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**Code:**

**Project: SCAPE**

**Area: Energy Efficiency in Systems, Buildings and Communities Area**

**Area leader:**

**Group: Power Systems**

**Group leader: Dr. Jose Luis Domínguez García**

**TITLE: R1 Project Engineer in the field of power electronics for EVs**

## **JOB DESCRIPTION**

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The Power Systems Group announces the opening of a position as Early-Stage Project Engineer to work on the SCAPE project under the HORIZON EUROPE program, in the field of innovative state-of-the-art power electronics for Electric Vehicles (EVs). The work to be carried out is related to novel converter topologies and associated modulation and control strategies. Tasks include:

- Simulation of power converters, employing ideal models up to comprehensive thermoelectrical models.
- Design of power-converter prototype hardware, including the selection of the component based on the converter requirements, the design of suitable PCB layouts, and the design of necessary communication and sensing circuitry.
- Implementation of the project's devised modulation and control strategies into fast prototyping platforms; e.g., dSpace, and to a minor extent, also into FPGA and microcontrollers.
- Perform the experimental validation of the power converter hardware, carrying out the proper measurements to characterize the converter performance in representative operating conditions.

### **Qualifications and experience required:**

*Essential:*

- Bachelor in Industrial Engineering, Industrial Electronics and Automatic Control, Electronics Engineering or similar.
- Knowledge of the principle of operation of common power-converter topologies.
- Basic knowledge of analog and digital electronics circuit design.
- Basic knowledge of control and automation system design.
- Hands-on experience with power electronics is a must.
- Experience in electronics modeling and simulation software (preferably MATLAB/Simulink), including basic knowledge on semiconductor-losses and converter thermal modelling.
- Experience in power converter and PCB design software (preferably Altium Designer) and testing.

*Preferred:*

- Master in Industrial Engineering, Industrial Electronics and Automatic Control, Electronics Engineering or similar.
- Basic knowledge of the EV powertrain architecture and related power converters.
- Experience in implementation of control strategies into rapid-control platforms (preferably dSpace).
- Experience in programming FPGAs and or microcontrollers.
- Experience with HIL systems (preferably OPAL and/or TyphoonHIL systems).
- Experience in European and/or international R&D projects.

*Language required:*

Knowledge of Spanish/Catalan and English is required.

*Personal Skills:*

- Team Worker
- Initiative in Research and Innovation
- Flexibility
- Results oriented
- Analytical and synthesis capabilities

**What we offer:**

Salaries will be paid in accordance with the IREC's salary policy, depending on the candidate's qualification and professional experience.

**Starting Date:**

The expected starting Date will be the sooner the better, but the candidate is expected to start in **September 2023 the latest**, although other dates could be agreed.

Please note that due to the close incorporation date, **non-EU candidates may be discarded** due to the associated complex long-duration VISA process.

**How to apply:**

Send applications by email directly to HR office ([irecjobs@irec.cat](mailto:irecjobs@irec.cat)) including CV, academic and professional records, and motivation letter.

Please, be aware that the evaluation will be done in a continuous manner, and the position will close as soon as a candidate is selected.