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When attempting to apply machine learning to particle physics problems, there are a few things that require special care: Firstly, you want the output to have a physical meaning. There is for instance no such thing as particles with a negative mass. Secondly, you want to be able to learn something from the algorithm itself that you perhaps didn't know before hand. Are there any correlations present that you haven't thought of? How can you give your weights a physical meaning that can be interpreted by a human? Thirdly, you need to make sure you are training an unbiased algorithm. If it is not, you can not trust its output when applied to real data with an unknown truth distribution.



For us, the question “What can we teach the machine?” is getting less interesting than the question “What can we learn from the machine?” and, by probing the neural network output, we hope to learn something new about physical processes.

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