Projet de recherche

Nom Projet : Study of Advanced Mobility and Traffic Safety Technologies using a Virtual Reality and Motion-based Driving Simulation Environment

Type du projet : Recherche - Thomas Jefferson Fund

Début : Septembre 2017

Durée : 2 ans

Coordinateur du projet : Alexander-Paz (UNLV)

Coordinateur d'AliansTIC : Dario Vieira

Responsabilité et tâches d'AliansTIC : Support technique

Partenaires : Université de Las Vegas

Participants d'AliansTIC : Dario Vieira ; Alain Moretto et Catherine Marechal

Subvention totale : 20 000 US

Subvention d'AliansTIC : 10 000 US

Mots clefs : Transportation Engineering, Computer Science, Statistics and data analytics, and computer graphics and visualization.

Descriptif court :

This project proposes to study the effects of advanced mobility and traffic safety technologies using the virtual reality and interactive simulation environment at the University of Nevada Las Vegas (UNLV). The two institutions proposing this project developed this environment through student exchanges over the last four years. Examples of technologies to study using the proposed environment include: (a) autonomous vehicles, (b) demand-responsive pedestrian and bicycle rumble strips (DRRS), (c) demand-responsive traffic signals, (d) connected vehicles, and (e) transit information. This study will seek answers to question such as how connected and/or autonomous vehicles will improve transportation safety? Development and field testing of these technologies involving actual users is too expensive, time consuming, and/or unsafe. Statistical and cognitive analyses will be performed to draw insights

from large numbers of samples, survey questionnaires, and physiological measurements.

Livrables :

Our plan is to publish our results in several journal papers and write research proposals to ensure the sustainability and future of the project (see list below). In addition, this proposed work is likely to provide or facilitate development of inventions and associated patents. For example, the demand-responsive rumble strips technology listed above was inspired by one of our previous projects. A non-provisional application for patent was recently filed by UNLV (Merrill & Paz, 2016).

Results from testing technology using the proposed virtual reality and driving simulation environment will facilitate attracting resources for further development, prototyping, field testing, and deployment. Listed below are lists for papers and proposals that we currently envision. Other ideas leading to proposals, inventions, and publications are expected to arise during the life of the project.