ALMA MATER STUDIORUM -UNIVERSITA' DI BOLOGNA
DIPARTIMENTO DI INGEGNERIA CIVILE, CHIMICA, AMBIENTALE E DEI MATERIALI - DICAM

DEPARTMENT OF CIVIL, CHEMICAL, ENVIRONMENTAL AND MATERIALS ENGINEERING – DICAM
TRANSPORT RESEARCH TEAM

June 27th, 2023, 10:00 am DICAM Transport Room, Viale Risorgimento 2, Bologna

To Overtake or Not to Overtake? Computational Models to Keep Road Users Safe

Prof. Marco Dozza
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10:00 Introduction and presentation (Prof. M.N. Postorino)
10:10 Seminar (Prof. M. Dozza)
11:00 Questions and Discussion
12:00 Conclusions

Today's vehicles are increasingly connected, automated, and smart. The challenge for vehicle intelligence is to satisfy mobility needs while keeping all road users safe and comfortable. Maneuvers with high speeds, close proximities, and multiple threats (such as overtaking with oncoming traffic) are particularly difficult to handle because a tiny human error may result in a fatality. For vehicles to support drivers during overtaking maneuvers (or perform the maneuver themselves), it is fundamental to understand human behavior well enough to make accurate predictions and promptly intervene before a human deficiency causes harm to any road user. By modeling road-user behavior in all phases of an overtaking maneuver, we have devised models that can explain to machines how a reference driver may safely overtake another road user (motorized or non-motorized users). Particularly, the safety of micro mobility users is very tricky, not only because of their intrinsic vulnerability but also because their behavior is hard to predict. These models are intended for advanced driving assistance systems, to support drivers while overtaking other road users, and for automated vehicles, to overtake other traffic component while maximizing safety and comfort for all road users.