Pre-Congress Symposium 9
Physics + Dosimetry Committee
Saturday, October 12, 13:00-16:00

Session Title
Advances in Image Processing Techniques

Chairpersons
Dimitris Visvikis (Brest, France)
John Dickson (London, United Kingdom)

Programme

13:00 - 13:45 Alan McMillan (Madison, United States of America): Principles and Developments of Deep Learning Techniques in NM Image Processing

13:45 - 14:15 Nikolas Karakatsanis (New York, United States of America): Whole Body Parametric PET/CT Imaging

14:15 - 14:45 Coffee Break

14:45 - 15:10 Mathieu Hatt (Brest, France): Functional Volume Segmentation – State of the Art

15:10 - 15:35 Ian Armstrong (Manchester, United Kingdom): Quantitative SPECT/CT Imaging

15:35 - 16:00 Michael Ljungberg (Lund, Sweden): MC vs Non-MC Dose Estimation for Radionuclide Therapy

Educational Objectives

1. Learn about the latest developments in the field of image processing for NM imaging and potential clinical impact
2. Become familiar with the latest developments in quantitative PET/CT and SPECT/CT imaging for both diagnostic and therapy related NM procedures
3. Learn the principles of new emerging techniques such as deep learning in the field of NM image processing

Summary

Quantitative nuclear medical imaging has largely evolved over the last few years given both technological and methodological advances in the field. Such advances include improvements in the imaging hardware performance and software developments such as automatic algorithms for the extraction of biomarkers (for example 3D functional organ/tumor volumes), the advent of parametric whole body imaging, or novel approaches for dosimetry calculations in radionuclide therapy. In addition, over the last couple of years the evolution of machine learning approaches, with the introduction of deep learning techniques, forms a new playground for the image processing field. The ultimate objective of quantitative nuclear medical imaging remains an improvement in overall image interpretation and associated clinical endpoints (diagnosis, monitoring response to therapy). The latest advances in all of these fields will be covered during this pre-congress symposium, aiming to also provide an insight on the potential impact of these advances from a clinical perspective.

Key Words
Quantitation, image processing