# *Research associate position (M/F)*

## AI based 5G radio network solutions for vertical industry

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| *Location:* | *Rennes (35), France* |
| *Web site:* | *http://www.fr.mitsubishielectric-rce.eu/* |
| *Job reference:* | *WCS_CDD_102021* |
| *Contract:* | *12 months contract, as soon as possible* |

**Contact point**

*Mitsubishi Electric R&D Centre Europe***:** Mourad Khanfouci (m.khanfouci@fr.merce.mee.com)

**Research Context**

With the development of 5G, telecommunication networks are shifting their focus from providing consumer-oriented mobile broadband connectivity to enabling an environment for technical and business innovation targeting vertical markets such as factory automation.

Machine learning (ML) and artificial intelligence (AI) techniques are of key importance in this networking paradigm shifting and will help providing flexible and integrated network solutions that fit various requirements from the vertical industries. Recently, various deep learning techniques were considered for the identification of components of the 5G system such as network admission control and mobility management.

The purpose of this contract is to study, select and test different ML/deep learning techniques with specific focus on deep reinforcement learning, for the optimisation of different components of the 5G system, ranging from the access to network optimization, network function (NF) placement, to the integration of the 5G system with the application layer.

A bird-eye view of the 5G system is required to identify the new opportunities offered by the 5G architecture and the many use cases considered by the key players in the automotive and factory automation industries in order to jointly address several communication layers for specific vertical industry requirements.

**Objectives**

Mitsubishi Electric is a leading manufacturer and supplier of factory automation equipment.

As Mitsubishi Electric Group's subsidiary, Mitsubishi Electric Research & Development Centre Europe is involved in 5G-ACIA and 3GPP activities related to 5G support to Factory Automation. We are looking for an open-minded researcher searching an opportunity to address concepts at the system level in an industrial context and join our dynamic team of researchers investigating wireless communication systems.

**Job description**

- Conduct research and developing of innovative concepts for 5G applied to factory automation

- Conduct research and develop innovative concepts applying machine learning and AI for 5G systems and network optimization

- Propose and evaluate technical solutions, for example using Matlab, Python and AI toolboxes such as TensorFlow

- Disseminate the proposed solutions through technical papers in international conferences and/or journals, participate to the enhancement of the intellectual property portfolio, aliment contributions to standardization forums

**Required education and experience:**

- A PhD degree in wireless communications
- At least 4 years of experience (including the PhD experience) in research, within public or private R&D laboratories, on several aspects of the R&D process (research, engineering, standardization, project management, patent filing)
- Research experience marked by publications in high rank conferences and journals, and patents
- Experience in radio access networks
- Experience in radio access network architecture is a plus

**Personal profile:**

- Open-mindedness, capacity to work in a multicultural and international environment
- Motivated to work in a dynamic industrial research environment
- Excellent communication and interpersonal skills
- Fluent English

**Duration: 12 months**

**Dates: as soon as possible (from December 2021)**

**Contact:** Magali BRANCHEREAU (jobs@fr.merce.mee.com)

Please send us your application (resume and cover letter) including the job opening reference (**WCS_CDD_102021**).