When Should I Use A Decision Tree?

MOD39

Dive Deeper

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Decision trees are one of the oldest and most used machine learning algorithms, perhaps even pre-dating machine learning. They're very popular and have been around for decades. Following through with sequential cause-and-effect decisions comes so naturally to people who intuitively, one can understand the classification process enacted by the tree's decision boundaries, whether they're drawn in feature space, or they're flow-charted out.

Decision trees, similar to SVC, make use of a cleaver trick to allow you to do non-linear decision-making by use of a linear decision surface. With SVC it was the table-flipping, kernel trick. With decision trees, you can divide up your feature set into sections and boxes, which otherwise would not have been possible using a single, linear classifier. Due to this, a few other nifty qualities are born to decision trees, such as them being indifferent to feature scaling, unlike KNeighbors or PCA.

Decision trees are a good tool to use when you want backing evidence to support a decision, or even while trying to convince someone of a view-point. By mapping the various probabilities of outcomes, and their consequences, using a decision tree helps you paint the entire picture of the classification results of your features.

Imagine being contracted to complete some work but find yourself running behind schedule. Each and every added day late you are behind delivery, you get penalized financial. Does it make more sense (assuming it's legal) for you to sub-contract a critical task to someone else, or to just bite the bullet and get it done right yourself? Considering how much contractors cost, it might be hard for you to find a reason to justify retaining one. Or if there are multiple contractors available, some new guy you haven't

used before who lacks a reputation but is cheap, vs a highly reputable but very expensive contractor from a Fortune 500 company--how do you choose the right one given your circumstances? The key to answering these questions can be unlocked through your data by using decision trees.