

Medicine for members lecture: Accelerating radiation oncology treatment with cloud based artificial intelligence

07 November 2018



Radiotherapy is an effective anti-cancer treatment that is received by over

2000 patients at Addenbrooke's every year. Preparation of precision radiotherapy treatment is a painstaking process for oncologists. For the last 8 years Raj has been collaborating with the InnerEye team at Microsoft Research Cambridge, to develop machine learning applications to speed up the process. In the last 12 months, this technology has been integrated into our clinical pathway to assist clinicians and members of the radiotherapy department. From a research point of view, these tools represent the start of a new era of data-driven research in radiation therapy.

Dr Raj Jena is an academic radiation oncologist working at the University of Cambridge and Addenbrooke's Hospital. His clinical interests are in the treatment of primary and secondary tumours of the brain and spine. His research interests span areas of imaging, radiomics, machine learning and advanced radiation therapy treatment.

Dr Jena is chief investigator of the CRUK VoxTox computational radiotherapy programme, a Clinical Consultant member of the Innereye team at Microsoft Research, an Investigator at the EPSRC Centre for Mathematical Imaging in Healthcare, and a founding member of the European Network for Light Ion Therapy based at CERN.

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