

Pseudocode

```
# model: pretrained (e.g. distilled) model
# layer_norm: layer normalization layer
# cls_head: linear classifier -> nn.Linear(D, C)
# x: batch of images (B, 3, H, W)
def image_downstream_forward(model, layer_norm, cls_head, x, linear_probe):

    if linear_probe:
        with torch.no_grad():
            x = model(x) # (B, T, D)
    else:
        x = model(x) # (B, T, D)

    x = x[:, 1:] # remove cls token (B, T-1, D)
    x = x.mean(dim=1) # mean over all patches (B, D)
    x = layer_norm(x)
    x = cls_head(x) # (B, C)
    pred = x.argmax(dim=-1) # (B, )
    return pred
```

Listing 1: Pytorch pseudocode for the forward pass during finetuning or linear probing of a pretrained model on an image classification tasks. The output of the forward pass is the predicted class index for each image in the batch.