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[Proceedings of the 4th International Conference on Information Technology, Civil Innovation, Science, and Management, ICITSM 2025, 28-29 April 2025, Tiruchengode, Tamil Nadu, India, Part II](#)

Research Article

[The Current and Future of Machine Learning and Deep Learning in the Treatment of Autoimmune Diseases](#)

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Abstract

Autoimmune illnesses pose formidable diagnostic and prognostic obstacles due to the wide range of symptoms they cause and the immune system's tendency to malfunction, which in turn causes the creation of autoantibodies. Although early diagnosis and personalized treatment are of the utmost importance, traditional approaches sometimes lack predictive power. Through the analysis of massive datasets and the creation of sophisticated diagnostic and prediction tools, machine learning (ML) presents a promising approach to addressing these challenges. protocols for autoimmune diseases affecting several organs and systems (e.g., rheumatoid arthritis, sle, lupus erythematosus). (The autoimmune thyroid disease, gastrointestinal disorders, skin diseases, and type 1 diabetes mellitus are all examples). The growing promise of machine learning algorithms for issue predicting, therapeutic response evaluation, and early disease detection is highlighted by our work. To go a step further, we look at how ongoing research and the addition of more varied and extensive datasets might improve these models' accuracy and dependability. This will enable healthcare providers to detect autoimmune diseases at an early stage and guide the creation of efficient treatment strategies.

Keywords autoimmune conditions, bowel inflammation disorders, machine learning, rheumatoid arthritis, systemic lupus erythematosus, diabetes mellitus type1

Published 2025-10-14 Publisher EAI

<http://dx.doi.org/10.4108/eai.28-4-2025.2358017>



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