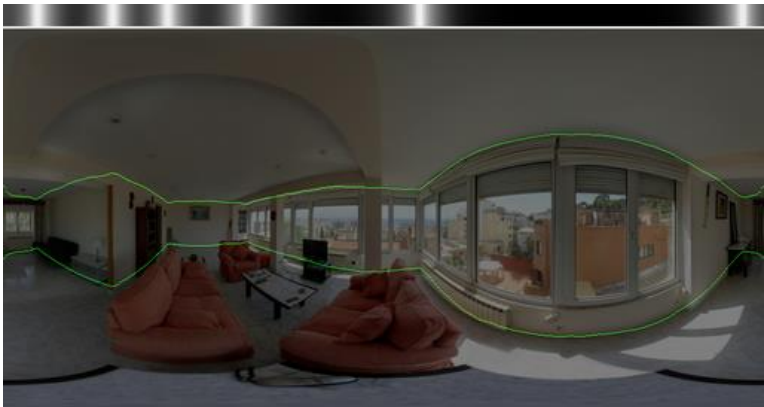
5 결과 분석 - 결과 비교

Img_name	Resnet18	ResNext50_32x4d	DenseNet 121
Pano_18	 A 360-degree panoramic view of a living room. The room features a blue sofa, a wooden coffee table, and a large window with orange curtains. The walls are light pink. The image is a bit blurry and has some artifacts.	 A 360-degree panoramic view of a living room, identical to the one in the Resnet18 column. The image is sharper and has fewer artifacts.	
Pano_20	 A 360-degree panoramic view of a living room. The room features a large orange sofa, a wooden coffee table, and a large window with white curtains. The walls are light grey. The image is a bit blurry and has some artifacts.	 A 360-degree panoramic view of a living room, identical to the one in the Resnet18 column. The image is sharper and has fewer artifacts.	

5 결과 분석 - 결과 비교

Img_name	resnet50	resnet101	resnet34
Pano_18	 A panoramic view of a living room with a blue sofa, a wooden table, and a doorway. The segmentation mask is green and shows the boundaries of the furniture and the doorway.	 A panoramic view of a living room with a blue sofa, a wooden table, and a doorway. The segmentation mask is green and shows the boundaries of the furniture and the doorway.	 A panoramic view of a living room with a blue sofa, a wooden table, and a doorway. The segmentation mask is green and shows the boundaries of the furniture and the doorway.
Pano_20	 A panoramic view of a living room with a large red sofa and a large window. The segmentation mask is green and shows the boundaries of the sofa and the window.	 A panoramic view of a living room with a large red sofa and a large window. The segmentation mask is green and shows the boundaries of the sofa and the window.	 A panoramic view of a living room with a large red sofa and a large window. The segmentation mask is green and shows the boundaries of the sofa and the window.

5 결과 분석 - 결과 비교

Img_name	Resnet18	ResNext50_32x4d	DenseNet 121
Pano_18	 A panoramic view of a living room with a pink wall, a blue sofa, a wooden table, and a doorway. The segmentation mask is green and shows the boundaries of the furniture and architectural elements.	 A panoramic view of a living room with a pink wall, a blue sofa, a wooden table, and a doorway. The segmentation mask is green and shows the boundaries of the furniture and architectural elements.	
Pano_20	 A panoramic view of a living room with a large window, a red sofa, and a coffee table. The segmentation mask is green and shows the boundaries of the furniture and architectural elements.	 A panoramic view of a living room with a large window, a red sofa, and a coffee table. The segmentation mask is green and shows the boundaries of the furniture and architectural elements.	



THANK YOU

The End

