



## Researcher in the field of Inverter Systems for Motor Drive applications (M/F)

*Location :* Rennes (35), France

*Web site :* <http://www.fr.mitsubishielectric-rce.eu/>

*Job reference:* PESPE021

*Contract :* permanent

### Context and description:

MITSUBISHI ELECTRIC is one of the leading manufacturers of power electronics related products from components such as power devices to systems such as Factory Automation. As MITSUBISHI ELECTRIC Group's subsidiary, MITSUBISHI ELECTRIC R&D CENTRE EUROPE includes a research division specialised in power electronics which perform fundamental research in the fields of integration and reliability of power electronic systems.

To develop its activities in the field of Health Management Technologies for **inverters** and **inverter-driven electrical motors**, the research division is located in Rennes (France – Bretagne [35]) and is looking for a researcher specialized in the fields of **Inverter Systems for Motor Drive applications**, with the following duties:

- Conducting **research** in the domain of **smart inverters systems for next generation motor-drive applications**, with the approach of **self-aware and environment-aware power inverters**, to guaranty their **preventive maintenance** and **enhance their life cycle**. More information on the research context can be found in the following paper:

[https://papers.phmsociety.org/index.php/phme/article/download/1220/phmec\\_20\\_1220](https://papers.phmsociety.org/index.php/phme/article/download/1220/phmec_20_1220)

- You will coordinate and contribute to project(s) related to the **condition monitoring** of key components in motor-drive systems (**motors, power modules, capacitors...**), in a context of field operation
- You will create and maintain a **literature review** on the relevant scientific perimeter and propose **research directions**
- You will be in charge of a **test platform, specify/achieve hardware and software developments and tests**
- You will develop **models** and **simulations** to support the analysis of the **failure modes** and related **precursors to failure**

- You will **report your activities** to your manager, and you will be in contact with **Japanese partners** to understand the expected industrial targets and report on the research progress.

Education and experience required:

- **At least 3 or 4 years of experience (including PhD degree) within the field of power electronics systems**, through a public or private R&D laboratory (industrial experience is a plus).
- **Expertise in inverter for motor-drive applications, including the inverter hardware, the modulation, and the control in relation with the characteristics of the motor.**
- Practical experience on monitoring systems, sensors, embedded systems, and real-time control applied to inverter-driven electrical motors.
- Basic knowledge of the failure modes and failure current signatures of inverters and electrical motors and associated experimental procedures.
- Experience with control and simulation tools such as Labview, Matlab/Simulink, PSIM, finite element analysis.

Personal profile:

- Ability to work across multiple tasks methodically and efficiently and meet committed schedules;
- Motivated to work in **dynamic environment** and adaptable to changes in priority;
- Excellent **communication** and interpersonal skills: ability of sharing information with team players (must show evidences of team-working);
- **Fluent English;**
- Availability for frequent international business trips.

Contact:

Magali BRANCHEREAU (HR Manager),

Thanks to send your CV and motivation letter in PDF format by email (in object: your name + the reference PESPE021) to: [jobs@fr.mercede.mee.com](mailto:jobs@fr.mercede.mee.com)