Enhancing Motion Prediction by a Cooperative Framework
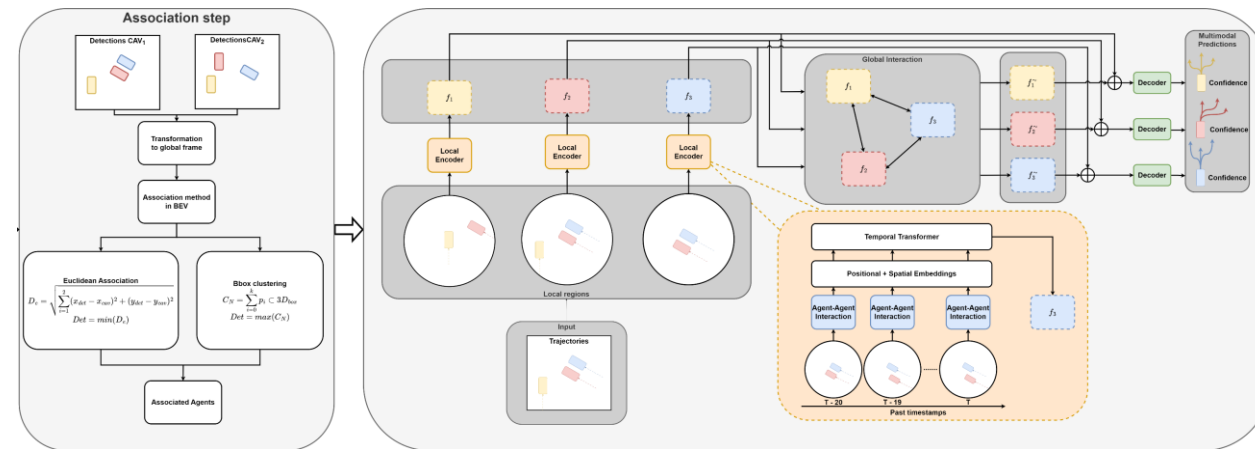
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Contributions:
- HiVT [1] map-less trained in Argoverse [2]
- Two association methods for a V2V framework
- V2V4Real [3] evaluation in Motion Prediction

Future works:
- Evaluate other V2X datasets
- Simulation environment

CAVs	Fusion	ViewPoint	N actors	brier-minADE			brier-minFDE		
				Absolute	Relative actors	Improvement	Absolute	Relative actors	Improvement
Tesla	-	Tesla	7.74	1.80	0.23	-	2.88	0.37	-
Astuff	-	Astuff	8.45	1.88	0.22	-	2.96	0.35	-
Tesla & Astuff	-	Tesla	14.58	2.00	0.14	-	3.17	0.22	-
Tesla & Astuff	Euclidean	Tesla	10.13	1.92	0.19	18%	3.02	0.30	20%
Tesla & Astuff	Bbox clustering	Tesla	10.19	1.92	0.19	19%	3.03	0.30	20%
Tesla & Astuff	-	Astuff	14.58	2.00	0.14	-	3.18	0.22	-
Tesla & Astuff	Euclidean	Astuff	10.13	1.92	0.19	15%	3.04	0.30	14%
Tesla & Astuff	Bbox clustering	Astuff	10.19	1.93	0.19	15%	3.05	0.30	15%
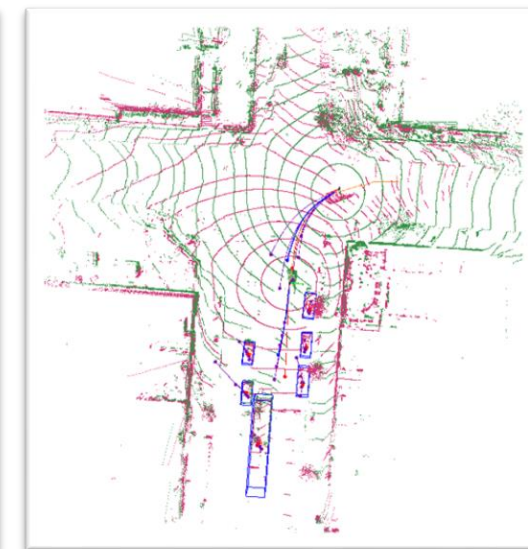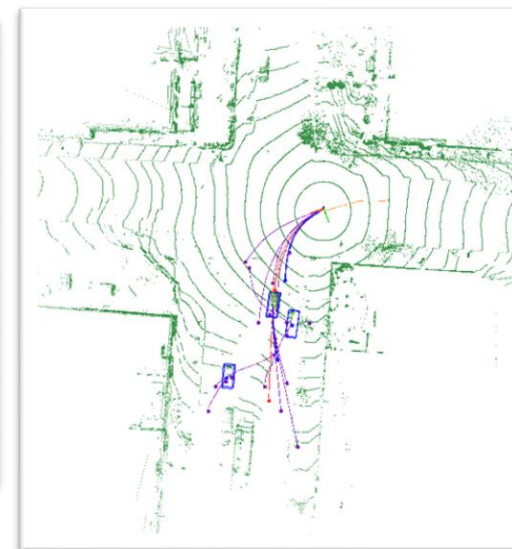
[1]: Zhou, Z., Ye, L., Wang, J., Wu, K., & Lu, K. (2022). Hivt: Hierarchical vector transformer for multi-agent motion prediction. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (pp. 8823-8833).
[2]: Chang, M. F., Lambert, J., Sangkloy, P., Singh, J., Bak, S., Hartnett, A., ... & Hays, J. (2019). Argoverse: 3d tracking and forecasting with rich maps. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition* (pp. 8748-8757).
[3]: Xu, R., Xia, X., Li, J., Li, H., Zhang, S., Tu, Z., ... & Ma, J. (2023). V2v4real: A real-world large-scale dataset for vehicle-to-vehicle cooperative perception. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 13712-13722).

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