

Position Offered: UNIVERSITY GRADUATE

Project: *Additive manufacturing and digitalization in the medical environment*

Technological and scientific fields: Medical Imaging, Digital Twins, Medical Devices, Additive Manufacturing

Location: Madrid, Madrid, ICTP Facilities at CENIM, <http://www.ictp.csic.es/ICTP2/>

Research Group/PI: Polymer Functionalization Group, Helmut Reinecke, <http://www.ictp.csic.es/qm/fupol/>

PROJECT SUMMARY

Digital tools and additive manufacturing have revolutionized the health field, allowing for the first time to make personalized medicine possible through development in the field of medical devices. Personalized devices are medical devices, training models, digital or physical twins created specifically for a single patient, based on medical images (for example, CT or MRI) of each individual. However, in addition to the materials used or the recent 3D printing technologies incorporated into the sector, digitalization is key in this area:

- First of all, digitalization plays a crucial role by providing the tools for obtaining medical images of the patient, scanning, analyzing these medical images, 3D design of devices or automatic image processing using artificial intelligence or algorithms. of artificial vision.
- Secondly, digital manufacturing technologies (Industry 4.0) such as 3D printing make it possible for the first time to make it feasible to manufacture personalized health products (for example, surgical planning biomodels, surgical guides or implants) for each patient. These devices are made in specialized companies, in healthcare centers (POC manufacturing model, Point-Of-Care) or even within research centers.

PROFESSIONAL PROFILE

Minimum requirements:

- Degree in Industrial Engineering

Merits to be considered:

- Experience working with hospital centers
- Knowledge of the biomedical field
- Knowledge and/or experience at an industrial level of 3D printing at a national level.
- Training in regulation of biomedical devices (ISO 13485, ISO 9001,...)
- Training in products manufactured in the hospital environment: in house.
- Experience in teaching and training in different fields including Biomedical Engineering, Health Products and 3D Printing (among others) will be positively valued.

WHAT IS OFFERED

This project addresses the treatment of medical images as well as the manufacturing of devices and commissioning. Work will also be done on the validation and development of the processes, including regulatory and quality analysis. Finally, work will be done on the development of custom medical devices, surgical simulation models and augmented reality applications. Training stays in different hospitals are proposed, as well as training in digital skills such as Artificial Intelligence, Augmented Reality and Artificial Vision.

Contract conditions:

Indefinite contract for a University Graduate associated with the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (37.000 € - 41.000 €).

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

Email: hreinecke@ictp.csic.es

Phone: (+34) 915622900

[momentum@csic.es](https://momentum.csic.es/) | <https://momentum.csic.es/>