Machine Vision for Smart Intersections

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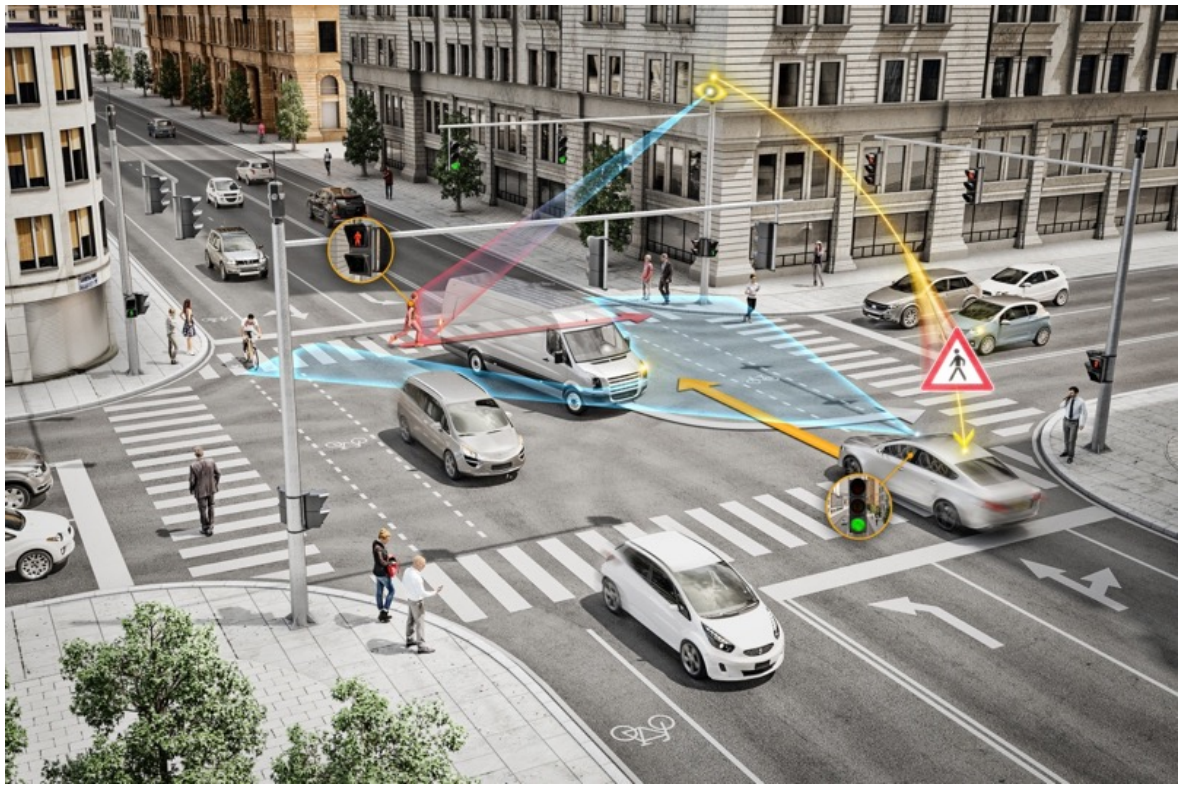
Why Traffic Intersections?

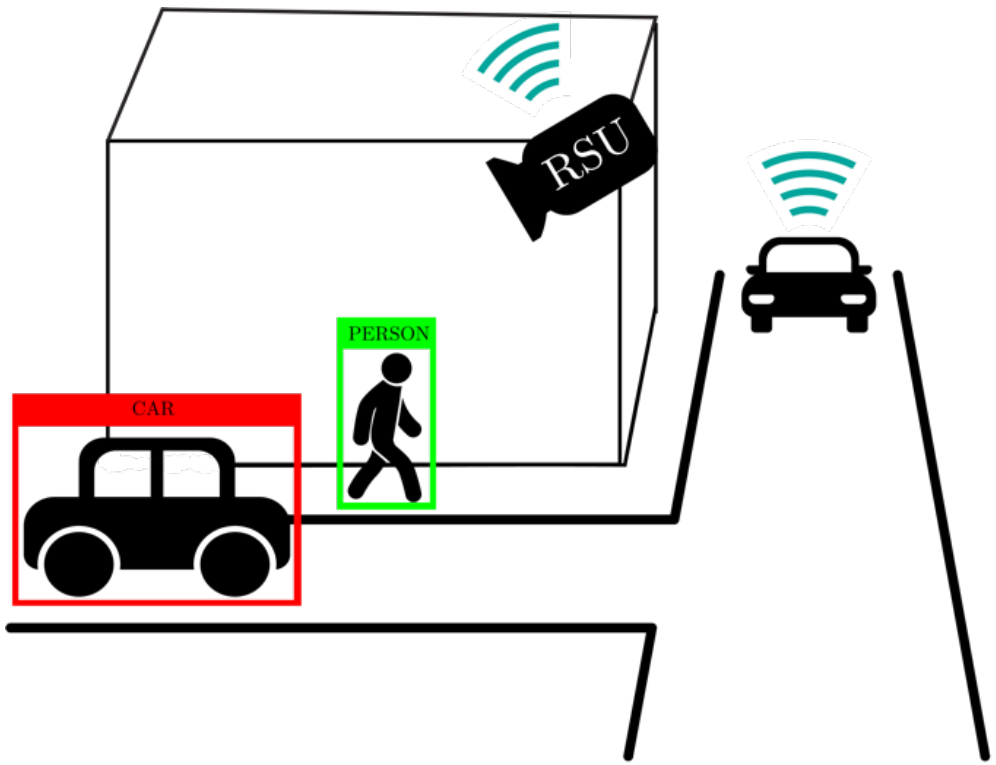
- Intersections are problem areas in road networks
- 20 % of traffic fatalities occur in intersections/junctions in EU and US
- Connected vehicle technology provides solutions



Picture: https://www.smartcitiesworld.net/AcuCustom/Sitename/DAM/011/news-transport-dec17-continentyinter.jpg

Developed Safety System

- Occluded road users are a safety hazard in intersections
- Machine vision roadside unit (RSU) localises road users, sends positions to connected vehicles
- Vehicle can alert driver of possible collissions



Research Environment

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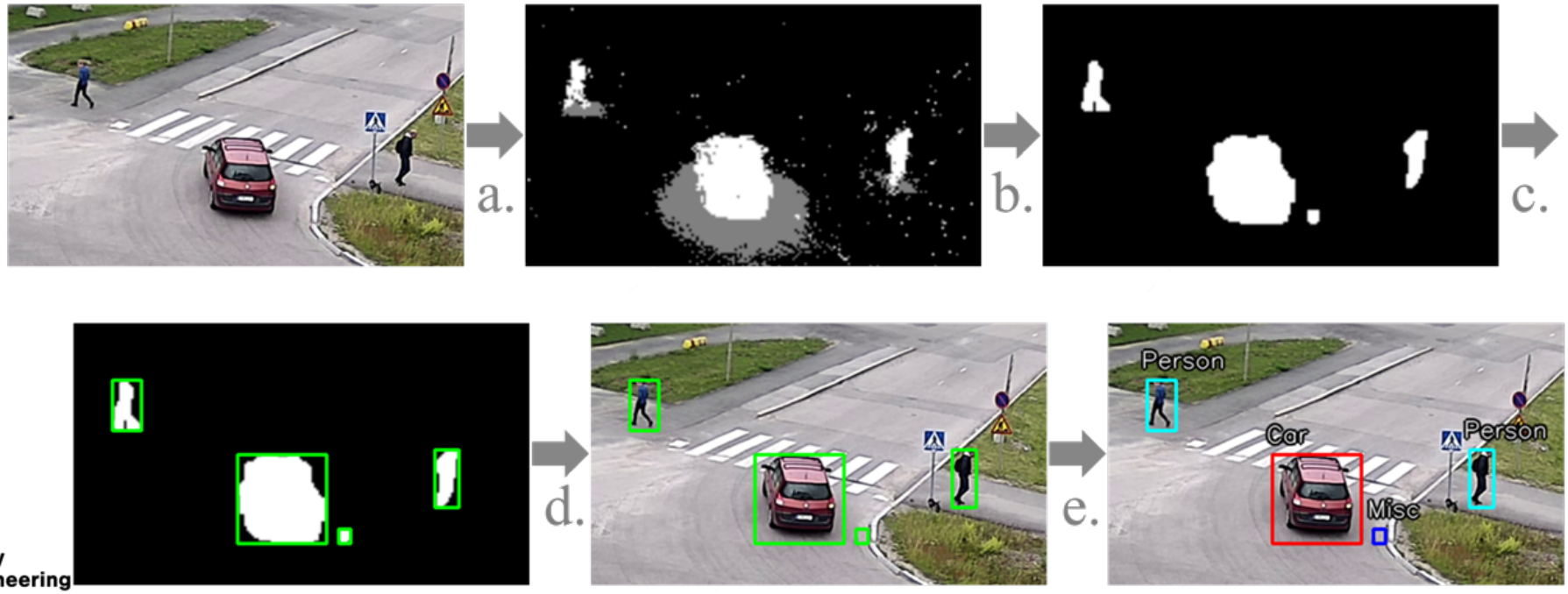
On-going Work: Detection

- **Motion Detection and Classification (MoDeCla) for road user detection**



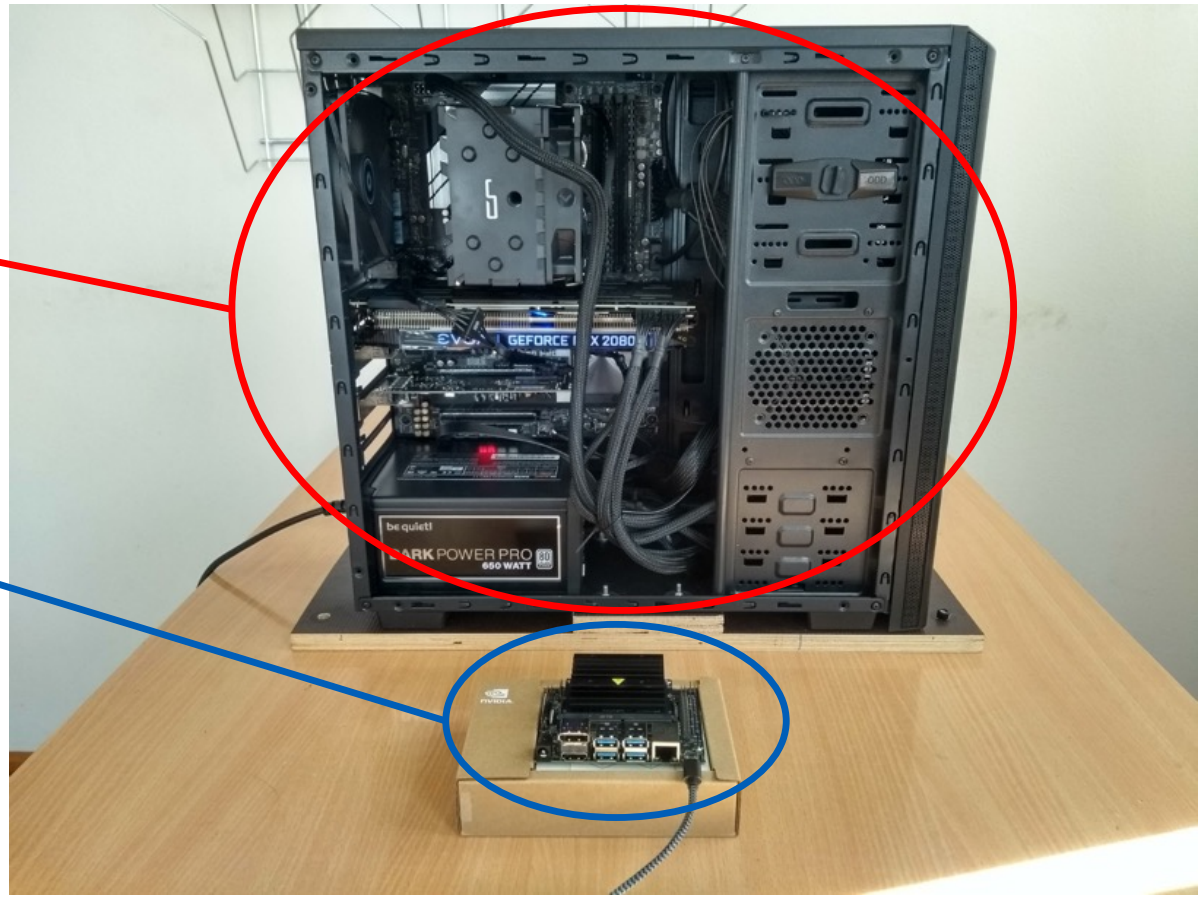
MoDeCla

YOLOv3

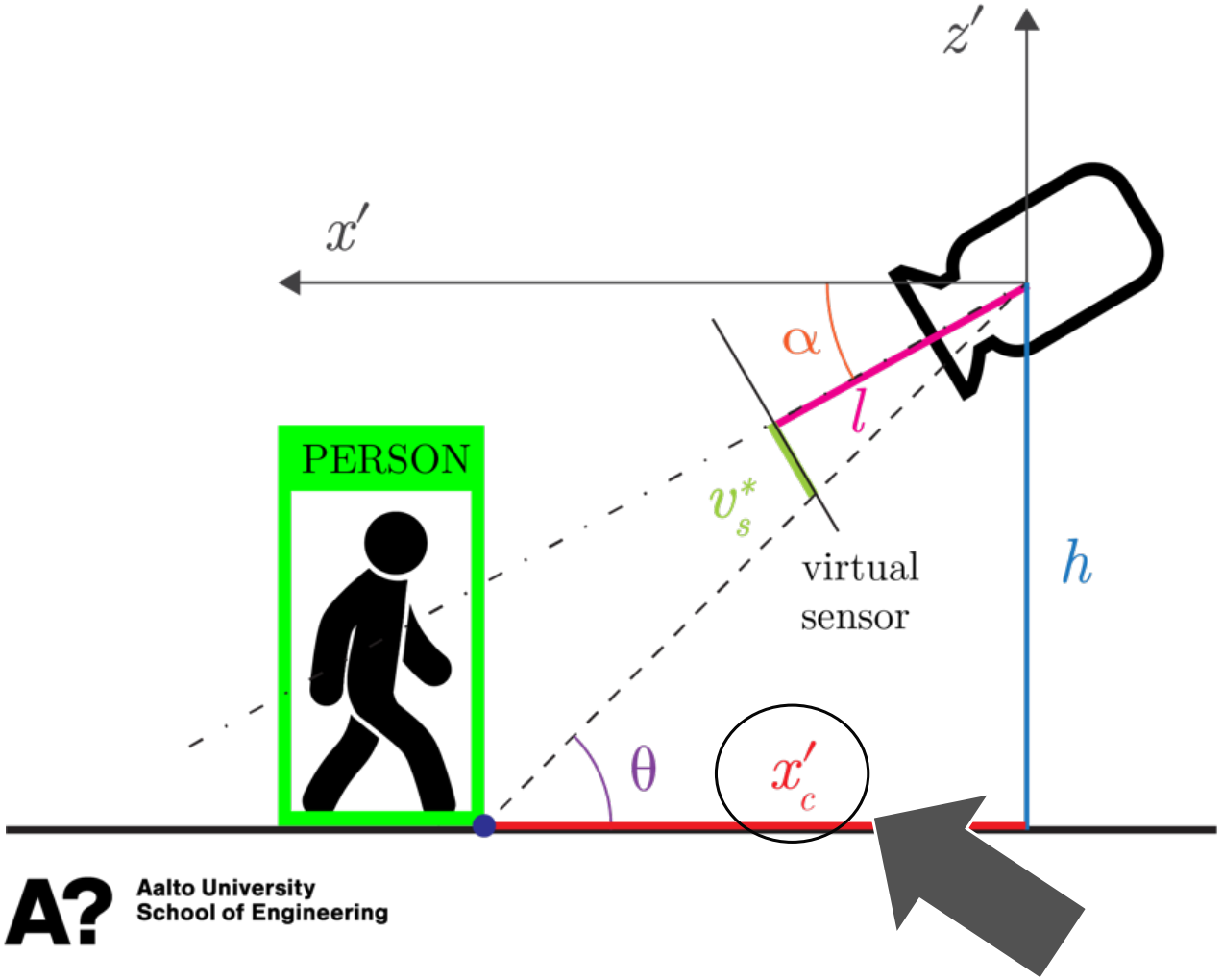
On-going Work: Detection

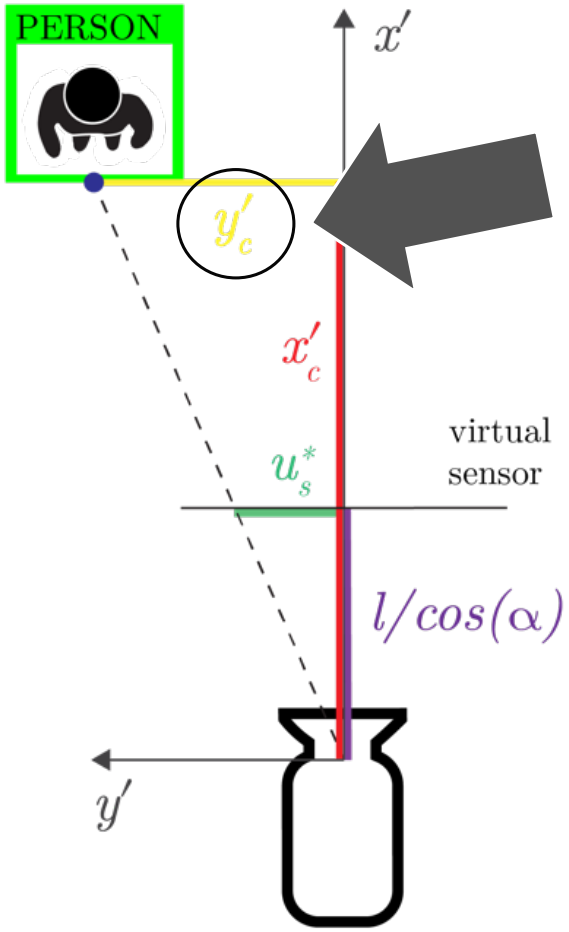
YOLOv3 @ 30 fps (1-2 k€)

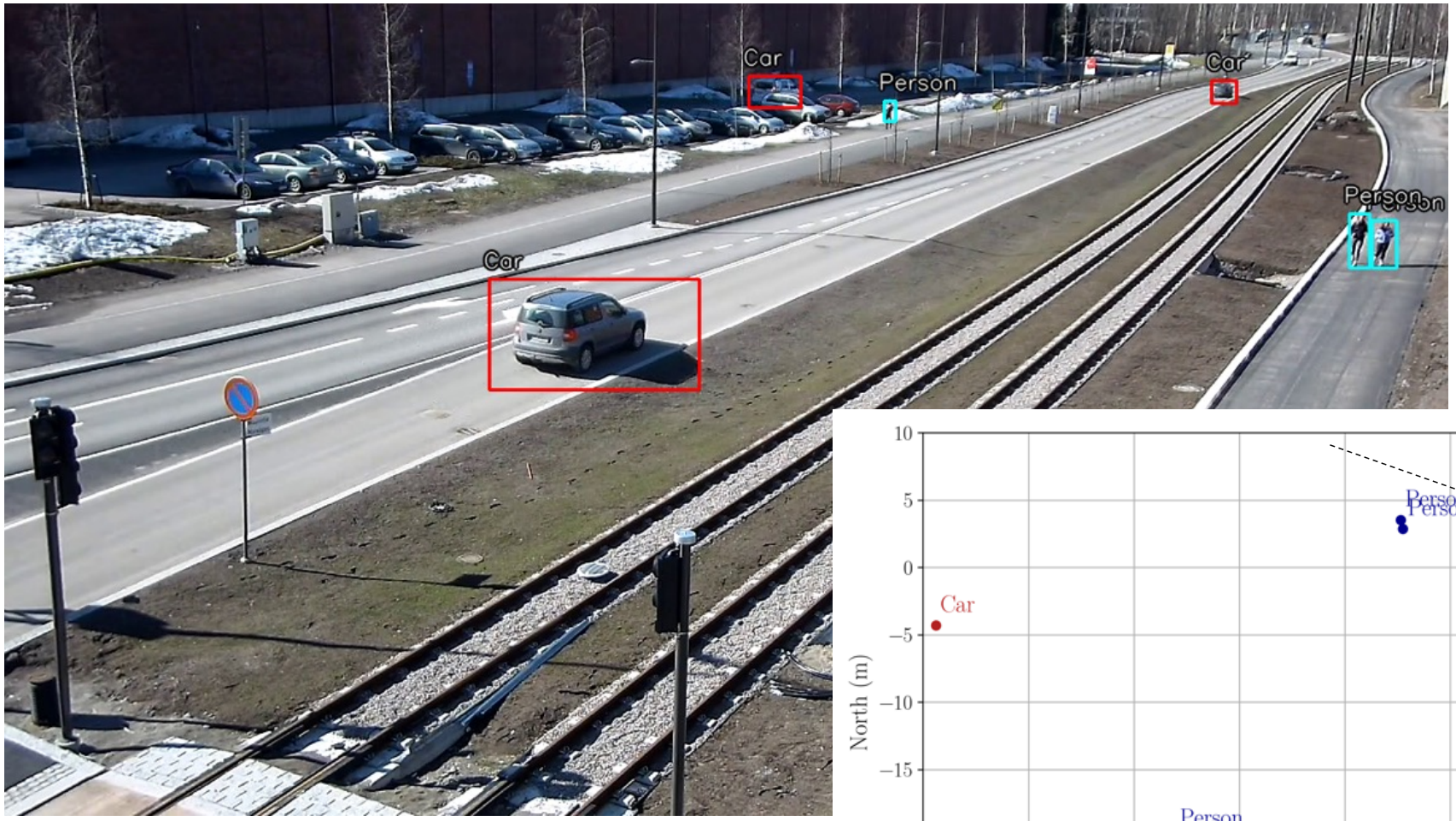
MoDeCla @ 30 fps (~100 €)

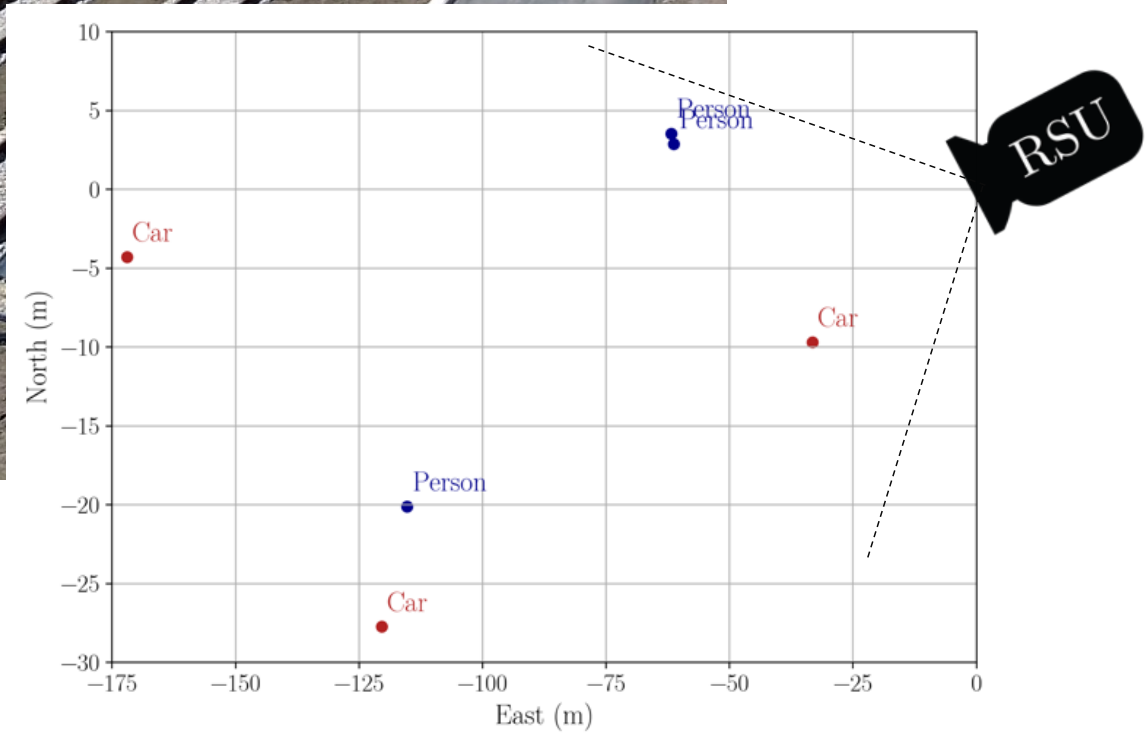


On-going Work: Localisation









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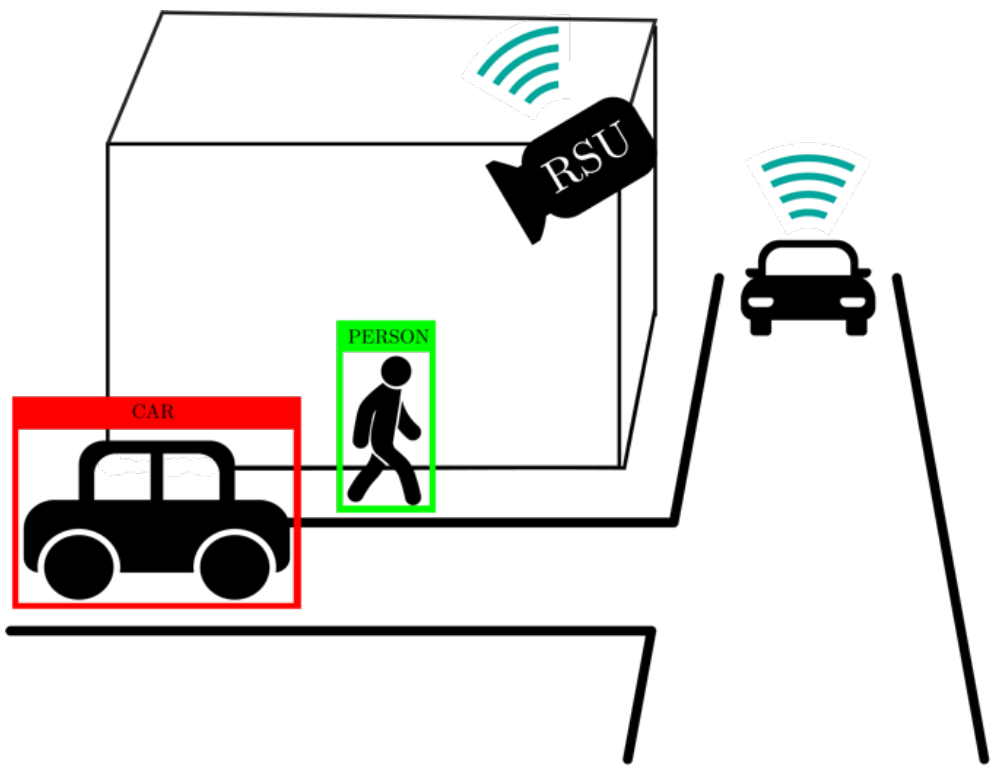
Conclusion

- Machine vision roadside units for safety in smart intersections

- Detection and localisation have to be designed accurate, fast, and cheap for adoption of the system



Thank you! Questions?