2025 USA-NA-AIO Round 2, Problem 3, Part 16

USAAIO 🛡   **May 2025**

Part 16 (5 points, coding task)

In this part, you are asked to train your model.

1. Set the number of epochs as 100.

2. Do training on GPU.

3. For every epoch, print the average loss per sample in this epoch.

4. You may use `tqdm` to track your progress and help you manage your time.

USAAIO 🛡   **May 2025**

```python
### WRITE YOUR SOLUTION HERE ###

num_epochs = 100
device = 'cuda' if torch.cuda.is_available() else 'cpu'
model_CLIP.to(device)

for epoch in tqdm(range(num_epochs)):
    model_CLIP.train()
    optimizer.zero_grad()
    loss_cum = 0
    for image_batch, token_id_batch, attention_mask_batch in CLIP_dataloader:
        image_batch = image_batch.to(device)
        token_id_batch = token_id_batch.to(device)
        attention_mask_batch = attention_mask_batch.to(device)

        image_embedding, text_embedding = model_CLIP(image_batch, token_id_batch,
```

```
            loss = CLIP_loss_fn(image_embedding, text_embedding)
            loss.backward()
            optimizer.step()

            loss_cum += loss.item() * image_batch.shape[0]

        loss = loss_cum / len(CLIP_dateset)
        print(f'Epoch {epoch}, Loss: {loss}')

    """ END OF THIS PART """
```

✦ Related topics

Topic	Replies	Activity
2025 USA-NA-AIO Round 2, Problem 3, Part 11	1	May 2025
2025 USA-NA-AIO Round 1, Problem 2, Part 13	2	Oct 2025
2025 USA-NA-AIO Round 2, Problem 3, Part 14	1	May 2025
2025 USA-NA-AIO Round 2, Problem 3, Part 15	1	May 2025

Skip to main content

Topic	Replies	Activity
2025 USA-NA-AIO Round 2, Problem 3, Part 13	1	May 2025

O **Powered by Discourse**