Université Gustave Eiffel

Postdoctoral position "Statistical radio channel modelling based on data from measurements or Ray tracing simulations".
12 months fixed term contract under public law with possible extension
Start date: 01/05/2024

1. Job environment

Université Gustave Eiffel, is a unique, experimental and pioneering university, the first national institution, created in 2020, bringing together: a Research Institute, a University, a School of Architecture and three Engineering schools. It is a multidisciplinary university and multi-campus with world-class research facilities. The LEOST laboratory is located on the Lille campus in the north of France. It covers several research areas such as radio channel modelling for telecommunication systems. LEOST is one of the 7 laboratories of the Component and system Department.

Geographic location: Université Gustave Eiffel, Campus of Lille, 20 Rue Elisée Reclus, 59650 Villeneuve d'Ascq. https://leost.univ-gustave-eiffel.fr/

2. Scientific context

The Future Railway Mobile Communication System (FRMCS) will offer a full migration towards 5G for the railway industry. Railway environments are very complex and very specific compared to urban or suburban environments generally considered today in standardization groups (3GPP, 5GPP). The development of realistic 5G railway radio channel models enabling FRMCS evaluation is required in both sub-6 GHz and mmW bands. In order to develop efficient and realistic 3D channel models, MIMO channel measurements have been carried out in both sub-6 GHz and mmW bands using different channel sounders, and ray tracing based simulation software. Models identification should be performed using statistical models and machine learning approach for the identification of the different parameters.

3. Objectives

The candidate will contribute to the identification of the parameters of suitable radio statistical channel models based on the exploitation of existing measurement data performed at sub-6 GHz and 60 GHz with a MIMO channel sounder or simulation data coming from a ray-tracing tool. This research will be carried out in the framework of the ANR mmW4Rail project in collaboration with the 5GREMORA and 5GRACOM projects in cooperation with the academic and industrial partners of the projects.

4. Professional skills

- PhD in wireless communications and particularly in the areas of wave propagation and channel modelling
- Experience and taste for mathematics developments, statistical modelling and machine learning methods
- Interest in experimental work such as radio propagation measurements
- Knowledge of ray-tracing based simulation tools will be highly appreciated
- Experience in computer programming (Matlab, C, C++, Python, etc.)
- Ability to communicate and disseminate scientific results
- English written and spoken
- Rigour and autonomy

Application documents to be send to marion.berbineau@univ-eiffel.fr

- Resume, Covering letter, references, Copy of your degree, National identity card or passport