

DETR

1. Follow instructions at <https://github.com/facebookresearch/detr> to reproduce the results as in <https://arxiv.org/abs/2005.12872> paper.
2. Substitute `<transformer.py>` in `../models/` folder with the file provided in this package.
3. Put `<my_MHA.py>` in the main folder of DETR.
4. Put file with proposed **REXP** method `<iv_rexp_LUT.py>` in the main folder of DETR.
 - A. Comment/uncomment the appropriate part of the code to reproduce the REXP method for selected precision (from source code line 310~). For example:

i. **# int16 case 1**

- `rexp_LUT = torch.torch.ShortTensor(rexp_LUT_1x13_int16)`
- `scale = 32768`
- `expln_LUT = torch.torch.ShortTensor(expln_LUT_1x256_int16)`
- `scale_eln = 32768`

ii. **# int16 case 2**

- `rexp_LUT = torch.torch.ShortTensor(rexp_LUT_1x13_int16)`
- `scale = 32768`
- `expln_LUT = torch.torch.ShortTensor(expln_LUT_1x320_int16)`
- `scale_eln = 32768`

iii. **# int16 case 3**

- `rexp_LUT = torch.torch.ShortTensor(rexp_LUT_1x13_int16)`
- `scale = 32768`
- `expln_LUT = torch.torch.ShortTensor(expln_LUT_1x512_int16)`
- `scale_eln = 32768`

5. `<main_gpu.py>` file is used to run DETR models on GPU (PyTorch PTQ-D is not supported on GPU yet) to reproduce results in FP32 (original in DETR paper)

A. Examples to run

i. **# DETR (R50)**

- `python3 main_gpu.py --batch_size 2 --no_aux_loss --eval --resume detr-r50-e632da11.pth --coco_path /home/xxxxxxx/COCO_2017/`

- ii. **# DETR-DC5 (R50)**
 - python3 main_gpu.py --batch_size 1 --no_aux_loss --eval --resume detr-r50-dc5-f0fb7ef5.pth --dilation --coco_path [/home/xxxxxxx/COCO_2017/](#)
 - iii. **# DETR (R101)**
 - python3 main_gpu.py --batch_size 2 --no_aux_loss --eval --resume detr-r101-2c7b67e5.pth --backbone resnet101 --coco_path [/home/xxxxxxx/COCO_2017/](#)
 - iv. **# DETR-DC5 (R101)**
 - python3 main_gpu.py --batch_size 1 --no_aux_loss --eval --resume detr-r101-dc5-a2e86def.pth --backbone resnet101 --dilation --coco_path [/home/xxxxxxx/COCO_2017/](#)
6. **<main.py>** file is used to run quantized DETR models on CPU (PyTorch PTQ-D is not supported on GPU yet)
- A. Examples to run
- i. **# DETR (R50) on CPU**
 - python3 main.py --batch_size 2 --no_aux_loss --eval --resume detr-r50-e632da11.pth --coco_path [/home/xxxxxxx/COCO_2017/](#) --device cpu
 - ii. **# DETR-DC5 (R50) on CPU**
 - python3 main.py --batch_size 1 --no_aux_loss --eval --resume detr-r50-dc5-f0fb7ef5.pth --dilation --coco_path [/home/xxxxxxx/COCO_2017/](#) --device cpu
 - iii. **# DETR (R101) on CPU**
 - python3 main.py --batch_size 2 --no_aux_loss --eval --resume detr-r101-2c7b67e5.pth --backbone resnet101 --coco_path [/home/xxxxxxx/COCO_2017/](#) --device cpu
 - iv. **# DETR-DC5 (R101) on CPU**
 - python3 main.py --batch_size 1 --no_aux_loss --eval --resume detr-r101-dc5-a2e86def.pth --backbone resnet101 --dilation --coco_path [/home/xxxxxxx/COCO_2017/](#) --device cpu