

JUNIOR RESEARCH ENGINEER IN MEDICAL IMAGING SIMULATION AND COMPUTATIONAL MODELLING FOR THE FRAUNHOFER CENTER FOR APPLIED THERAGNOSTICS (JRE02-FCAT)

1. Introduction to the position:

The Fraunhofer Spain Research foundation is looking for a JUNIOR RESEARCH ENGINEER to support research and development activities at the Fraunhofer Center for Applied Theragnostics in Catalonia (Fraunhofer CAT). The candidate will contribute to the development of PET/SPECT simulation, reconstruction and quantitative imaging physics and virtual validation environments for generating virtual twins.

The contract will be within the framework of the Fraunhofer CAT projects, whose objective is the development of new diagnostic, prognostic and therapeutic tools in the field of precision medicine. For example, the development of new technologies for i) the establishment of biomimetic organ and tissue models for in vitro testing, ii) the development of sensors and electronic devices, iii) the design and validation of therapeutic strategies for personalized medicine, and iv) the production and validation of new biological models and (v) Bioinformatics and data analysis.

2. Main duties and responsibilities:

Under the supervision of the Fraunhofer CAT direction, the applicant will carry out the following activities:

- Development of PET/SPECT simulation workflows.
- GATE/Geant4/SimSET-based modelling of scanners and phantoms.
- Synthetic dataset generation.
- Evaluation of acquisition and reconstruction protocols.
- Quantitative accuracy studies.
- Support for AI dataset creation and validation.
- Communicate results through scientific reports, publications, and presentations.
- Actively contribute to lab research and collaborations.

3. Requirements for candidates

Essential

- MSc in Physics, Medical Physics, Biomedical Engineering, Applied Mathematics or related field.
- Python and/or C.
- Basic linux management.
- Bash scripting.
- Mathematical modelling and numerical methods.
- Monte Carlo simulation fundamentals.
- Signal and image processing.
- Statistics and uncertainty analysis.
- Basic knowledge of nuclear medicine instrumentation.

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- Experience working effectively in multidisciplinary and international research environments.
- Good communication skills.
- Good level of spoken and written English.

Advantageous:

- Previous experience in similar positions in clinical environment.

We Offer:

- Number of available positions: 1
- Starting date: as soon as possible
- Working conditions:
 - Full-time open-ended contract due to technical and scientific activities linked to the project and budget duration. Presential. Attractive salary.
 - Measures to reconcile work and family life (maternity and paternity leave, flexible schedule working hours, 23 working days of paid holidays, 6 leave days for personal matters, among others).
- Fraunhofer Spain Research ensures equality of access to professional development opportunities irrespective of employment status or other factors.
- Stimulating, interdisciplinary research and high-quality international scientific environment.
- Induction programme to facilitate incorporation at Fraunhofer Spain Research and additional support is provided for foreigners to obtain Visa-working permit and to install in Barcelona.

How to apply:

Until the **31st of August**, by sending a CV and motivation letter to info@fraunhofer.es with the reference “JRE02-FCAT” as subject of the email.

Only those applications submitted before the deadline will be evaluated.

Reference: **JRE02-FCAT**

If you have any further questions regarding your application or the application process, please get in touch with us at info@fraunhofer.es

Principles of the selection process:

Fraunhofer Research Spain Foundation is committed to the principles of the Code of Conduct for the Recruitment of Researchers of the European Commission and the Open, Transparent and Merit based Recruitment principles (OTM-R).

Fraunhofer Research Spain Foundation’s commitment on equal opportunity: our strength and excellence as an international transdisciplinary research institute are based on diversity. Being an equal opportunity

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employer, we are committed to diversity and inclusion, so that we support employees irrespective of their gender, nationality, religion, disabilities, age, sexual identity or cultural and socioeconomic background.

Fraunhofer Research Spain Foundation aims for a representative gender balance at all levels of staff, so we strongly encourage women to apply. At least 40% of shortlisted applicants invited to interview have to be women with comparable level of CVs as the male candidates.

Protection of personal data:

Fraunhofer Spain Research Foundation guarantees that candidates' personal data are processed in accordance with the requirements of the EU General Data Protection Regulation (GDPR) and Law 3/2018 on Data Protection.

Personal data will be processed solely for the purposes of the selection process.

Who we are?

The Fundación Fraunhofer Spain Research (Fraunhofer Spain) is a non-profit private Spanish Foundation, established in Barcelona in 2025 as an affiliate of Fraunhofer-Gesellschaft, Europe's leading organization for applied research (<https://www.fraunhofer.es/>).

Our mission is to conduct independent research activities, including training, knowledge dissemination, and technology transfer. These activities range from basic research to prototype development and small-scale production, strengthening the internationalization of applied research and connecting academia with productive sectors.

Fraunhofer Spain Research has launched its first program in applied bioengineering for health: the Fraunhofer Center for Applied Theragnostics (Fraunhofer CAT). This initiative is dedicated to developing innovative diagnostic, prognostic, and therapeutic tools within the field of precision medicine. The program aims to generate significant academic, industrial, and healthcare impact, ultimately contributing to societal well-being.

Fraunhofer Spain was founded by Fraunhofer-Gesellschaft, the largest organisation for applied research in Europe with the economic support of the Spanish Government (Ministerio de Ciencia, Innovación y Universidades), the Barcelona City Council (Ajuntament de Barcelona), and the Catalan Government (Generalitat de Catalunya), as well as the academic collaboration of Barcelona University, the Institute for Bioengineering of Catalonia (IBEC) and Fraunhofer Institute for Biomedical Engineering (Fraunhofer IBMT).

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