

**Postdoctoral call for application**  
**Project Toredy**  
***Study of distributed algorithms in dynamic networks***

▸ **Type of grant**

Fixed term contract (postdoctoral position)

▸ **Contract duration and expected date of recruitment**

12 months

▸ **Salary**

2544 € (gross monthly)

▸ **Mission**

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The candidate will contribute to the theoretical and practical study of the distributed algorithms in dynamic networks.

▸ **Activities**

The development of vehicular communication leads to dynamic networks, where the duration of the communication links is short and the stability of the neighborhoods is weak. However, the network dynamic can compromise any distributed algorithm (consider a network where the link duration is smaller than the delay to send a single message).

Until now, the distributed algorithms had been evaluated by means of time, memory or messages complexities. The Toredy project studies the connection between distributed algorithms for one hand and the networks dynamics for the other hand. It focuses on the vehicular network case.

Within this project, a new modeling of dynamic networks has been proposed. It relies on a finite family of dynamic  $p$ -graphs for different values of  $p$ , where a  $p$ -graph is a graph in which any edge can send  $p$  successive messages before disappearing. Such a modeling is adapted to the specification and the proof of the distributed algorithms. Thanks to a dynamic network emulator and a post-computation, we are able to compute the families related to given road tests that we replay in laboratory.

Using these first results, the candidate will study the network dynamics the distributed algorithms tolerate, by choosing classical distributed algorithms as well as algorithms used in Intelligent Transportation Systems for safety and new services on the road. Such a study is divided into a theoretical part relying on formal proofs and an experimental part relying on a vehicular network emulator.

▸ **Candidate profile**

- PhD in Computer Science

▸ **Work environnement**

Recruitment will be done in the Project Toredy dedicated to the study of dynamic networks, in collaboration with the MIS laboratory of the Université de Picardie Jules Verne. Candidate should expect to be occasionally asked to travel elsewhere in France or abroad for assignments.

Contact:

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A CV and a cover letter should be submitted through the following dedicated application site:

*(à préciser par le pôle recrutement)*

For any additional information, please contact:

Françoise Dhuicque (tel: +33 3 44 23 43 26)

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Direction des Ressources Humaines

Pôle recrutement

UTC/DRH/PR/2014