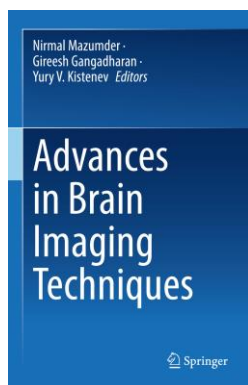


Book shelf

Advances in Brain Imaging Techniques

Mazumder, Ganagadharan, Kistenev

REVIEW INFO



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Springer

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812960 for current
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REVIEW

Book reviewed by Dr Yuan Chun Kheng, neuroradiology fellow, and Dr Mark Igra, consultant neuroradiologist, Leeds Teaching Hospitals NHS Trust.

In this book about advanced imaging techniques, the authors claim it is unique in the field in aiming to cover new and upcoming imaging techniques ranging from optical to non-optical neuroimaging, in order to improve knowledge about the structural, molecular and functional relationships with disease processes.

There are several chapters that are highly relevant to radiology colleagues. The authors provide succinct yet clear outlines of different MRI neuroimaging sequences, including diffusor tensor imaging, perfusion and functional MRI, their role in evaluating different disease processes, along with good quality figures as examples. For those interested in neurodegeneration, there is a dedicated chapter on the use of structural and functional MRI in the monitoring and assessment of the disorders. It outlines the different quantitative measurements such as the use of volumetry and non-parametric visual rating scales, which is of high yield and increasingly used as standard in daily practice. It also aims to demystify the role of machine learning in MR image processing, including machine learning models applicable to brain tumours, Alzheimer's disease, multiple sclerosis and Parkinson's disease, among many others.

This book also caters for those interested in optical imaging, specifically technological advances in optical coherence tomography (OCT) in differentiating tumour from healthy brain tissues and the potential role of OCT in overcoming the challenges faced in brain tumour intraoperative imaging. It also provides insight into different animal models applicable to brain mapping techniques. For example, the use of FLP/FRT and MARCM in analysing neural circuits and regulations in the inhibitory and excitatory

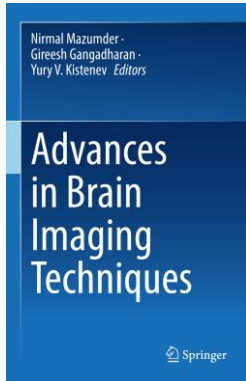
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REVIEW

... review continued

neurons in the *Drosophila melanogaster* model. The understanding of neural circuits would provide invaluable insights into the visual processing steps and their implications.

Overall, the texts are well referenced and supported by clearly labelled diagrams, flow charts and figures, to aid with reading. While much of this is aimed at the research level with limited clinical use currently, it may be seen as a useful addition to a departmental library for those neuroradiology and neurosciences colleagues with a particular interest in this developing field.

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