# Outline of Tutorial video

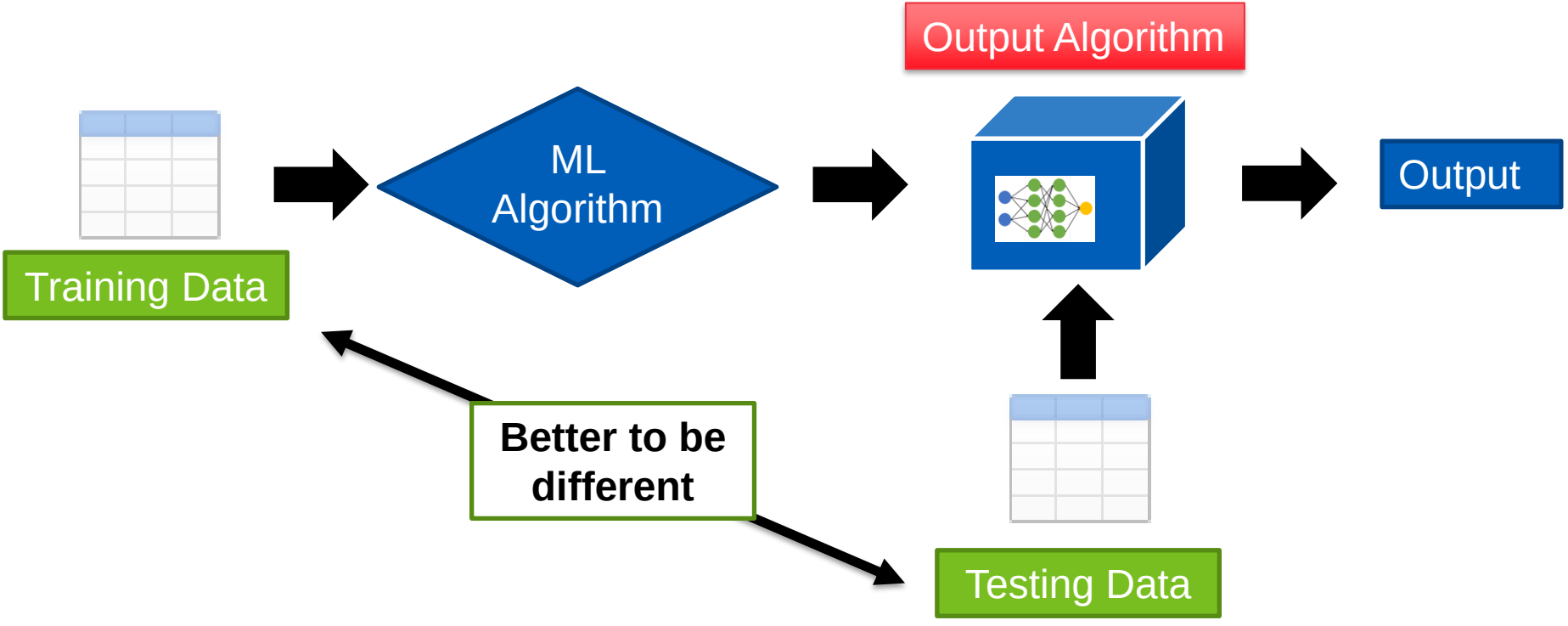
1. **Basics of machine learning**
2. **Basics of decision tree**

# What is Machine Learning?

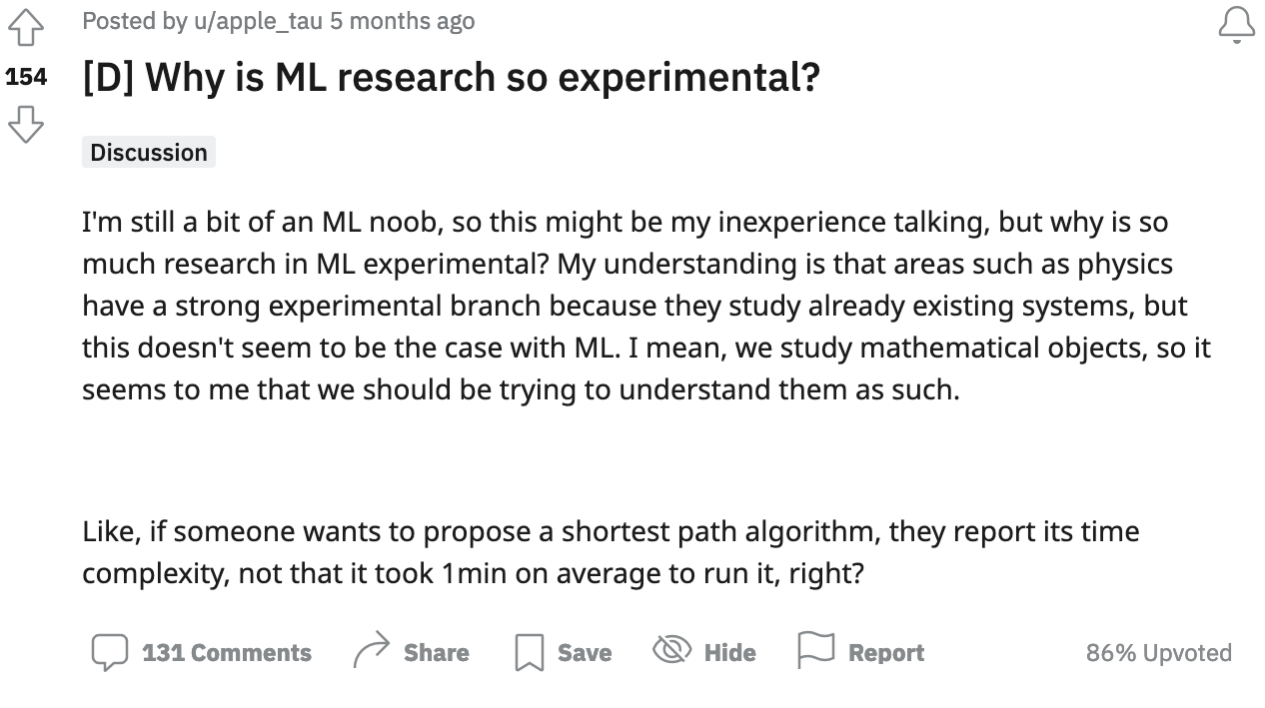
***Machine learning (ML) is defined as a discipline of artificial intelligence (AI) that provides machines the ability to automatically learn from data and past experiences to identify patterns and make predictions with minimal human intervention.***

https://www.spiceworks.com/tech/artificial-intelligence/articles/what-is-ml/

# Basics of machine learning



# Machine learning as an experimental science



Posted by u/apple_tau 5 months ago

154

## [D] Why is ML research so experimental?

Discussion

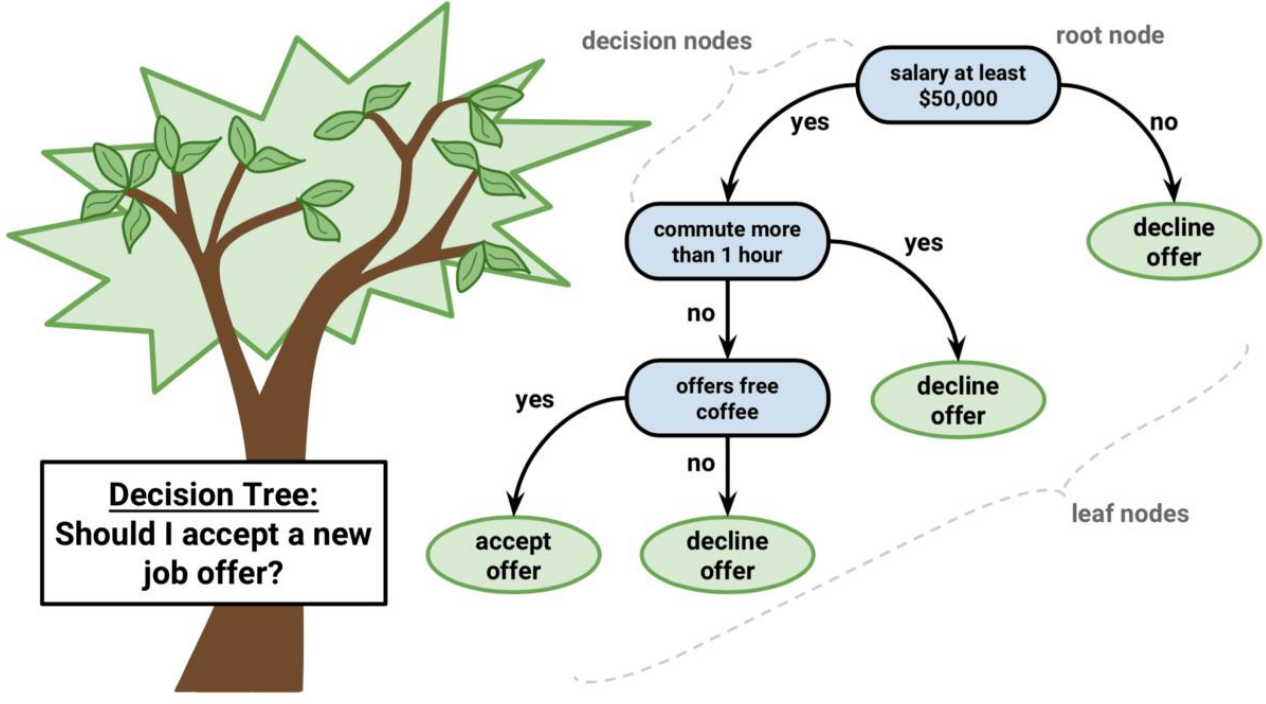
I'm still a bit of an ML noob, so this might be my inexperience talking, but why is so much research in ML experimental? My understanding is that areas such as physics have a strong experimental branch because they study already existing systems, but this doesn't seem to be the case with ML. I mean, we study mathematical objects, so it seems to me that we should be trying to understand them as such.

Like, if someone wants to propose a shortest path algorithm, they report its time complexity, not that it took 1min on average to run it, right?

131 Comments Share Save Hide Report 86% Upvoted

**https://www.reddit.com/r/MachineLearning/comments/wgbmsr/d_why_is_ml_research_so_experimental/**

# Decision tree as a machine learning algorithm

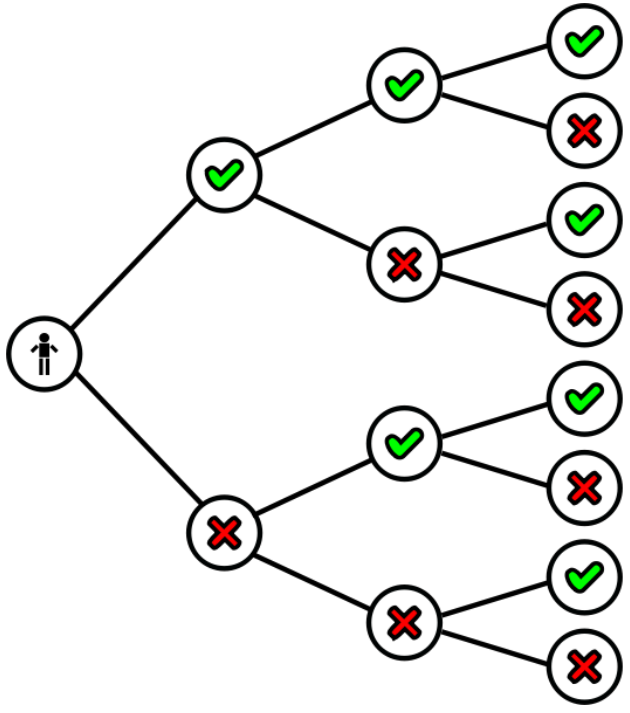



- **Nodes**
- **Leaf nodes**

https://regenerativetoday.com/simple-explanation-on-how-decision-tree-algorithm-makes-decisions/

# Pruning

- **Pruning is a data compression technique in machine learning and search algorithms that reduces the size of decision trees by removing sections of the tree that are non-critical and redundant to classify instances.**
- **Pruning reduces the complexity of the final classifier and hence improves predictive accuracy by the reduction of overfitting.**





https://freesvg.org/mcol-event-tree

# Summary

1. Basics of machine learning
2. Basics of decision tree