Peeking into the black box

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Data Science at LHC

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- Accuracy on complex problems require complex answers
Partial dependence plots

What is the dependency between the output variable and a set of input variables? (marginalized over all the other variables)
Interpreting tree-based methods

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- Combine with pruning of both nodes and trees
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- Per-sample importances for single sample explanations
Uncovering dependencies between variables

- Variables can be organized into formal probabilistic graphical models representing their conditional dependencies.
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- Variable selection: find the Markov blanket of the output variable (i.e., the set of variables making any set of the others conditionally independent of the output).
Visualizing convnet activations