

Physics in the era of big data: AI in particle and astroparticle physics

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Physics and artificial intelligence (AI) are interconnected. The recent Nobel Prize for Physics has once again revealed this productive connection. While physics concepts laid the foundation for today's neural networks, these algorithms, in turn, enable efficient physics analyses with exceptional precision. This emerging technology opens new perspectives for the data-intensive research field of particle and astroparticle physics. In this talk, I will give an overview of the versatile applications of AI in particle and astroparticle physics, review the breakthroughs that this new technology made possible, and discuss future directions and challenges.

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