CME Session 10

AI Committee

Tuesday, October 7, 09:45 – 11:15

Session Title

AI as Accelerator for NM Research

Chairpersons

Ana Denis-Bacelar (Brighton, United Kingdom)
Kangyu Shi (Bern, Switzerland)

Programme

09:45 – 10:15 **Prelaj Arsela** (Milan, Italy): Virtual clinical trials and AI-supported clinical trials design
10:15 – 10:45 **Dawei Jiang** (Wuhan, China): AI for radiopharmaceuticals' development
10:45 – 11:15 **Dimitris Visvikis** (Brest, France): AI for quantitative imaging
11:15 – 11:45 **Lara Cavinato** (Milan, Italy): Digital Twins and computational nuclear oncology, where do we stand?

Educational Objectives

1. Explain the principles of Virtual Clinical Trials (VCTs) and AI-supported clinical trial design discussing how AI can optimize trial efficiency, patient selection, and data analysis.
2. Describe how AI-driven approaches aid in the discovery, design, and optimization of novel radiopharmaceuticals.
3. Image reconstruction, segmentation, and quantitative analysis in nuclear medicine.
4. Define digital twins and their potential applications in computational nuclear oncology analysing current advancements and challenges in integrating this technology into clinical practice.

Summary

Artificial intelligence (AI) is revolutionizing nuclear medicine (NM) research by accelerating clinical trials, enhancing radiopharmaceutical development, and improving quantitative imaging. This CME session will provide an in-depth exploration of AI's role in these domains, featuring four expert-led lectures. The session will cover AI-driven methodologies for virtual and AI-supported clinical trial design, the application of AI in radiopharmaceutical development, advancements in AI-powered quantitative imaging, and the emerging concept of digital twins in nuclear oncology. Attendees will gain insights into the latest developments, challenges, and future directions of AI in NM research, fostering a deeper understanding of its transformative impact.

Key Words

Artificial intelligence; Virtual trial; In silico drug development; Digital twins; Quantification; Computational nuclear oncology