

Social-Transmotion

Promptable Human Trajectory Prediction

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(* equal contribution)



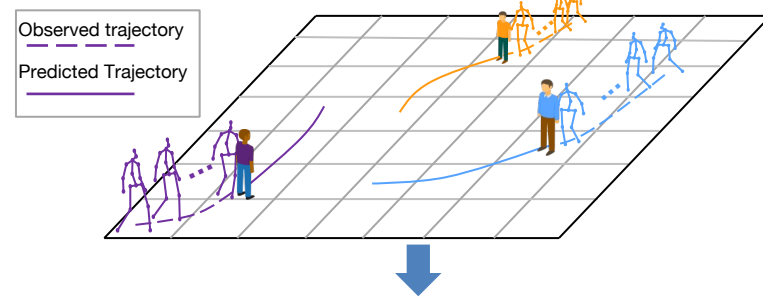
Overview

Task: Predicting future human locations from observational data.

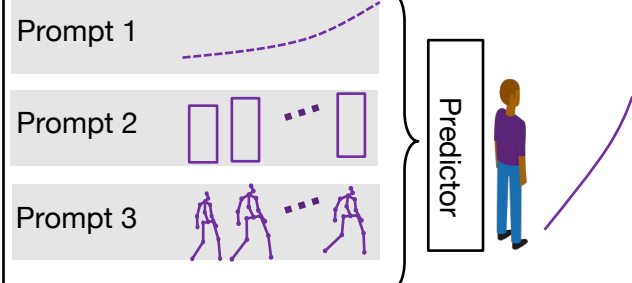
Challenge: Additional visual cues are available but not always!

Approach:

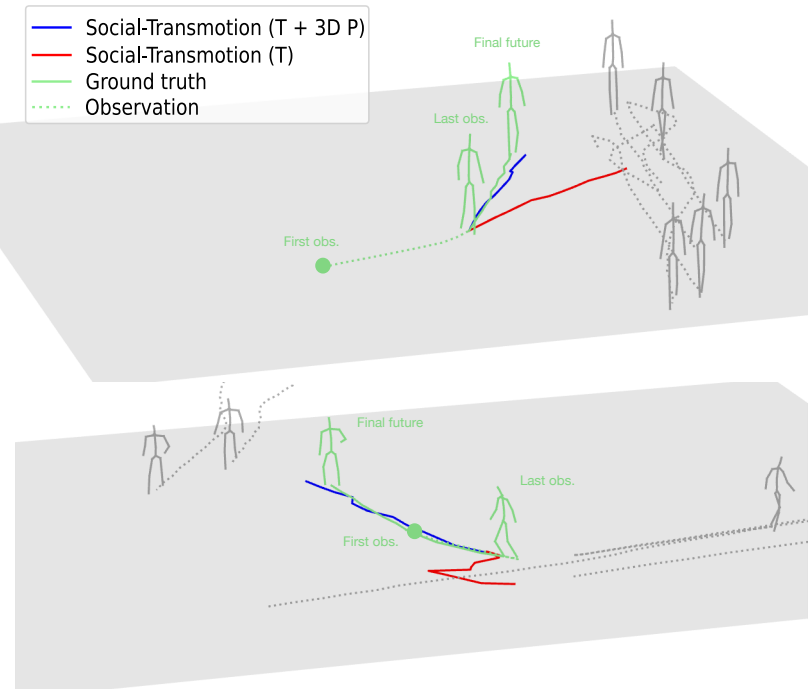
- * Translate the idea of prompt from NLP to effectively augment trajectory
- * Introduce a masking strategy to make a generic predictor



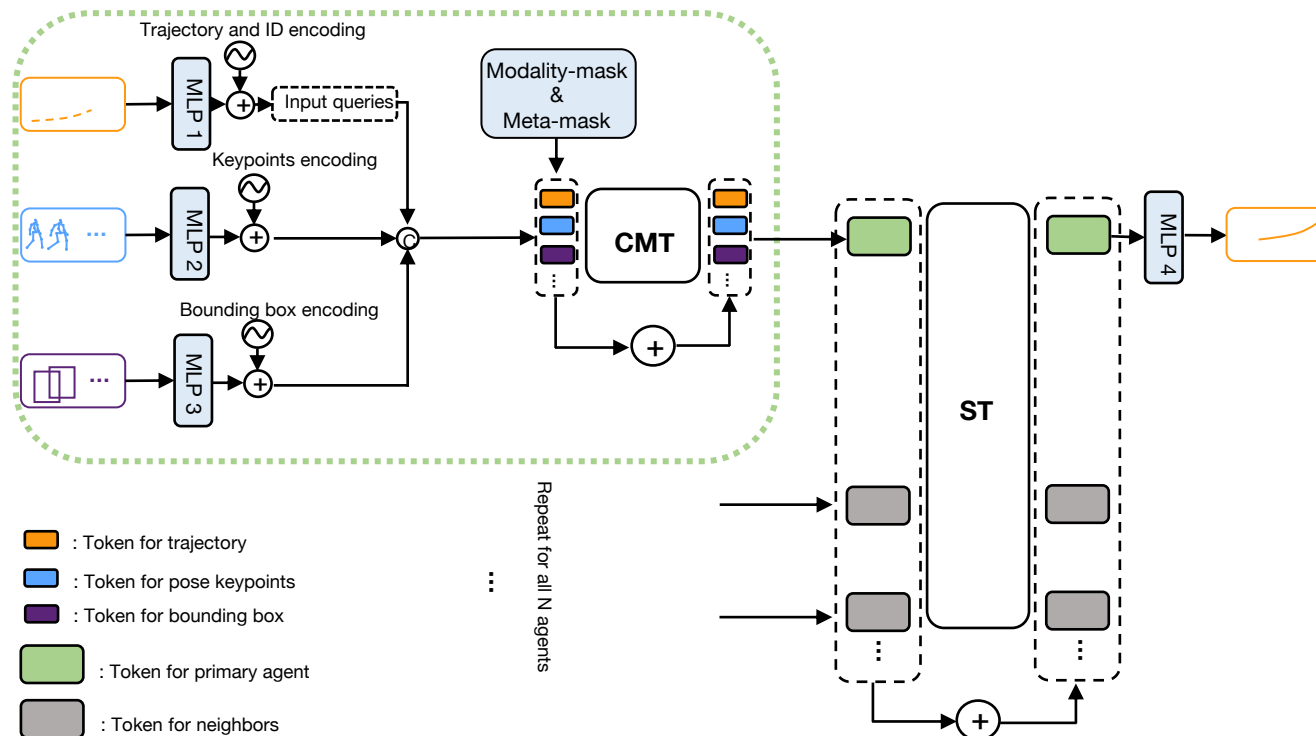
Promptable human trajectory prediction



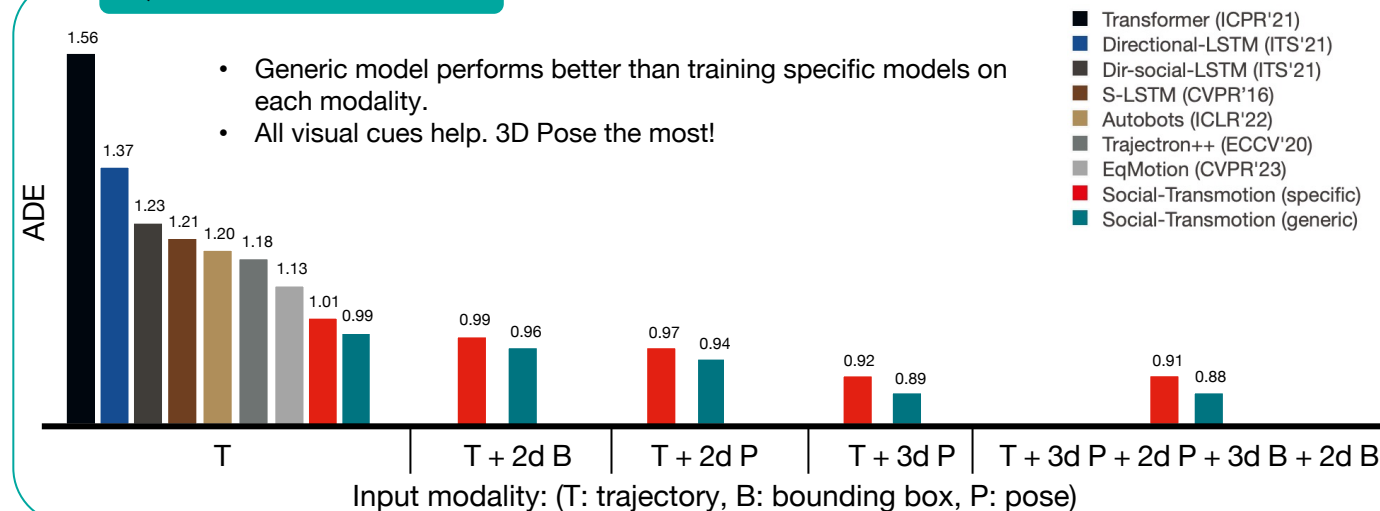
Quantitative results



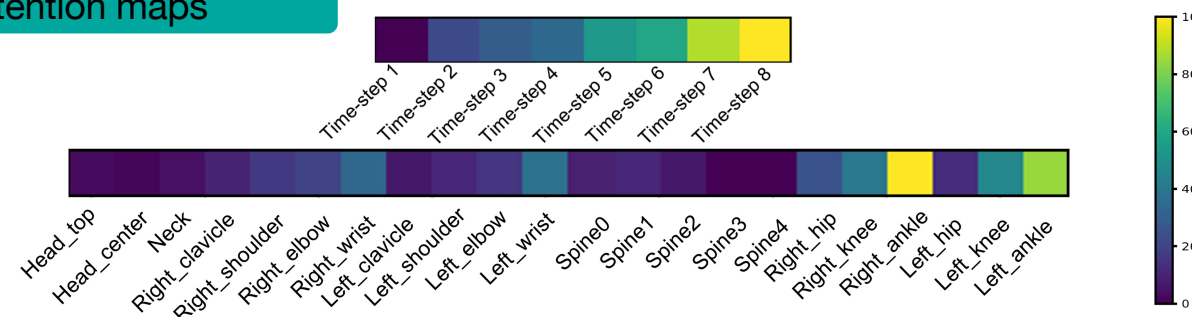
Method



Quantitative results



Attention maps



Imperfect input

Robust against:

- Incomplete trajectory and pose keypoints.
- Noisy pose keypoints input.
- Missing pose keypoints at some frames.

Input Modality at Inference	ADE/FDE
T + 3D P	0.89/1.81
90% T + 90 % 3D P	0.89/1.81
50% T + 50% 3D P	1.01/2.00
50% T + 10% 3D P	1.10/2.16
T + 3D P w/Gaussian Noise (std=25)	0.98/1.94
T + 3D P w/Gaussian Noise (std=50)	1.05/2.05
T + Random Leg and Arm Occlusion	0.90/1.83
T + Structured Right Leg Occlusion	0.90/1.82
T + 50% Complete Frame Missing	0.93/1.89
T + 90% Complete Frame Missing	0.99/1.98

Failure case

