

Call for Book Chapters

Title: Mathematical Advances of Artificial Intelligence in Healthcare: Recent Challenges and Developments

Publisher: CRC Press: Taylor and Francis Group

The published book will be indexed in SCOPUS

The advances in cutting-edge AI techniques like deep learning, reinforcement learning, natural language processing (NLP), federated learning, edge AI, big data and cloud computing, with foundational mathematical concepts such as optimization and advanced statistical modeling, enhance the practical usability and interpretability of AI systems in real-world scenarios. The eXplainable AI and hybrid computational approaches also bridge the gap between theoretical research and clinical applications. In terms of applications, the robust integration of mathematical and AI methodologies to improve healthcare outcomes through practical case studies is focus of this book. These include but are not limited to, disease detection, resource optimization, and healthcare forecasting ensuring that the solutions developed are innovative in terms of frameworks as well addresses important healthcare challenges. The ethical dimensions, future-proofing, and interdisciplinary collaborations in AI with regard to healthcare needs to be explored rigorously. Such interdisciplinary approaches are vital for addressing the complex and evolving challenges of modern healthcare, ensuring that AI solutions are both comprehensive and sensitive to the multifaceted nature of patient care and data handling. The proposed book, “Mathematical Advances of Artificial Intelligence in Healthcare: Recent Challenges and Developments,” will cover mathematical advancements in AI, aiming to create a transformative impact on healthcare, exploring data-driven future solutions that promise to further revolutionize the landscape of healthcare technology.

❑ How to Submit:

The authors can send their maximum 4 pages abstract at following email id: crcbookmaai@gmail.com

❑ Book Editors:

1. Arun Kumar Sinha, Associate Professor, VIT-AP University, Andhra Pradesh, India
2. Anupama Namburu, Associate Professor, School of Engineering, JNU, New Delhi, India
3. Meenalosini Vimal Cruz, Assistant Professor, Georgia Southern University, Statesboro, GA, USA

❑ Important Dates:

- Abstract Submission: **15-09-2025**
- Abstract Acceptance: **30-09-2025**
- Full Chapter Submission: **31-10-2025**
- Revision Notification: **30-11-2025**
- Final submission: **31-12-2025**

The original book chapters in the following topics are invited:

- Mathematical Foundations of AI Techniques in Healthcare
- AI for Multimodal Data
- Big Data Analytics in Healthcare: Challenges and Solutions
- Advanced Signal Processing Techniques for Biomedical Applications
- Deep Learning for Medical Image Analysis
- Natural Language Processing for Healthcare Text Data
- Hybrid Computational Models in Healthcare
- Explainable AI for Healthcare: Mathematical Perspectives
- Federated Learning for Privacy-Enhanced Healthcare AI
- Edge AI for Real-Time Healthcare Applications
- AI-driven Mathematical Models for Precision Medicine
- IoT and AI in Healthcare: Creating Connected Solutions
- Deep Reinforcement Learning in Healthcare Operations
- Ethical AI Practices in Healthcare
- Future Trends in AI-Driven Healthcare

Please note:

1. **There are no submission/processing fee for the publication**
2. **We seek chapters based on mathematical foundations applied to AI in healthcare. No review articles will be considered.**
3. **The authors are responsible for their chapter's plagiarism and copyright issues.**
4. **Upon acceptance of the abstract, authors must submit their full chapter (maximum length: 22 pages).**

Final Book Publication: 2026