Postdoctoral Fellowship in AI for Radiation Therapy

The Department of Radiation Oncology at the University of Maryland School of Medicine is seeking one or more highly motivated postdoctoral fellows to perform cutting-edge research in AI for radiation therapy. Research areas include developing and implementing AI techniques for image-guided radiation therapy, such as image reconstruction, processing, synthesis and registration, as well as AI for treatment outcome prediction and clinical decision making. The projects will involve using multi-modality images (CT, CBCT, MRI, PET, optical imaging) and clinical software in radiation therapy such as treatment planning and image guidance tools. The overall goal of the research is to develop practical AI technologies that can directly benefit patient care in radiation therapy.

Qualifications and Skills
Ph.D. in Medical Physics, Physics, Mathematics, Electrical Engineering, Computer Science, Biomedical Engineering or a related field is required. Expertise required in one or more of the following areas: strong background in algorithms, image analysis, coding, and mathematical modeling. Strong scientific programming skills in CUDA, C#, C++, Python, etc, are highly desired. Basic knowledge of radiation therapy or machine learning is desired but not required. The candidate should demonstrate strong motivation in pursuing research developments in the medical field.

Training and Career Path
This is a 2-3 year, full-time, mentored research position. The successful candidate will receive regular mentorship and evaluation, be trained and encouraged to disseminate research findings in major national conferences and peer-reviewed publications, and to seek extramural research funding. The Radiation Oncology department is expected to open a Medical Physics certificate program in Spring 2022. The postdoc fellow will have the option to enroll in the 1-yr certificate program upon satisfactory performance. Finishing the certificate program will render the candidate eligible for medical physics residency training and become a clinical medical physicist and faculty afterward.

Research Lab and Environment
The new member will work under the supervision of Dr. Lei Ren, who is a Professor and Director of Medical Physics Research at University of Maryland and an adjunct Professor at Duke University. Dr. Ren’s group works on AI-based radiotherapy research with a strong focus towards clinical translation. His research has been funded by multiple NIH R01 grants and industry grants with awards from AAPM and ASTRO. Dr. Ren is a Fellow of AAPM. Details about Dr. Ren’s profile can be found at the following link: [https://www.medschool.umaryland.edu/profiles/Ren-Lei/](https://www.medschool.umaryland.edu/profiles/Ren-Lei/)

Equipment includes a newly purchased computer cluster with high-end GPUs, and state-of-the-art radiotherapy systems including Varian Truebeam and Edge linacs, multi-vault proton therapy machines, Raysearch and Eclipse treatment planning systems, CBCT and VisionRT surface photogrammetry. The department also has a successful track record of commercialization of research products.

Application Process
The position will remain open until suitable candidates are found. Please send CV and a letter of interest to Dr. Lei Ren at lren@som.umaryland.edu.