Post-doctoral position – Call for candidates

Funding: Pays-de-Loire region – SIMULBUS project

Research lab: LS2N (www.ls2n.fr) – CPS3 team

Industrial partner: Tellae (www.tellae.fr) – A1 statistiques (https://a1statistiques.fr)

Scientific advisors: CARDIN Olivier – NOUIRI Maroua

Start Date: Summer 2022 **Duration:** 12 months

Description:

Decision making for smart cities is a difficult task, driven by a constantly evolving environment, a global lack of reliable data and a high complexity of the models of behavior of the different entities interacting in the city. This project is focused on smart transportation service. The SIMULBUS project is interested in developing a global framework enabling a reliable decision support for bus fleets management.

This position is focused on the task of simulating the behavior of bus lines, with the objective of providing reliable performance indicators on potential future configurations of the line: quality of service depending on the size of the fleet, impact of crossroads modification, etc. Tellae, which is a specialist of multi-agent simulation for bus lines, is our industrial partner on the simulation side. The overall objective of the project is to develop a tool that could be directly transferred to the partner for future studies.

The experimentation of the developed simulation model tool will be based on real data. Structure and models of data necessary for the simulation will be provided by another work package, that started in early 2022, between LS2N and A1 statistiques. Raw data are currently being extracted from actual data gathered in French cities by Machine Learning techniques. One main scientific stake of this post-doctoral application is to show how the results of the Machine-Learning-based analysis can be implemented in the simulation framework.

Location: The work will be carried out mainly in the site of Carquefou of LS2N (close to Nantes) and partly with the industrial partner in the city center of Nantes.

Applicant profile: The main requested skills in this application deal with Simulation techniques. The candidate can justify either a good knowledge and experience on **multi-agent simulation** (preferably in **Python**, but possibly in **Java** or other programming language) or an experience in discrete-event simulation industrial tools (preferably **Flexsim**, but other options such as **Arena** can be accepted). A good understanding of the concepts of **stochastic simulation** is mandatory. Knowledges in Machine Learning and Smart Cities context can also be advantages for the application, but are not mandatory.

Remuneration: Approximately 3100€ gross monthly, depending on administrative situation and experience.

Application: Please send your motivation together with your extended CV (including list of relevant publications) to Olivier.cardin@ls2n.fr and Maroua.nouiri@ls2n.fr, and provide names and emails of potential recommendations concerning your simulation experience.