EDITORIAL

# Artificial Intelligence and Interdisciplinary Research

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Artificial intelligence (AI), which typically refers to the artificial creation of human-like intelligence that can learn, perceive, and process information, is rapidly becoming a powerful tool for solving image recognition, document classification as well as for the advancement of interdisciplinary problems. It is often considered to be a powerful computational tool that can be applied to many complex problems that have not been successfully addressed so far.

Artificial intelligence and machine learning are providing new opportunities to operationalize previously untapped and rapidly growing sources of data for patient benefits. Clinically relevant research using modern statistical methods (such as machine learning and artificial intelligence) is too often limited by one or more of TREE (transparency, reproducibility, ethics, and effectiveness concerns); addressing these concerns can facilitate appropriate translation from computer bench to patient benefit.

Three research topics that we believe AI research should accentuate on:

(1) How can an interdisciplinary approach toward AI benefit from and contribute to the AI revolution?

While AI is already used in various scientific fields, it should go beyond outcomes toward conducting exploratory analysis and finding new patterns in complex systems.

Additionally, in the future development of AI, the reverse direction should also be considered, namely investigating ways in which AI can take inspiration and can benefit from other fields of science.

(2) How could regulatory agencies help correct existing and discriminations induced by AI?

To ensure this, AI research must be accompanied by decision explainability and dataset and algorithm bias analysis as well as creation of regulatory agencies and development of evaluation methodologies and tools. In all cases, AI research should guarantee privacy as well as economical and of the data and algorithms based on it.

(3) How can we manage the impact of this AI revolution once AI tools are deployed in the real world, particularly how to ensure trust of the scientific peers and the general public?

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This includes establishing public trust in AI through education, explainable solutions, and regulation.

AI inevitably interacts with other fields of science and the ways in which those interactions can lead to synergistic outcomes. It is going to be ever present in science and society, and if the trend continues, it will play a central role in the education and jobs of tomorrow. The end users and beneficiaries of AI services and products, as the most numerous part of the population, must play a central role in their development. It is they who should have the final say on what global use of AI technologies should be pursued. However, to do so, they must have a chance to learn the fundamental principles of AI. This is not fundamentally different from educating the general public about any scientific topic with a global societal impact, may it biomedical (e.g., antibiotic resistance, vaccination) or environmental.[1,2]

## References

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