



The emerging role of artificial intelligence in rheumatology

The current issue of *Reumatologia* includes a study evaluating ChatGPT-4 for rheumatology patient education. This topic provides an opportunity for a broader discussion on the role – and especially the practical usefulness – of artificial intelligence (AI) in science and in clinical specialties such as rheumatology.

In my opinion, rheumatology has acquired a powerful new tool for collecting and analyzing data, with the potential for continuous learning and enhancement of human expertise. At the same time, our knowledge, the ability to supervise data retrieval systems and interpret their outputs, and the integration of scientific and clinical experience, together with AI tools, create a highly effective combination that enhances both scientific and clinical capabilities. Artificial intelligence can develop through supervised learning, unsupervised learning, and reinforcement learning, all of which enhance these capabilities. AI systems may also adopt various learning patterns based on prior data, natural language understanding, perception, problem-solving methodologies, and even reasoning. However, these factors depend on those who create algorithms and develop models for, for example, disease recognition, disease prediction, and prognosis.

Broadly, AI can be divided into discriminative AI, dedicated to analytical and diagnostic tasks, and generative AI, which supports scientific research through the use of language models or chatbots. The simplest way to distinguish these two types of AI is by their primary function: Discriminative AI enables classification, prediction, clustering, and the detection of outliers – applications already employed in radiology through AI- and machine learning-enabled medical devices. Generative AI, on the other hand, since the launch of ChatGPT in 2022, has opened up broader opportunities not only for specialists but also for the general public. Generative AI, capable of creating new content based on existing content by generating text, images, or videos, shows considerable promise as a tool, from basic research to patient education. This type of AI can aid in clinical decision-making, assist with administrative tasks, improve the quality of information, and serve as an educational resource.

The use of AI in rheumatology is still in its early stages of development, and to fully realize its potential in this field of medicine, it is crucial to ensure robust methodologies and maintain research integrity and accountability.

References

1. Kothari S, Gionfrida L, Bharath AA, Abraham S. Artificial Intelligence (AI) and rheumatology: a potential partnership. *Rheumatology (Oxford)* 2019; 58: 1894–1895, DOI: 10.1093/rheumatology/kez194.
2. Sequí-Sabater JM, Benavent D. Artificial intelligence in rheumatology research: what is it good for? *RMD Open* 2025; 11: e004309, DOI: 10.1136/rmdopen-2024-004309.
3. López-Úbeda P, Martín-Noguerol T, Luna A. Radiology, explicability and AI: closing the gap. *Eur Radiol* 2023; 33: 9466–9468, DOI: 10.1007/s00330-023-09902-8.
4. Amini S, Hao B, Yang J, et al. Prediction of Alzheimer's disease progression within 6 years using speech: A novel approach leveraging language models. *Alzheimers Dement* 2024; 20: 5262–5270, DOI: 10.1002/alz.13886.

Maria Maślińska
Editor-in-Chief