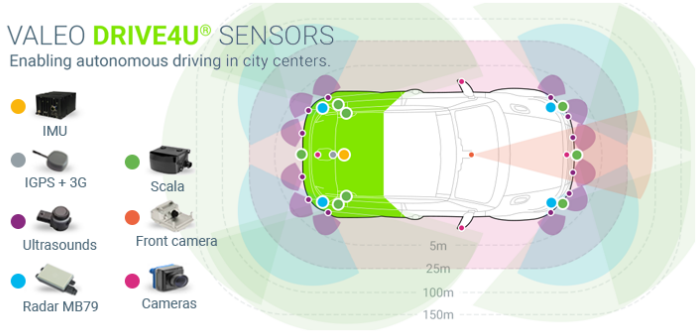
CARRADA Dataset: Camera and Automotive Radar with Range-Angle-Doppler Annotations

Poster Session T3.11, 25th ICPR, 15/01/2021

Authors: Arthur Ouaknine[1,2], Alasdair Newson[1], Julien Rebut[2], Florence Tupin[1], Patrick Pérez[2]

Radar for Scene Understanding

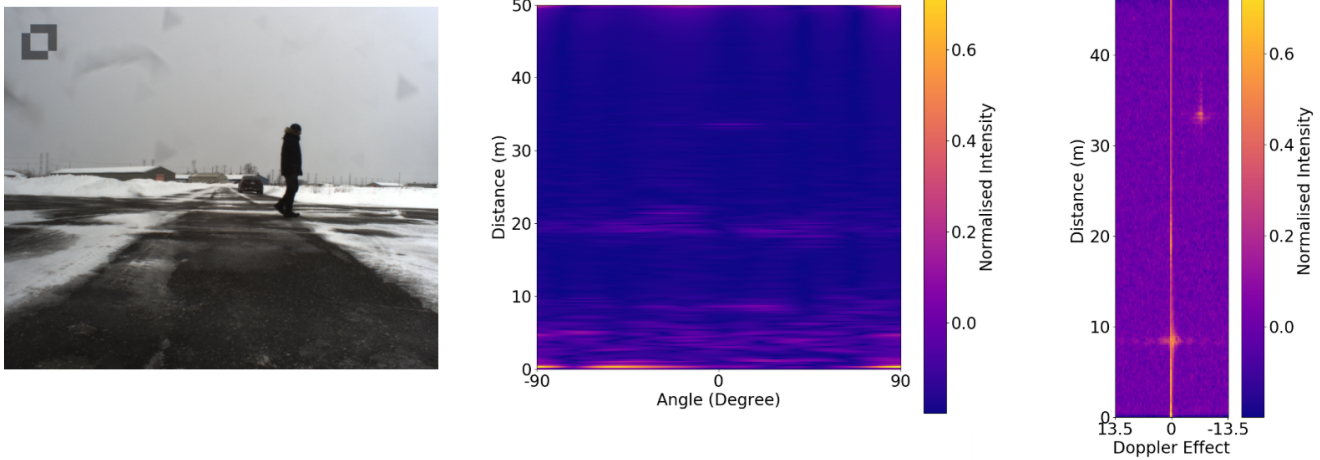


Radar data: range, angle and Doppler of the reflectors.

Problem: there is no open source raw radar dataset with annotation for scene understanding.

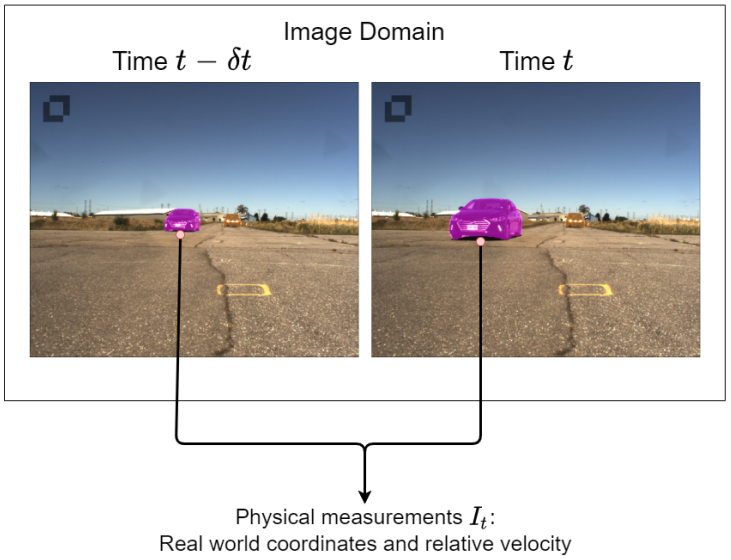
Example of Raw Radar Representation

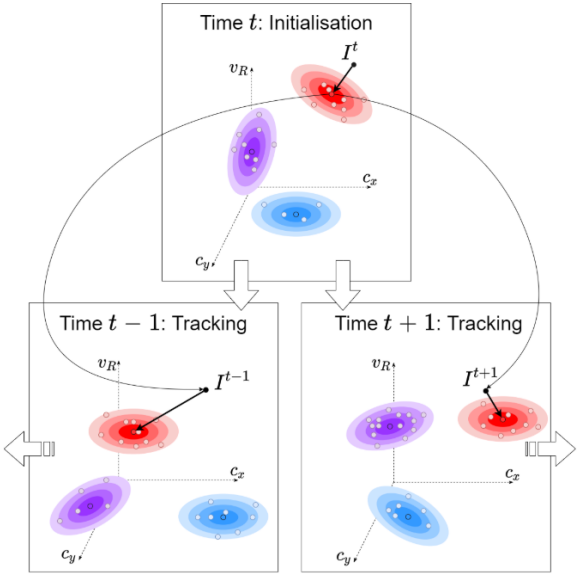
Perception: camera and radar representations.



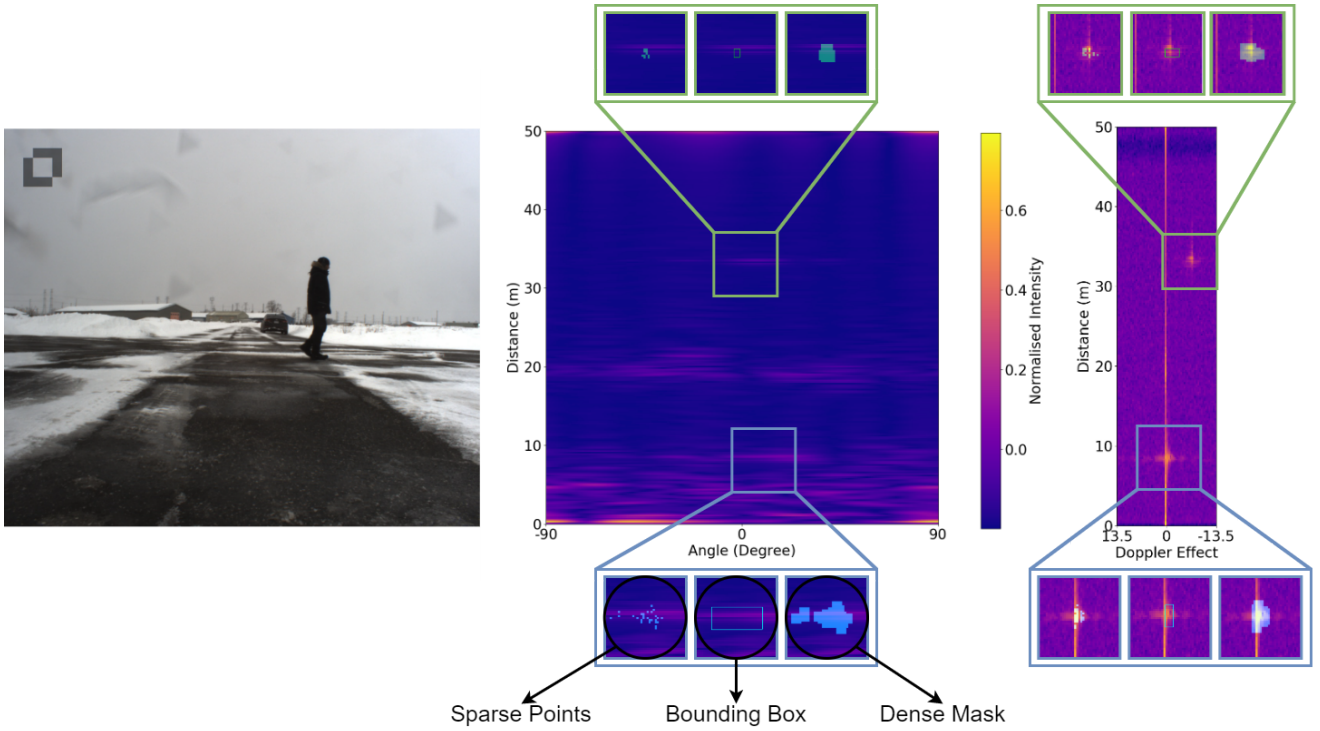
Problem: How can we generate annotations for both radar representations ?

Semi-Automatic Pipeline for Annotation Generation





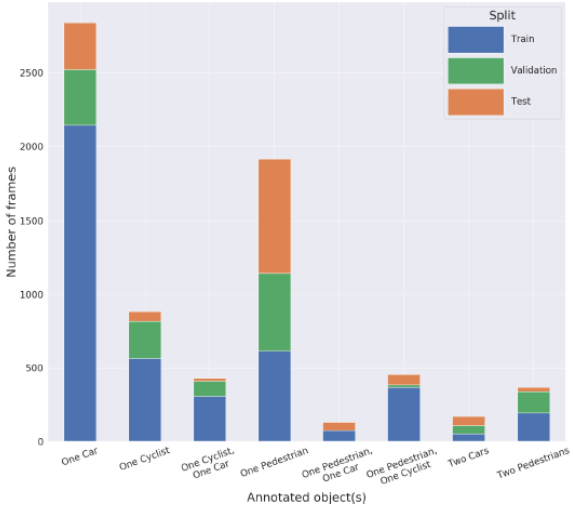
Qualitative Results



CARRADA Dataset

TABLE II
PARAMETERS OF THE DATASET.

Parameter	Value
Number of sequences	30
Total number of instances	78
Total number of frames	12726 (21.2 min)
Maximum number of frames per sequence	1018 (1.7 min)
Minimum number of frames per sequence	157 (0.3 min)
Mean number of frames per sequence	424 (0.7 min)
Total number of annotated frames with instance(s)	7545 (12.6 min)



Conclusion

Contributions:

- We provide a **semi-automatic annotation tool** generating range-angle-Doppler annotations.
- **CARRADA dataset**: synchronised camera and raw radar data with annotations on each radar representation.

Perspectives:

- **Supervised learning** for semantic segmentation using raw radar data (prior physical knowledge, temporal information)
- **Fusing representations and sensors** to improve performances of radar semantic segmentation.

Thanks for your attention !

Poster session T3.11

Contact: arthur.ouaknine@telecom-paris.fr