DEPARTMENT OF RADIATION ONCOLOGY

MEDICAL UNIVERSITY OF VIENNA

Vienna Healthcare Group
University Hospital Vienna

Artificial Intelligence Driven online Adaptive radiotherapy (AIDA)

Background information

The Department of Radiation Oncology at the Medical University of Vienna received funding for the for the investigation of artificial intelligence driven online adaptive radiotherapy techniques.

Interfractional anatomical changes during the radiotherapy treatment lead to significant dose differences between the planned and delivered dose, potentially causing target under-dosage or increased dose to organs-at-risk (OARs). Geometrical margins or robust optimization can only partially compensate for these changes as they are mainly taking into account positioning variations. In case of large anatomical changes caused by tumour shrinkage, weight-loss, organ size and shape changes, treatment plan adaptation, i.e. using more than one treatment plan per target and treatment course, is necessary for restoring the plan quality. If the plan adaptation would be performed online on daily imaging, it would be possible to deliver highly conformal treatments with dose escalation.
The aim of the project is to develop and validate workflows and concepts for online adaptive radiotherapy (ART) using a clinical commercially available solution based on artificial intelligence (AI).

What We Offer

- A highly interdisciplinary and collaborative work environment
- Access to state-of-the-art facilities and technologies
- Enrolment in the Doctoral PhD program N094 at the Medical University of Vienna
- Funding that covers all research costs, work–related travel expenses, salary and health insurance for 3 years at a 30 h per week basis

What We Expect

- Master's degree (incl BSc equivalent to 300 ECTS) in Physics or Biomedical Engineering
- Strong analytical skills and ability to work independently on a project basis
- Interest in application of artificial intelligence in radiation oncology
- Basic knowledge in radiation oncology and radiology recommended
- Radiotherapy treatment planning skills are an asset
- Good written and verbal communication skills
- Fluent in English (oral and written)

Key Responsibilities

- Testing and validation of software tools supporting online adaptive radiotherapy
- Development and testing of online adaptive radiotherapy workflows for tumors in the pelvic region
- Testing of deformable image registration algorithms in the pelvic region

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General project and contact information

Start of project: 01.08.2025 (earlier start may be possible)

Place of work: Department of Radiation Oncology, Medical University of Vienna, Vienna

Closing date for application: 06.06.2025

Please submit your application including a CV and motivation letter to Wolfgang Lechner (wolfgang.lechner@meduniwien.ac.at).

The employer does not discriminate on the grounds of race, color, religion, sex, sexual orientation, including transgender status and gender expression, national origin, citizenship status, age or disability. Disabled candidates are preferentially considered in case of equal qualification. Applications from women are encouraged.

For more information visit the homepage Dissertationen | MedUni Wien.