PhD job offer placement within the MSCA project RAPTOR

The **RAPTOR - Real-time Adaptive Particle Therapy Of canceR** Innovative Training Network (ITN) is recruiting 1 highly motivated PhD student to work on **Cone-Beam Computed Tomography Enhancement**.

Introduction

Proton therapy (PT) is an advanced type of radiotherapy used to treat a constantly rising number of cancer patients. PT allows to target tumours with a high accuracy while sparing healthy surrounding tissue from dose. However, changes in anatomy or positioning and organ motion give rise to uncertainties which need to be further minimized to exploit the full benefits of PT. Adapting PT plans in real time has the potential to provide truly personalized treatments, allowing for better target control and less toxicity. The main objective of RAPTOR is to advance the PT for real-time use.

The Early Stage Researchers (ESRs) recruited in RAPTOR will conduct research projects at both academic and non-academic health care facilities which will sharpen their focus on clinical needs with respect to real-time adaptive PT. The active involvement of industry ensures that the transfer of industry-relevant skills is an integral part of individual ESR projects. This will guarantee rapid translation of clinical needs into innovative and marketable solutions. RAPTOR aims to train a new generation of researchers, enabling a paradigm shift from treatment approaches that are manual and stepwise to those that are automatic and seamless, while assuring standardized clinical implementation of real-time adaptive PT.

The recruited ESRs will acquire a broad range of advanced and transferable skills within a unique, innovative, multidisciplinary and inter-sectoral training environment. Regular training schools and secondments to other EU academic and industrial partners will allow them to develop a broad range of valuable transferable skills.

Available reopend position

ESR3: CBCT enhancement strategies for adaptive ion beam therapy, Host: **medPhoton**, Austria.

medPhoton is one of the most innovative companies in Salzburg (Austria). Our medical imaging solutions and products stand for the highest quality and are available at medical facilities worldwide. We develop cutting edge medical devices and corresponding software, on our Salzburg premises.

At the moment, we are looking for a

Cone-Beam Computed Tomography Enhancement Researcher (PhD student position) (M/F/D)

to be a Fulltime Member of Our Team

If you're passionate about improving the world of medical technology, looking for a job with purpose, and interested in working in a cool team, we have the right position for you!

In cooperation with the **Department of Medical Physics from the Physics Faculty of the Ludwig-Maximilians-Universität (LMU, Munich)**, **medPhoton GmbH** is offering a **fulltime Phd student position** in the framework of a **European Horizon 2020 Marie Skłodowska-Curie Innovative Training Network (ITN)** in the field of **adaptive particle therapy**. Further information can be found under: https://raptor-consortium.com/

JOB DESCRIPTION:

- Research and prototyping in the field of synthetic Computed Tomography (CT) generation from Cone-Beam CT (CBCT) image data using state of the art and beyond image processing methods
- Understanding of the unique robotic CBCT imaging system of medPhoton, and extension of X-ray image correction algorithms and calibration methods
- Optimization of innovative and novel imaging protocols for the robotic CBCT imaging to improve image quality in our R&D labs at medPhoton as well as at selected clinical and academic partner sites
- Analysis and post-processing of CBCT data to further improve the quality for use in dose replanning in the field of particle therapy (deformable image registration, iterative CT reconstruction, deep learning methods …)
- Further detailed information on the EU project: https://raptor-consortium.com/projects/phd-position-raptor-esr3/

YOUR ATTRIBUTES:

- Passion for innovation in the field of image processing and radiation therapy
- MSc degree in Physics or another technical discipline with strong physics background (LMU eligibility criteria, https://www.physik.lmu.de/en/research/doctoral-study-and-habilitation/doctoral-study/index.html)
- Due to restrictions of the EU ITN program: You may have not resided in Austria for more than 12 months in the last three years, and you have not carried out your main activity (work, studies etc.) in Austria.
- Basic knowledge in X-ray (CT, CBCT) physics, imaging and image processing
- Basic knowledge of deep learning concepts and frameworks (e.g. TensorFlow, KERAS or similar)
- Skills in scripting languages (Matlab, Phython or similar)

- C++ and CUDA skills are a plus
- Knowledge of RTK (or other reconstruction libraries) and Monte Carlo simulation frameworks (e.g. Geant4) are a plus
- Any deeper knowledge in software engineering or (CB)CT reconstruction are a big plus

WHAT WE OFFER YOU:

- A motivating work atmosphere in a young, dynamic team
- An exciting and varied scope of research including interdisciplinary cooperation with your colleagues from physics, software, automation and mechanical engineering teams
- The opportunity to grow with us, be directly involved and participate in our company's success
- A secure, permanent full-time contract
- Generous social benefits within our culturally diverse enterprise – consisting of 19 nations!
- Freshly-cooked meals and healthy snacks provided daily
- Good public transport connections and parking facilities (for both, four and two wheels) available
- As a family-friendly company, we are happy to support you in your daily obligations (childcare etc.) by means of flexible working hours
- Collaboration with the renowned Ludwig-Maximilians-Universität (LMU, Munich) and further institutions in the course of secondments
- Close interaction with the other ESRs of the RAPTOR consortium and enjoying a broad educational Marie Curie portfolio

If this offer sounds too good to be true and a great fit for your next career goals, let us know and **follow the application process as described on the next page**. Should you have **questions prior to submitting** your application, do not hesitate to **contact us**:

jobs@medphoton.at

medPhoton GmbH | Karolingerstraße 16 | A-5020 Salzburg | T. +43 699 161 053 86

Application process via INDICO

We welcome applications from Early Stage Researches (ESR) fulfilling the following criteria:

- Holding a master's degree (in physics, medical physics, mathematic, medical or biomedical engineer, computer science or software engineer or related studies. The above-mentioned degrees must be obtained by the time of recruitment.
- Having not more than 4 years of equivalent research experience, i.e. working as a researcher after obtaining his/her master´s degree
- Having not been awarded a doctoral degree
- Having not resided or carried out her/his main activity in the country to be recruited in for more than 12 months in the last 3 years
- Willingness to move countries for ESR placement and temporary secondments
- High level of proficiency in written and spoken English
- Research interest and ambitions for excellence in medical physics
- Analytical skills and ability to work independently
- Good communication skills relevant for working in an international and interdisciplinary research group
- A previous experience in the respective fields of the ESR position is an asset

Eligibility

- Candidates can be of any nationality.
- There is no age limit for the candidates.

Funding

RAPTOR project has received funding from the European Union's Horizon 2020 Marie Skłodowska-Curie Actions under Grant Agreement No. 955956. The Marie Skłodowska-Curie (MSCA) program offers competitive and attractive salaries and working conditions.

The selected candidates will receive a gross salary in accordance with the MSCA regulations for early-stage researchers.

Selection process and application

Interested candidates must submit the application through the following link

SUBMIT YOUR APPLICATION.

Please note to submit your application you must have an INDICO login profile or create one

Application must include the following documents:

- complete CV,
- detailed academic transcripts (including obtained grades)
- motivation letter (specifying the willingness to be considered for other project),
- copies of University Master certificates or equivalents

- contact details (name, title, address, telephone number, email address) and the capacity in which you know them for two referees
- the **Consent Form** for Applicants filled in and signed (you can find the document at the bottom of the INDICO page named OVERVIEW)

Only documents in English will be accepted.