

CONTRACT Ref:7/2021

Requirements to participate in the call:

- Have Spanish nationality or work permit, or some other nationality that allows access to public sector employment. If you do not have it and this person is selected, the contract will not be formalized until the corresponding documentation is in order. In the event that this procedure is not finally completed within two months of the grant the selected person cannot be hired; leaving, in this case, the square deserted or referred to the next person in the event that priority order has been given in the Resolution.
- Be 16 years old and not exceed, where applicable, the maximum age of forced retirement or the other age that you may establish by law.
- The applicant will be bound by TEMPORARY WORK AGREEMENT with the Foundation for Health Research of the University Hospital and La Fe Polytechnic for the period determined for the research project. This procurement is subject to the granting of the relevant administrative authorisation.
- The Foundation and/or the Tribunal, for reasons of interest to the entity, may at any time withdraw the resolution or cancellation of this Call, without any justification.

Research Project Title: PROCANCER-I: AN AI PLATFORM INTEGRATING IMAGING DATA AND MODELS, SUPPORTING PRECISION CARE THROUGH PROSTATE CANCER'S CONTINUUM

In Europe, prostate cancer (PCa) is the second most frequent type of cancer in men and the third most lethal. Current clinical practices, often leading to overdiagnosis and overtreatment of indolent tumors, suffer from lack of precision calling for advanced AI models to go beyond by deciphering non-intuitive, high-level medical image patterns and increase performance in discriminating indolent from aggressive disease, early predicting recurrence and detecting metastases or predicting effectiveness of therapies. To date efforts are fragmented, based on single-institution, size-limited and vendor-specific datasets, while available PCa public datasets (e.g. US TCIA) are only few hundred cases making model generalizability impossible.

The ProCancer-I project brings together 20 partners, including PCa centers of reference, world leaders in AI and innovative SMEs, with recognized expertise in their respective domains, with the objective to design, develop and sustain a cloud based, secure European Image Infrastructure with tools and services for data handling. The platform hosts the largest collection of PCa multi-parametric (mp)MRI, anonymized image data worldwide (>17,000 cases), based on data donorship, in line with EU legislation (GDPR). Robust AI models are developed, based on novel ensemble learning methodologies, leading to vendor-specific and -neutral AI models for addressing 8 PCa clinical scenarios. To accelerate clinical translation of PCa AI models, we focus on improving the trust of the solutions with respect to fairness, safety, explainability and reproducibility. Metrics to monitor model performance and a causal explainability functionality are developed to further increase clinical trust and inform on possible failures and errors. A roadmap for AI models certification is defined, interacting with regulatory authorities, thus contributing to a European regulatory roadmap for validating the effectiveness of AI-based models for clinical decision making.

IIS La Fe has decided to publish a call for a job offer, by a competitive procedure, for a Pre-Doctoral Biomedical Engineer, to perform the tasks in the framework of the Project.

Service/Unit/Accredited Group: BIOMEDICAL IMAGING RESEARCH GROUP (GIBI230)

Candidate requirements: *(All requirements are necessary to apply):*

University Degree - Health Sciences/Experimental sciences – Biomedical Engineer

Merits to value: *(0-5 points)*

- Experience in observational studies (mainly in prostate cancer studies). (0,5 points)
- Experience with data management and statistical packages. (0,5 points)
- Experience in a clinical environment in close collaboration with oncologists and radiologists. (0,5 points)
- Experience in radiomic processing. (1 point)
- Experience in biomedical image and signal processing. (1 point)
- Experience with preprocessing of structured and unstructured data. (0,5 points)
- Experience with large amounts of information analysis to discover trends and patterns. (0,5 points)
- Research projects and publications as a Principal Researcher. (0,25 points)
- Experience with writing of research proposals and reports. (0,25 points)

Curriculum vitae and Academic Track-Record (0-2 points)

- Detailed Curriculum Vitae. (1 point)
- Academic track-record. (0,5 points)
- Letters of reference. (0,5 points)

Other Merits: (Complementary Training) (0-1 point)

- Machine learning knowledges. (0,2 points)
- Advance programming knowledges applied to image processing (Matlab, R & Python). (0,5 points)
- Fluent English and Spanish. (0,2 points)
- Functional Diversity equal to or greater than 33%. (0,1 point)

Interview (0-2 points)

Training/Roles to develop:

- Elaborate ethics and legal documents for HULAFE Ethic Committee.
- Research in real world data combining imaging, genetics and clinical information for prostate cancer.
- Access, creation and Structuration of the data base .
- Data curation.
- Use machine learning tools and statistical techniques to generate solutions to cancer images.
- Preparation of project status reports.
- Dissemination of scientific and technological knowledge generated within the context of the project.
- Collaborate with the coordinator of the project in the development of master model for prostate cancer.
- Upload hospital cases.
- Collaborate with the coordinator of the project in the development of vendor-neutral AI models.
- Evaluate the developed AI models in different scenarios and generate a report of pros and cons.
- Extraction of quantitative imaging features from radiological images.

Contract/Fellowship characteristics:

- Full time.
- Amount: 44.760 €/Gross year
- Lenght: 12 months renewable according to economic availability.
- Exclusive devotion.

Deadline for application submission: 28/01/2021

Required documents On-Line www.iislafe.es

- Updated Curriculum Vitae.
- Track-Record with academic grade media.
- Copy of required educational qualifications.
- Supporting documents of the outlined merits.

** The documentation submitted for this open competition will be on deposit of IIS La Fe.*