

Open Data integration for road-side maintenance planning tools

Université de Lorraine



NICOLAS BAUDIN
INTERNSHIPS IN FRANCE INITIATIVE

Name of the hosting institution in France	Université de Lorraine
Name of the host laboratory / research team	ERPI – Equipe de Recherche sur les Processus Innovatifs
Address	8 Rue Bastien Lepage 54010 Nancy, France
Web site	http://erpi.univ-lorraine.fr
Name of the supervisor	Mauricio CAMARGO
Function	Professeur des Universités
Email	mauricio.camargo@univ-lorraine.fr
Phone number	33 6 84 73 29 94

Internship offer

Topic of the internship (title)	Open Data integration for road-side maintenance planning tools			
Proposed dates of the internship*	Start	2020-11-01	End	2021-02-28

* The supervisors have indicated the dates proposed are flexible and are able to be postponed subject to COVID-19 border closures.

Scientific and academic objectives of the internship (detailed description of the internship content, work expected from the intern and expected outcomes):

It is expected that more than 25 million kilometers of new roads will be built in the world by 2050. Closely linked to the growth of road infrastructure, there has been an increase in the area dedicated to roadside. The roadside verges are a social interface between forests, wildlife, agricultural farms, rural communities, vehicles, communication networks, landscape, and many other aspects. The roadside has the potential to generate positive and negative effects on human health, environment, ecology, road security and energy. At the ERPI lab we've developed a System Dynamics based model enabling territory planners to manage in an integrated way the roadside verges under sustainability indicators. However, there is a need of permanent and accurate information to lead relevant indicators. The wide development of Information Technologies and Open Data by governments but also in situ information coming from the maintenance machines will bring the needed information. The objective of this research internship project is to identify and propose a system architecture and data specifications to make the already existing model operational. This will include possibly open-data API crawling and/or online/offline data processing for alimentering the System dynamics model and evaluate the outcome under the guidance of French industrial partner and academic supervisor.

Name of industrial partner	Noremat
Role of the industrial partner in the internship project	Co-supervision
Main contact at the French industrial partner	M. Christophe Bachmann
Name of the Australian partner institution	UTS University of Technology in Sydney
Name of lab/department/team involved in the collaboration at the Australian partner institution	Future Mobility Lab
Main contact in the Australian partner institution	Dr. Adriana-Simona Mihaita.
Function of the main contact in the Australian partner institution	Senior Lecturer
Email	adriana-simona.mihaita@uts.edu.au

Outside of this ongoing collaboration, will applications coming from students of other eligible Australian universities be considered by the hosting institution in France? Yes

Expected profile of applicant

Level of study	Bachelor/ Master Degree or PhD
Discipline	Computer Sciences
Required qualities, knowledge and skills	<ul style="list-style-type: none">• software programming capabilities in object-oriented language (Python/ Java),• open data API crawling and/or web-data processing techniques,• simulation modelling knowledge of any kind would be desirable but not mandatory (AnyLogic, Matlab Simulink, or any other from the following list online),• environmental engagement and teamwork capabilities,• Interest for multidisciplinary approaches.

Other specific eligibility criteria

- English and/or French.
- Well-written CV and good transcript grades.
- Any previous internship experience is a plus.
- Curiosity and motivation to learn new techniques and achieve both developing and research capabilities.