Post-doctoral position

**Title:** Improvement of users safety in railway context

**Advisor:** S. Enjalbert (Ass-Professor, UPHF-LAMIH UMR CNRS 8201)

**University:** UPHF – University Polytechnique Hauts-de-France

**Project:** ELSAT 2020 by CISIT/ GS2RI: Greener & Safer Rail Road Interaction

**Position:** Post-doctoral position at UPHF, monthly gross salary: 2600€

**Mission**

The democratization of railway systems naturally leads to the sharing of a common environment between a guided transport vehicle and a road vehicle or pedestrian and becomes a particularly dangerous traffic situation. Initially limited to railway crossings, this situation spread to the urban context with the development of trams. Different categories of equipment characterize these situations: with or without protective devices (barrier type), with or without active signalling (lights), with or without road signs (pedestrian crossings in the city for example). These highly accident-prone situations can only be solved by infrastructure modifications (18500 railway crossings in France and countless car / pedestrian intersections and railroad tracks for non-protected trams). Only the development of new assistance solutions to improve the safety of users and particularly vulnerable users is possible. For this, the study of these dangerous situations to understand them, propose and test solutions is essential. Very complex or impossible to achieve on real site because requiring the mobilization of very important means (tram + vehicles in the downtown for several scenarios ...) and presenting high material and human risks, this type of study cannot be reasonably envisaged excepted on simulator. The main obstacle in this way of proceeding is that the simulation in interactive simulation with only one protagonist is incomplete because one of the two vehicles will be controlled by a robot and the behaviours observed may be caricature. The realization of interactive simulation scenarios involving several driving simulators of different modalities is a very interesting solution to work on...
this problem. The objectives of the post-doctoral are:

- To identify elements facilitating the perception of all actors during co-simulations (rail-road and rail-Reduced Mobility Person),
- To evaluate non-intrusive methods to increase the perception of hazards,
- To propose or improve systems, on board for the driver or infrastructure for road users or RMP, to minimize potentially accidental situations,
- To conduct experimentations on PSCHITT-RAIL platform,
- To realize several scientific publications in highly ranked international journals,
- To purse existing international collaborations of the lab with teams and labs from Hauts-de-France and with industrials from domain.

**Skills**

PhD in Automatic control, Computer Sciences, Industrial Engineering, with a special consideration in Human or Mobility.

Strong abilities in Programming (Matlab, Simulink, VBA or C++) and experience in driving experiments.

**Duration**

From January 2020, 12 months.

**How to Apply**

Please send a CV, a covering letter, your list of publications, and a letter(s) of recommendation to simon.enjalbert@uphf.fr

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