

Full time Doctoral position in Medical Image Processing

at the

Laboratory of Image Synthesis and Analysis (LISA) &

Center for Microscopy and Molecular Imaging (Biopole Charleroi, Gosselies)

École polytechnique de Bruxelles, Université Libre de Bruxelles (ULB)

BACKGROUND

Protontherapy is a recent technology aiming at treating cancer by delivering high radiation doses to the tumour in the form of a proton beam. Whereas the added value of protontherapy over conventional radiotherapy (using photons) has been previously demonstrated in many cancers, the effects on such therapies at the tissue- and cellular level are still not fully documented. One major difficulty in studying these effects is to relate the macroscopic (pre-)clinical information obtained in-vivo to the finer microscopic cellular information obtained ex-vivo. In this context, developing novel techniques for registration (“matching”) between both imaging scales is of utmost importance, which is the subject of the proposed thesis work.

POSITION

As a PhD candidate, you will conduct original scientific research end-to-end. You will propose novel approaches to address the registration problem between microscopic (ex-vivo) high-resolution images and macroscopic (in-vivo) pre-clinical images in brain and liver cancer. You will use the developed tools to address scientific questions in the field of oncology and (radio-)biology. You will share your work through international scientific congresses and publications. You will take part to the scientific and academic life of the innovative LISA laboratory (Ecole polytechnique de Bruxelles, ULB) and integrate the large inter-university consortium Prother-Wal. By the end of your fellowship, you will obtain a valuable PhD degree from Ecole polytechnique de Bruxelles.

LOCATION

The main research activity will be conducted at the Laboratory for Image Synthesis and Analysis (Solbosch campus, Brussels). Image acquisition and in-vivo/ex-vivo experiments will be performed at the Center for Microscopy and Molecular Imaging (Biopole Charleroi, Gosselies). A daily ULB shuttle service is available between the Solbosch campus and the Biopole Charleroi.

DURATION

4 years (48 months), full-time

REQUIREMENTS

- A Master's degree in Engineering, Computer Science, or equivalent
- Strong programming skills, preferably in Python and/or C++
- Strong written and oral skills in English
- Knowledge in digital image processing is recommended
- Basic knowledge in the biomedical domain (biology, anatomy, histology, ...) is a plus
- Scientific curiosity, autonomy, and eagerness to learn are valuable assets
- Prior knowledge of VTK, ITK, Elastix and/or medical image registration is a plus

CONTACT

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EQUAL OPPORTUNITIES POLICY

ULB's personnel management policy is geared towards diversity and equal opportunities.

We recruit candidates on the basis of their skills, irrespective of age, gender, sexual orientation, origin, nationality, beliefs, disability, etc.

Would you like to be provided with reasonable accommodation in the selection procedure because of a disability, disorder, or illness? Do not hesitate to contact Marie Botty, the Gender and Diversity resource person of the Human resources Department - SPES (marie.botty@ulb.be). Be assured of the confidentiality of this information.

More details on the ULB gender and diversity policy are available at <https://www.ulb.be/en/diversity/gender-equality> and <https://www.ulb.be/en/ulb-gets-involved/diversity>