Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website www-csc.utt.fr)

Supervisor's name : DRIDI Given names : Mahjoub

Status (prof., assistant prof., …) : Professor HDR

Laboratory :	Connaissance et Intelligence Artificielle Distribuées - CIAD	Website address : http://www.ciad-lab.fr
Institution :	Université de Technologie de Belfort-Montbéliard	Website address : www.utbm.fr

Scientific competence of the supervisor:

Transportation Science (Traffic modeling, simulation and control); Operation Research; combinatorial optimiza

Two major publications in the field proposed for the PhD :

1. Driving simulator study for evaluating the effectiveness of virtual warnings to improve the safety of inter between cyclists and vehicles. Transportation research record. 2022 Apr;2676(4):436-47.
2. Real time bicycle simulation study of bicyclists' behaviors and their implication on safety. Tech. rep., W Michigan University. Transportation Research Center for Livable

Website address of the personal page :

Supervisor's email : mahjoub.dridi@utbm.fr

Description of the research work proposed for a PhD ***Topic # (see list) :*** VI

Title : Safe driving for cyclists: Design of a system for signaling and optimizing interactions with other road us

Subject :

In cities, communication between cyclists and drivers is not always easy. Cyclists use hand signals and audibl communicate with other road users. These techniques are not effective because the cyclist cannot discern wh driver of a vehicle is aware of his or her presence and intends to give the cyclist enough space, especially if th multiple vehicles present. The main objective of this thesis is to propose approaches aiming at allowing better cooperation between cyclists and other road users (pedestrians, vehicles...). These approaches aim in the lon make cycling in the city pleasant and enjoyable. They also aim to reduce the risk of death and injury in urban a vulnerable road users (VRU) and to encourage clean and safe modes of transport in urban environments. The two main axes to consider in this thesis work: 1) The first axis concerns the modeling of cyclists' behavior in ur environments when faced with dangerous situations and the design of a signaling system for information shari cyclists and vehicles. 2) The second axis aims to build algorithms to manage and secure interactions between and other users, whether on the road or at intersections. Optimization methods from operational research will l secure the different interactions while keeping the traffic flowing.

Keywords :

Artificial intelligence, Operations Research, Signaling systems, Optimization of cyclist/vehicle interactions, Virtu

Expected collaborations :

Background required from the applicant :

Phyton/C/C++/Java programming (one of these programming language)

Existence of a PDF file detailing the proposal ("yes" or "no") : yes

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