

Multi-Object tracking and Trajectory Prediction for Autonomous Vehicles

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Abstract—This document specifies the implementation details of the perception module of a self-driving car. This project was completed as a part of the Summer Internship program at ARTPARK, IISC Bangalore, under Prof. Naveen Arulselvan. The perception module consists of multi-object detection, tracking and trajectory prediction. The multi-object detection is based on the YOLO v5 algorithm. We have used the *Deep Sort* algorithm for multi-object tracking based on the paper “Simple online and realtime tracking with a deep association metric”. The trajectory prediction module is implemented using *PEC Net* based on the paper “It is not the journey but the destination: Endpoint conditioned trajectory prediction”. Python and PyTorch framework have been used for the code implementation.

Index Terms—Object detection, multi-object tracking, trajectory prediction, YOLOv5, Deep Sort, PEC Net, Autonomous vehicles

I. INTRODUCTION

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- The word “data” is plural, not singular.
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TABLE I
TABLE TYPE STYLES

Table Head	Table Column Head		
	Table column subhead	Subhead	Subhead
copy	More table copy ^a		

^aSample of a Table footnote.

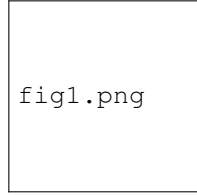


Fig. 1. Example of a figure caption.

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ACKNOWLEDGMENT

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REFERENCES

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Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the abstract or reference list. Use letters for table footnotes.

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For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [?].

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