DeepScience

Pioneering Biomedical Breakthroughs

Advanced Multidisciplinary Research in Neurological Disorders, Renal Diseases, and Postpartum Health through Technology and Innovation

Mahesh Recharla

Pioneering Biomedical Breakthroughs: Advanced Multidisciplinary Research in Neurological Disorders, Renal Diseases, and Postpartum Health through Technology and Innovation

Mahesh Recharla
Oracle EBS Onsite Lead, Biogen, Durham, NC, United States

DeepScience

Published, marketed, and distributed by:

Deep Science Publishing
USA | UK | India | Turkey
Reg. No. MH-33-0523625
www.deepscienceresearch.com
editor@deepscienceresearch.com
WhatsApp: +91 7977171947

ISBN: 978-81-988918-3-9

E-ISBN: 978-81-988918-4-6

https://doi.org/10.70593/978-81-988918-4-6

Citation: Recharla, M. (2025). *Pioneering Biomedical Breakthroughs: Advanced Multidisciplinary Research in Neurological Disorders, Renal Diseases, and Postpartum Health through Technology and Innovation*. Deep Science Publishing. https://doi.org/10.70593/978-81-988918-4-6

Preface

In the quest to decode the complexities of human health, the intersection of biomedical science, technology, and multidisciplinary collaboration has become more crucial than ever. Pioneering Biomedical Breakthroughs: Advanced Multidisciplinary Research in Neurological Disorders, Renal Diseases, and Postpartum Health through Technology and Innovation brings together transformative insights and research that are redefining how we understand, diagnose, and treat some of the most challenging medical conditions of our time. This book emerges from a growing recognition that solving deeply rooted healthcare issues—such as Alzheimer's disease, chronic kidney conditions, and postpartum complications—requires a convergence of expertise across neurology, nephrology, maternal health, genomics, data science, and engineering. It highlights the pioneering work being done across these domains, driven by advances in artificial intelligence, wearable biosensors, molecular diagnostics, and personalized treatment models.

Through a multidisciplinary lens, this book explores how technological innovation is accelerating early detection, improving patient outcomes, and paving the way for more targeted and compassionate care. From brain-computer interfaces and AI-powered imaging for neurological disorders, to smart dialysis systems for renal health, and predictive models for postpartum depression, each chapter showcases research that is pushing the boundaries of traditional healthcare. This work is intended for researchers, clinicians, bioengineers, students, and innovators who are passionate about shaping the future of medicine through collaboration and cutting-edge science. It not only captures the state-of-the-art technologies being deployed but also addresses the ethical, clinical, and societal considerations that must guide responsible innovation.

We hope this book serves as both a resource and a catalyst—for sparking new ideas, inspiring cross-disciplinary partnerships, and ultimately contributing to a world where precision care and technological equity become the norm, not the exception.

Mahesh Recharla

Table of Contents