

Special Issue

The Role of AI and Radiomics in Diagnostic Oncology

Message from the Guest Editors

The imaging of pathophysiological processes began with the discovery of X-rays by Roentgen and radioactivity by Becquerel, along with the pioneering work of Marie Curie and Saul Hertz. These breakthroughs laid the foundations for modern radiology and nuclear medicine, ultimately leading to the emergence of a theranostics—a hybrid approach to disease management that integrates therapy and diagnostics. Over the past decade, artificial intelligence (AI) has been incorporated into daily clinical practice, frequently surpassing human capabilities in diagnostic imaging and radiation-based therapies. AI can process vast quantities of data, and a transition toward human–AI collaboration is already underway, transforming multiple stages of our workflow, from image acquisition and interpretation to the delivery of personalized care. This Special Issue explores the following fundamental questions: which AI tools in diagnostic oncology have already transformed our professional workflows, and are we ready to embrace the use of AI, guided by our clinical experience, ethical values, and existing regulatory frameworks?

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