Lecture Notes in Computer Science **14312**

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Machine Learning in Clinical Neuroimaging

6th International Workshop, MLCN 2023
Held in Conjunction with MICCAI 2023
Vancouver, BC, Canada, October 8, 2023
Proceedings

Springer

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ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-031-44857-7 ISBN 978-3-031-44858-4 (eBook)
https://doi.org/10.1007/978-3-031-44858-4

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

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Preface

The rise of neuroimaging data, bolstered by the rapid advancements in computational resources and algorithms, is poised to drive significant breakthroughs in clinical neuroscience. Notably, deep learning is gaining relevance in this domain. Yet, there's an imbalance: while computational methods grow in complexity, the breadth and diversity of standard evaluation datasets lag behind. This mismatch could result in findings that don't generalize to a wider population or are skewed towards dominant groups. To address this, it's imperative to foster inter-domain collaborations that move state-of-the art methods quickly into clinical research. Bridging the divide between various specialties can pave the way for methodological innovations to smoothly transition into clinical research and ultimately, real-world applications. Our workshop aimed to facilitate this by creating a forum for dialogue among engineers, clinicians, and neuroimaging specialists.

The 6th International Workshop on Machine Learning in Clinical Neuroimaging (MLCN 2023) was held on October 8th, 2023, as a satellite event of the 26th International Conference on Medical Imaging Computing & Computer-Assisted Intervention (MICCAI 2023) in Vancouver to continue the yearly recurring dialog between experts in machine learning and clinical neuroimaging. The call for papers was made on May 2nd, 2023, and submissions were closed on July 4th, 2023. Each of the 27 submitted manuscripts was reviewed by three or more program committee members in a double-blinded review process.

The sixteen accepted papers showcase the integration of machine learning techniques with clinical neuroimaging data. Studied clinical conditions include Alzheimer's disease, autism spectrum disorder, stroke, and aging. There is a strong emphasis on deep learning approaches to analysis of structural and functional MRI, positron emission tomography, and computed tomography. Research also delves into multi-modal data synthesis and analysis. The conference encapsulated the blend of methodological innovation and clinical applicability in neuroimaging. The proceedings mirror the hallmarks in the sections "Machine learning" and "Clinical applications", although all papers carry clinical relevance and provide methodological novelty.

For the sixth time, this workshop was put together by a dedicated community of authors, program committee, steering committee, and workshop participants. We thank all creators and attendees for their valuable contributions that made the MLCN 2023 Workshop a success.

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