Through cutting-edge research in the fields of ENERGY, HEALTH and MATTER, Helmholtz-Zentrum Dresden-Rossendorf (HZDR) solves some of the pressing societal and industrial challenges of our time. Join our 1.500 employees from more than 70 nations at one of our six research sites!

At the Institute of Radiooncology – OncoRay scientists (f/m/d) specializing in medicine, physics, biology and IT work together to crucially improve the treatment of cancer by administering radiation therapy that is biologically-personalized and technically-optimized.

At the Institute of Radiopharmaceutical Cancer Research scientists (f/m/d) from the fields of physics, chemistry, biology, pharmacy, immunology, medicine and IT develop innovative radiopharmaceuticals and novel tools for functional characterization, improved imaging and personalized treatment of tumors.

The Department of Translational Radiooncology and the department of Positron Emission Tomography are looking for a ***PhD student (f/m/d)*** *shared between both institutes and working on the topic of* ***Harmonized PET imaging for outcome prediction in cancer treatment****.*

PhD Student (f/m/d) Harmonized PET imaging for outcome prediction in cancer treatment

Dresden | 19,5 h/week | Deadline 30 June 2024 | 36 months

Your tasks:

Imaging of tumour glucose metabolism with FDG-based positron emission tomography (PET) is a cornerstone of diagnosis, therapy planning, and therapy response assessment in cancer treatment. In this project, we aim to predict the response of patients with head and neck cancer to radiochemotherapy using FDG-PET imaging in two ways: (i) using quantitative PET parameters based on pharmacokinetic analysis and a novel tumour shape metric, (ii) using artificial-intelligence-based radiomics analysis of the images. Specifically, we aim to:

- Initially compare the approaches (i) and (ii) regarding the prediction of tumour control
- Calibrate radiomics software for improved processing of PET imaging
- Harmonise PET image processing to reduce the impact of measurement variability
- Finally assess the impact of harmonised PET image processing on outcome prediction

Your profile:

- Master degree in medical physics, physics, data science, medical engineering or a closely related field
- Solid programming skills are mandatory in at least one programming language (e.g. Python)
- Experience in working with medical imaging data, a foundational understanding of positron emission tomography and machine learning are desirable
- Good communication and team working skills in an interdisciplinary environment
- Motivation and discipline to carry out research independently
- High proficiency in spoken and written English

Our offer:

- A vibrant research community in an open, diverse and international work environment
- Scientific excellence and extensive professional networking opportunities
- A structured PhD program with a comprehensive range of continuing education and networking opportunities - more information about the PhD program at the HZDR can be found here
- Salary and social benefits in accordance with the collective agreement for the public sector (TVöD-Bund) including 30 days of paid holiday leave, company pension scheme (VBL)
- We support a good work-life balance with the possibility of part-time employment, mobile working and flexible working hours
- Numerous company health management offerings
- Employee discounts with well-known providers via the platform Corporate Benefits
- An employer subsidy for the "Deutschland-Ticket Jobticket"

For any questions, do not hesitate to ask:

Dr. Frank Hofheinz Tel.: +49 351 260 2756 / +49 351 4583966,
Prof. Dr. Steffen Löck Tel.: +49 351 4587408

Kindly submit your completed application (including cover letter, CV, diplomas/transcripts, etc.) only via our **Online-application-system.**