

## **Post-Doctoral Researcher – Project Manager Innovative Treatment Planning System for Prostate Brachytherapy**

### **Scientific context**

Prostate cancer is by far the most common cancer for men. The search for improved solutions for the treatment of prostate cancer remains a major societal challenge. This issue is emphasized by the fact that constant improvement of prostate cancer diagnostic tools allows detecting highly localized and small tumors at early age. One promise solution is the focal brachytherapy. This is a localized treatment, restricted to cancerous zones, with the objective of preserving healthy functional tissues inside and outside of the organ, and thus the quality of life of the patient. However, the current brachytherapy procedures are not fully exploiting the latest state of the art in dosimetry calculation, guidance and imaging capabilities, and thus do not yet meet the requirements for a robust focal treatment.

### **Job description and missions**

The ambition of this project is to provide an innovative focal brachytherapy system, less invasive, with fewer side effects, in rupture with current brachytherapy procedures, capable of accurately irradiating very localized areas, while significantly decreasing the time of the intervention. To achieve such innovative focal brachytherapy system, new guidance system has to be developed in order to control with accuracy the instrument placement during the intervention. A specific challenge is also the accuracy of the dosimetry. This calculation, already critical in standard brachytherapy, is even more important when it comes to target small areas. We propose developing the first clinical treatment planning system that integrate edema prostate model and a fast and personalized Monte Carlo dosimetry calculation on GPU. The hired researcher will be in charge to help, follow and manage this project. The aim is to coordinate the different methods already developed at the lab in order to realize a first prototype. The person hired will actively participate to the R&D required to achieve this project including the necessary validations and evaluations. Valorization of the work will also be an important task of the future project manager.

### **Profile**

We look for a candidate with a PhD in computer sciences, control engineering, applied mathematics. Good programming and project management skills are an important requisite. Autonomy, open-mindedness and motivation, as well as good English speaking/writing skills, are also expected.

### **Position context**

The postdoc will join the Laboratory of Medical Information Processing (LaTIM, Brest, France) in the team “ACtion Thérapeutique guidée par l’Imagerie multimodale en ONcologie” (ACTION, INSERM, UMR1101). The position will be for an initial duration of one year and could be renewable. Salary is about 2100-3000 € net/month, depending on the candidate’s experience.

### **Contact and additional information**

For application, a folder that contains a CV, a motivation letter, a resume of the thesis, a complete list of publications, as well as letters of recommendation, have to be sent to the following e-mails:

Julien Bert ([julien.bert@univ-brest.fr](mailto:julien.bert@univ-brest.fr))

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