"Fine-Tuning SAM on Custom COCO Dataset for Breast Medical Images"

This repository contains the process and results of fine-tuning the Segment Anything Model (SAM) using a custom COCO dataset specifically for breast medical images. The training was performed using the default SAM ViT-B configuration. The training was executed on an RTX 3060 GPU over 54 epochs, which took approximately 3 hours, 29 minutes, and 32 seconds. The repository includes the training losses and other relevant metrics.

Javier Ramírez González, Carlos Eduardo Sanchez Torres (sanchezcarlosjr)

eval_dice:0.9875218272209167

eval_loss:0.035509785474278036

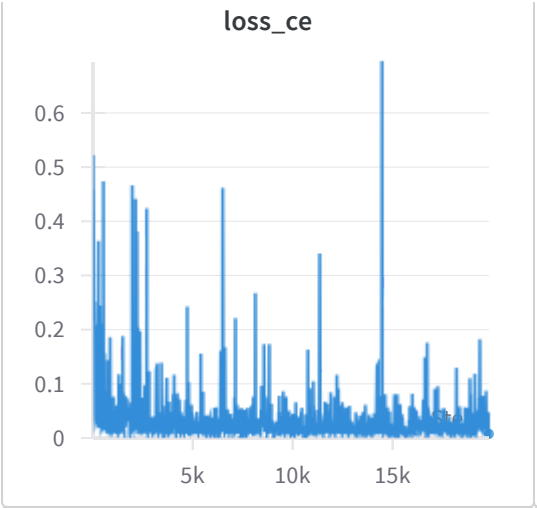
loss_ce:0.007260298356413841

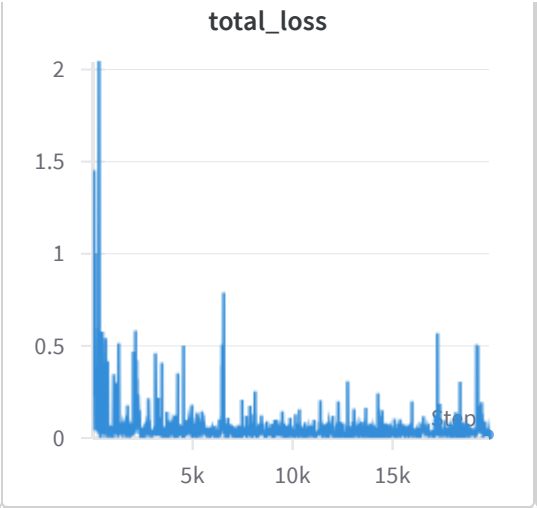
loss_dice:0.4446289837360382

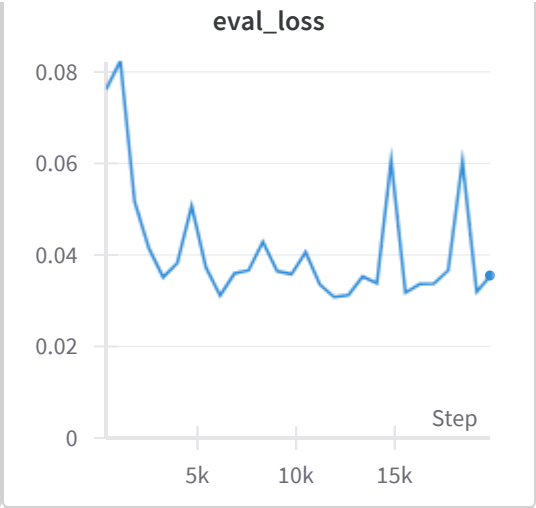
lr:0.001

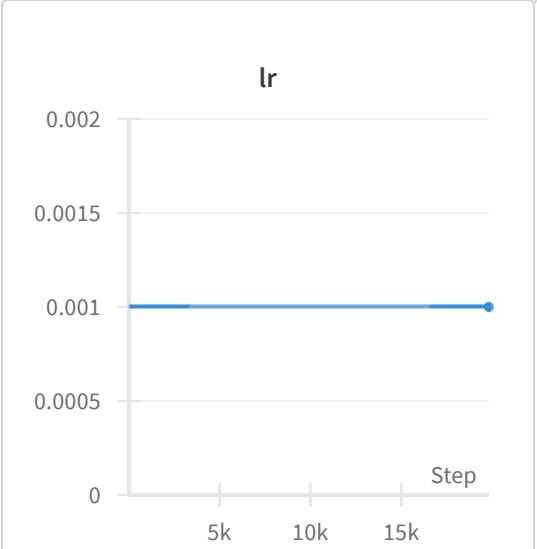
total_loss:0.4518892765045166

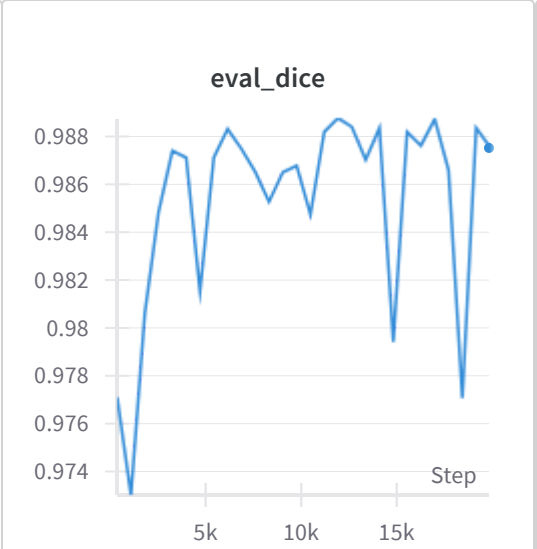
Losses

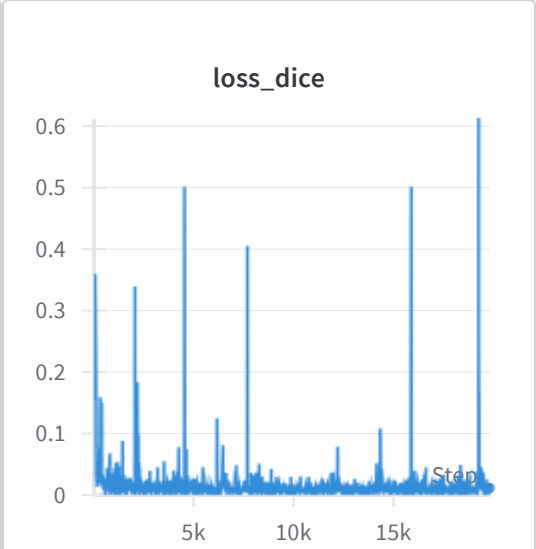












system/gpu.0.memoryAllocatedBytes

system/gpu.proce...oryAllocatedBytes

Process GPU Power Usage (W)

Config parameters


```
{
  "b": {
    "desc": null,
    "value": 1
```

```
},
"s": {
  "desc": null,
  "value": true
},
"w": {
  "desc": null,
  "value": 8
},
"lr": {
  "desc": null,
  "value": 0.001
},
"dim": {
  "desc": null,
  "value": 512
},
"gpu": {
```

```
  "desc": null,
  "value": true
},
"net": {
  "desc": null,
  "value": "sam"
},
"thd": {
  "desc": null,
  "value": false
},
"vis": {
  "desc": null,
  "value": 0
},
"arch": {
  "desc": null,
  "value": "vit_b"
```

```
},
"type": {
  "desc": null,
  "value": "map"
},
"chunk": {
  "desc": null,
  "value": 96
},
"depth": {
  "desc": null,
  "value": 64
},
"heads": {
  "desc": null,
  "value": 16
},
"uinch": {
```

```
  "desc": null,
  "value": 1
},
"_wandb": {
  "desc": null,
  "value": {
    "t": {
      "1": [
        1,
        41,
        48,
        49,
        55,
        63
      ],
      "2": [
        1,
        41,
```

```
    48,
    49,
    55,
    63
  ],
  "3": [
    2,
    16,
    23
  ],
  "4": "3.12.3",
  "5": "0.16.5",
  "8": [
    5
  ],
  "13": "linux-x86_64"
},
"framework": "torch",
```

```
    "start_time": 1718310760,
    "cli_version": "0.16.5",
    "is_jupyter_run": false,
    "python_version": "3.12.3",
    "is_kaggle_kernel": false
  }
},
"epochs": {
  "desc": null,
  "value": 250
},
"imp_lr": {
  "desc": null,
  "value": 0.0003
},
"dataset": {
  "desc": null,
  "value": "isic"
```

```
},
"devices": {
  "desc": null,
  "value": [
    0,
    1
  ]
},
"mlp_dim": {
  "desc": null,
  "value": 1024
},
"num_cls": {
  "desc": null,
  "value": 2
},
"reverse": {
  "desc": null,
```

```
  "value": false
},
"sim_gpu": {
  "desc": null,
  "value": 0
},
"targets": {
  "desc": null,
  "value": "combine_all"
},
"weights": {
  "desc": null,
  "value": 0
},
"baseline": {
  "desc": null,
  "value": "unet"
},
```

```
"out_size": {
  "desc": null,
  "value": 256
},
"pretrain": {
  "desc": null,
  "value": false
},
"roi_size": {
  "desc": null,
  "value": 96
},
"sam_ckpt": {
  "desc": null,
  "value": "sam_vit_b_01ec64.pth"
},
"val_freq": {
  "desc": null,
```

```
  "value": 100
},
"epoch_ini": {
  "desc": null,
  "value": 1
},
"evl_chunk": {
  "desc": null,
  "value": 64
},
"if_warmup": {
  "desc": null,
  "value": false
},
"gpu_device": {
  "desc": null,
  "value": 0
},
```

```
"image_size": {
  "desc": null,
  "value": 1024
},
"img_folder": {
  "desc": null,
  "value": "./datasets/"
},
"num_sample": {
  "desc": null,
  "value": 4
},
"patch_size": {
  "desc": null,
  "value": 2
},
"distributed": {
  "desc": null,
```

```
  "value": "none"
},
"mask_folder": {
  "desc": null,
  "value": "./datasets/"
},
"sim_weights": {
  "desc": null,
  "value": 0
},
"base_weights": {
  "desc": null,
  "value": 0
},
"dataset_name": {
  "desc": null,
  "value": "Breast"
},
```

```
"val_img_list": {
  "desc": null,
  "value": "val.csv"
},
"finetune_type": {
  "desc": null,
  "value": "adapter"
},
"gpu_fractions": {
  "desc": null,
  "value": [
    0.5,
    0.5
  ]
},
"warmup_period": {
  "desc": null,
  "value": 200
```

```
},
"dir_checkpoint": {
  "desc": null,
  "value": "checkpoints"
},
"normalize_type": {
  "desc": null,
  "value": "sam"
},
"train_img_list": {
  "desc": null,
  "value": "train.csv"
},
"if_update_encoder": {
  "desc": null,
  "value": true
},
"encoder_lora_layer": {
```

```
  "desc": null,
  "value": [
    0,
    1,
    10,
    11
  ]
},
"if_encoder_adapter": {
  "desc": null,
  "value": true
},
"decoder_adapt_depth": {
  "desc": null,
  "value": 2
},
"if_decoder_lora_layer": {
  "desc": null,
```

```
  "value": false
},
"if_encoder_lora_layer": {
  "desc": null,
  "value": false
},
"if_split_encoder_gpus": {
  "desc": null,
  "value": false
},
"encoder_adapter_depths": {
  "desc": null,
  "value": [
    0,
    1,
    10,
    11
  ]
```

```
  },
  "if_mask_decoder_adapter": {
    "desc": null,
    "value": true
  }
}
```


Created with ❤️ on Weights & Biases.

https://wandb.ai/uabc/rtx3060%20-%20visualizamiento%20exitoso/reports/-Fine-Tuning-SAM-on-Custom-COCO-Dataset-for-Breast-Medical-Images---Vmlldzo4NDIxNTE2