



**ESTRO 2021 - Clinical Pre-meeting course**  
*Artificial intelligence for clinicians*  
**ESTRO2021, 27 - 31 August 2021, Madrid, Spain**

Friday, 27 August 2021 from 08:30-17:00

**Course directors:**

Edmond Sterpin, Medical Physicist, Laboratory of Experimental Radiotherapy, KU Leuven (BE)  
Max Dahele, Radiation Oncologist, Amsterdam UMC (NL)

**Course aim:**

Artificial intelligence (AI) is predicted to revolutionize many sectors, including healthcare. The aim of this one-day course is to provide a state-of-the-art, critical, overview of (selected) AI-related developments in radiotherapy.

**Learning objectives**

- Describe the fundamentals of AI-related software
- Awareness of the challenges of implementing AI
- Discuss the potential of AI and Big data to enhance personalized medicine and access to radiotherapy
- Stimulate attendees to think how AI may present opportunities for their own research and clinical interests

**Who should attend?**

AI is likely to touch the whole of radiotherapy, from specific tasks like segmentation and treatment planning, to workflows like adaptive radiotherapy, to treatment selection and patient outcomes. Therefore, in addition to physicists, we anticipate that it will also appeal to interested technologists and clinicians

**Speakers & Panelists**

- Edmond Sterpin, Medical Physicist, Laboratory of Experimental Radiotherapy, KU Leuven (BE)
- Max Dahele, Radiation Oncologist, Amsterdam UMC (NL)
- David Jaffray, Professor Radiation Physics, Senior VP and Chief Technology and Digital Officer, MD Anderson (US)
- Nikos Paragios, Professor Computer Science and Applied Mathematics, University of Paris-Saclay (FR)
- Philippe Lambin, Professor Precision Medicine, Maastricht University (NL)
- Siri Willems, PhD student, KU Leuven (BE)
- Dan Nguyen, Scientist, UT Southwestern (US)



- Wouter van Elmpt, Senior Scientist, Maastrro (NL)
- Mischa S. Hoogeman, Professor in High-precision and Adaptive RT, Erasmus MC Cancer Institute (NL)
- Stine Korreman, Medical Physicist, Aarhus University (DK)
- Rishab Jain, Independent Student Researcher, 3M Young Scientist Challenge winner (US)

## Programme

Time slot	Title	Teacher
08:00-08:15	Introduction	<i>E. Sterpin (BE) and M. Dahele (NL)</i>
08:15-09:00	The AI revolution	<i>David Jaffray, MD Anderson (US)</i>
09:00-09:45	What is inside the black-box: understanding the fundamentals, potential and current limitations of AI technologies	<i>Nikos Paragios, University of Paris-Saclay (FR)</i>
09:45-10:30	AI-based Decision Support System for radiotherapy	<i>Philippe Lambin, Maastricht University (NL)</i>
10:30-11:00	COFFEE BREAK	
11:00-11:45	AI and segmentation in radiotherapy	<i>Siri Willems, KU Leuven (BE)</i>
11:45-12:30	AI and radiotherapy treatment planning	<i>Dan Nguyen, UT Southwestern (US)</i>
12:30-14:00	LUNCH	
14:00-14:45	Implementing AI in the clinic: practical aspects and potential pitfalls	<i>Wouter van Elmpt MAASTRO (NL)</i>
14:45-15:30	Is fully automated RT delivery possible in radiotherapy and what will the role of AI be: a critical perspective	<i>Mischa Hoogeman, Erasmus MC Cancer Institute (NL)</i>
15:30-16:00	COFFEE BREAK	
16:00-16:30	Can AI help to solve the under-provision of radiotherapy?	<i>Stine Korreman, Aarhus University (DK)</i>
16:30-17:00	Improving quality of care for pancreatic cancer patients: the promise of AI in image-guided radiotherapy	<i>Rishab Jain, Oregon (US)</i>
17:00	Close of pre-meeting	