DLAV2024 PROJECT : TEAM SPONGIFLEX

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> Github repo : https://github.com/merlebleue/DLAV2024-Spongiflex/tree/main

1. Milestone 1 : 28th april 2024

1.1. Introduction

This project is about prediting precise vehicle trajectory prediction, using the UniTraj framework from VITA lab @ EPFL. For this part, the objective is mainly familiarising ourselves with the framework. We use the provided `ptr` model, with the default configuration, evaluated using minADE6 error.

1.2. Code

The code of the model can be consulted here : ptr.py The configuration is here : ptr.yaml

It consists of the provided code, with some parts we had to fill in. Here is our code :

- Function `temporal_attn_fn()` :

```
######################### Your code here ########################
for n in range(agents_emb.shape[2]): #per agent, assuming N is the number of
agents
  agents_emb[:,:,n,:] = layer(agents_emb[:,:,n,:],
src_key_padding_mask=agent_masks[:,:,n])
#################################################################
```

- Function `social_attn_fn()` :

```
######################### Your code here ########################
for t in range(agents_emb.shape[0]): #per time step, assuming T is the mnumber of
time steps
  agents_emb[t,:,:,:] = layer(agents_emb[t,:,:,:],
src_key_padding_mask=agent_masks[:,t,:].permute(1,0))
#################################################################
```

- In the function `_forward()`:

```
######################### Your code here ########################
# Apply temporal attention layers and then the social attention layers on
agents_emb, each for L_enc times.
for i in range(self.L_enc):
  agents_emb = self.temporal_attn_fn(agents_emb, opps_masks,
self.temporal_attn_layers[i])
  agents_emb = self.social_attn_fn(agents_emb, opps_masks,
self.social_attn_layers[i])
#################################################################
```

1.3. Results

Sadly, we encountered issues due to the presence of `nan` values in the dataset. This seemed to arrise from agents that do not exist in the sequence, but we did not manage to get rid of this error.