

# Position Offered: POSTDOCTORAL RESEARCHER

## Project: *Digitization of innovative agricultural techniques: Integration of precision agriculture robotics into software for crop management*

**Technological and scientific fields:** Artificial Intelligence, Cloud Computing, Robotics, Advanced Data Analytics/Edge Computing, Digital Tools for Agriculture, etc.

**Location:** Arganda del Rey, Madrid: Centre for Automation and Robotics, <https://www.car.upm-csic.es>

**Research Group/PI:** Field and Service Robotics Group, Pablo González de Santos, <https://www.car.upm-csic.es/groups/field-and-service-robotics>

### PROJECT SUMMARY

Digitalization in agriculture leverages new technologies to improve sustainability at all levels of the food chain. These include sensorization, 5G communication, cloud computing, AI, image analysis, and decision-making support software.

One of the challenges in agricultural digitalization is the use of autonomous robots to carry out precise tasks (planting, harvesting, and weed management), especially due to the lack of adaptability between machinery, software, and data management devices.

Therefore, this project focuses on (i) the standardization of data models and interoperability design, (ii) the development of autonomous data collection systems, both inside and outside the field, (iii) the development of interfaces for user and decision-making support tools with easy access to farmers, (iv) the execution of field trials and validation studies and (v) the creation of synergies and exchange of knowledge.

### PROFESSIONAL PROFILE

#### Minimum requirements:

- A degree in electronic or industrial engineering with a MSc and PhD in Computer Science.
- More than two years of experience in postdoctoral research in prestigious foreign centers in control, navigation, and decision-making in robotic systems for agriculture.
- Experience in applying AI techniques in mobile robotics.
- Experience in web applications and communication with the cloud in robotics for agriculture

#### Merits to be considered:

- A PhD in mobile robotics, especially in robotics for agriculture.
- Experience in perception systems (RGB, ToF, and hyperspectral cameras).
- Experience in sensor integration and robot navigation strategies in agriculture
- Experience with ROS, FIWARE and C++, LabView-RT, and Python programming languages.

### WHAT IS OFFERED

To join (4 years) a research group with a solid background in mobile robotics. Specialization in the development of digitalization techniques for agriculture.

The associated training will be based on at least 240 ECTS credits (1 ECTS = 25 hours). It will include some stays (2 to 3 months each) in national and international research centers and training in digital skills including geographic information systems (GIS and ARCGIS).

#### Contract conditions:

Indefinite contract for a Postdoctoral Researcher associated to the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (41.000 € - 52.000 €).

**Start of contract: before 31 December 2024**

### PRINCIPAL INVESTIGATOR CONTACT

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