

MODELLING VEHICULAR DYNAMICS IN DIGITAL TWINS OF A CITY

LABORATORY : Institut Lumière Matière
LEVEL : M1 / M2
TEAM(S) : MMCI
CONTACT(S) : NICOLAS Alexandre
CONTACT(S) DETAILS: alexandre.nicolas[at]univ-lyon1.fr / Tel. 0472448237
KEYWORD(S) : Modelling / digital twin / traffic

SCIENTIFIC CONTEXT :

The project is at the confluence between two distinct endeavours:

an endeavour to improve the modelling of vehicular traffic, in particular the cruising traffic of drivers [1] in search of a parking space, notably by leveraging methods from Statistical physics [2]

an aspiration to have a visual animation of a city, in the wake of the surge of digital twins of cities.

In the context of a research partnership with a city along the Mediterranean coast of France, we aim to develop a digital twin incorporating vehicular dynamics with real-time information about the occupancy of parking spaces.

MISSIONS :

The intern will work with two members of the team (a Researcher and a Research Engineer) towards the development and 3D animation of such a digital twin.

The ideal candidate has a keen interest in numerical modelling and 3D animation (no previous knowledge on the Unity platform is required, though). (S)he holds a Bachelor in Physics / Computer Science / Applied Mathematics or Engineering. (S)he will be based at Institut Lumière Matière (CNRS & Univ Lyon 1) in Villeurbanne, close to Lyon. Informal enquiries about the internship are welcome.

OUTLOOKS :

--

BIBLIOGRAPHY :

[1] Shoup, D. C. (2006). Cruising for parking. *Transport policy*, 13(6), 479-486.

[2] Dutta, N., Charlottin, T., & Nicolas, A. (2023). Parking search in the physical world: Calculating the search time by leveraging physical and graph theoretical methods. *Transportation science*.