



## **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: DITPE026*

*Contrat : permanent*

### Context and description:

MERCE is committed to research technologies in the field of power electronics. We are passionate about creating innovative and dependable electric power systems that offer exceptional performance and efficiency. Our goal is to deliver the most effective and cutting-edge technology solutions to an energy-wise society.

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 and increase the performances by intelligent control.

Technical tasks include system modeling, inverter control design, test bench for validation. You will work closely with other researchers to meet performance according to project needs, highly flexible environment.

You will coordinate and contribute to project(s) related to control motor-drive systems (motors, power converters), in a context of field operation.

### Duties and responsibilities

- Propose and drive technical research collaborations with other research centers in the context of electrical machines for improving performances (torque ripple, power efficiency, reliability) by dedicated control.
- Develop and validate advanced control algorithms and control strategy for electro-mechanical system both in simulation and laboratory according to the needs expressed by Japanese Laboratories.
- Explore the latest technological trends in industrial applications and academic research for reporting survey and keeping inspiration for new proposals.

- Keep technical collaborations with Japanese Laboratories for project definition, execution, and reporting.
- Define specification of hardware components and laboratory equipment necessary to build up and maintaining motor testbenches.
- Post-process experimental data for control algorithm development.

Education and experience required:

- PhD (preferable) or master's degree in electrical / Mechanical Engineering
- At least 3 years' experience (can include PhD experience) in this field
- Strong mathematical background
- Pushing technological boundaries
- Experience of modeling software such as C/C++, Matlab, Simulink, SimScape, PSIM, LabView.
- Experience implementing & testing motor control algorithms.
- Experience with standard lab instruments (torque transducer, power analyzer, temperature sensors, position, voltage, and current sensors oscilloscope, multimeters, data bus analysis tools..).
- Knowledge of electric machinery such as PM motors, induction motors or SynRM motors.
- Knowledge of Motor Control technology (PWM, optimal pulse patterns, model predictive control, direct flux vector control, direct torque control, etc).
- Knowledge on Noise Vibration Harmonic Analysis.
- Knowledge of power converter such as DC/DC with main topology architectures (DAB, LLC), control strategy (phase shift) to increase power efficiency and wide voltage dynamic regulation.
- Knowledge on IA is considered as plus.

Personal profile:

- Self-driven
- Excellent organization skills
- Ability to clearly communicate and interact across multiple teams and project management
- 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; ability to expose clearly complex concepts, speaking and writing.
- **Fluent English (written and spoken) is mandatory;**

Contact:

Magali BRANCHEREAU (HR Manager),

Thanks to send your CV and motivation letter in PDF format by email (in object: your name + the reference DITPE026) to: [jobs@fr.mercede.mee.com](mailto:jobs@fr.mercede.mee.com)