

Dimitris VISVIKIS

Short Biography:

Dimitris VISVIKIS is a director of research with the National Institute of Health and Medical Research (INSERM) in France and Director of the Medical Image Processing Lab in Brest (LaTIM, UMR1101). He obtained his PhD from the University of London in 1996 working in PET detector development within the Joint Department of Physics in the Royal Marsden Hospital and the Institute of Cancer Research. After working as a Senior Research Fellow in the Wolfson Brain Imaging Centre of the University of Cambridge he joined the Institute of Nuclear Medicine as Principal Medical Physicist in University College London where he introduced and worked for five years with one of the first clinical PET/CT systems in the world. He has spent the majority of his scientific activity in the field of PET imaging, including developments in both hardware and software domains. His current research interests focus on improvement in PET/CT image quantitation for specific oncology applications, such as response to therapy and radiotherapy treatment planning, through the development of methodologies for detection and correction of respiratory motion, 4D PET image reconstruction, tumor radiomics multiparametric and multimodality modeling, as well as the development of computer assisted interventional radiotherapy and Monte Carlo based radiotherapy treatment dosimetry applications. In the last few years he has been developing AI methodologies based on deep learning for image reconstruction and analysis in multimodality imaging. He is a member of numerous professional societies such as EFOMP (Projects committee Vice-chair), IPEM (Fellow, Past Vice-President International), IEEE (Fellow class of 2022, Past NPSS NMISC chair, ADCOM member), AAPM, SNM (CaIC board of directors 2007-2012), EANM (Chair Physics committee, 2020-2024). He is the first Editor in Chief of the IEEE Transactions in Radiation and Plasma Medical Sciences (2017-). He is currently the president of the INSERM national scientific commission for Healthcare Technologies (2022-2026). He has finally received different awards including the 2020 Edward J Hoffman Award of the Society of Nuclear Medicine and Molecular Imaging, “for contributions to advances in PET imaging and to education and dissemination of findings within the scientific community”, and the 2020 IEEE Nuclear and Plasma Sciences Society and Nuclear Medical Imaging Steering Committee, Medical Imaging Technical Achievement Award, “for contributions to PET/CT imaging methodological developments dedicated to respiratory motion correction, image reconstruction, detector modeling and automated image analysis and processing for predictive modeling in oncology”.

Abstract:

Artificial intelligence with the development of deep learning has found numerous applications in the medical field over the past few years, including more specifically that of medical imaging. This includes most areas governing the medical imaging process from detector signal processing to image formation and subsequent image processing. The activity of deep learning spans from the more fundamental aspects such as image reconstruction and associated corrections to more clinical applications driven developments such as that of imaging biomarkers and their usage in patient classification for diagnosis or therapy response monitoring. My presentation will focus specifically on the role of AI within the context of data corrections in NM imaging.