

# Applications of Deep Learning in Medical Imaging

## **Abstract**

In the last decade, data analytics in health informatics have become increasingly important due to the tremendous increase in multimodality data. Deep learning has emerged as a powerful tool in medical imaging, influencing many facets of the diagnostic and treatment processes. Recent developments in machine learning, particularly in the field of deep learning, are assisting in the detection, categorization, and quantification of patterns in medical images. One of the most important developments is the ability to use hierarchical feature representations acquired entirely from data rather than features developed by hand using domain-specific expertise. Deep learning is becoming the state-of-the-art, resulting in improved outcomes across a range of medical applications. Within the realm of medical imaging, deep learning has ushered in a new era of remarkable advancements in disease detection. In this chapter, the remarkable applications of deep learning in disease detection are explored across diverse fields like neurology, cancer detection, ophthalmology, cardiology, and more, all through the lens of medical imaging. The transformative power of deep learning algorithms emerges as they navigate the intricate landscapes of medical imaging, unveiling hidden patterns and anomalies. From unraveling neurological disorders to predicting cardiac risks, these intelligent systems reshape the landscape of medicine, offering hope and healing with every pixel they analyze.