AI and the Future of Scientific Research

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I would like to discuss the impact of artificial intelligence and self-driving lab on the practice of research & development, in particular, clean energy research.[1-4] Rapid growth in modeling[5], experiment and reasoning capabilities, such as universal neural network interatomic potential (UNIP)[6,7], large language model[8,9] based hypothesis generation[9], robotic high-throughput experimentation[1-4], and knowledge-based Bayesian optimization (KABO) active learning algorithms[2], could usher in an era of "mass production of science", but plenty of challenges and peril lie ahead[10].

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