What is Machine Learning?

Handout 1 of Introduction to Machine Learning

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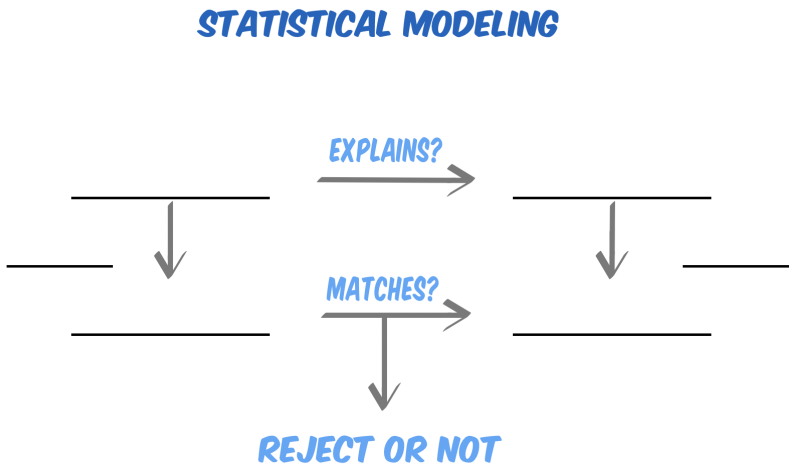
While Hypothesis Testing and Machine Learning are beginning to overlap, the subjects began as two very distinct fields. Understanding these initial differences will help you better understand Machine Learning—especially if you are coming to Machine Learning from a background in Statistics or Science.

Hypothesis Testing

Statistical models were originally an extension of *hypothesis testing*. With statistical models, you use a model to test the _____ in the model.

Use the words on the left to complete the diagram on the right



Model
Measure
Hypothesis
Quantify
Reality
Data

When using models to test hypotheses, the hypothesis dictates

1.
2.
3.

Although you end up with a fitted model when you do hypothesis testing, the fitted model is of **circle one:** (utmost / secondary) importance to the task at hand, which is to _____.

Machine Learning

Machine Learning is an extension of computer science. In Machine Learning, you want to develop an algorithm that will allow a computer to make _____. When we do Machine Learning, we're **circle one:** (picky, not picky) about which data or model we use, so long as our algorithm has a low _____. This isn't to say anything goes; some data sets can not yield a low _____.

What is the goal of Machine Learning?

Machine Learners tend to use the same models as hypothesis testers because:

In Machine Learning, the fitted model (i.e. the trained model) is of **circle one:** (utmost / secondary) importance because you use it to generate new predictions.