Chapter 7 - A Look into the Crystal Ball

1 Introduction

Let us assume that all informatin will be be digitized, automatable tasks will be automated, and that for interesting problems it is not possible to exactly specify our goal with all possible constraints (a corporation tasked only with maximizing profits might do crazy things like pollute rivers, hire child laborers, and fund militias in developing countries to achieve this).

With this in hand, let's predict the future.

2 The Future of Machine Learning

Machine learning adoption will advance, slowly but surely. It takes time for large organizations to figure out good team structures, good data architectures, and good systems to enable data scientists.

Machine learning will become easier to use.

More and more tasks will be formulated as prediction problems so that machine learning can be used.

As machine learning is used in high stakes tasks and regulations are created, interpretability will become more important. Many people today do not use machine learning simply because it is not interpretable.

3 The Future of Interpretability

Model-agnostic interpretability tools will dominate because they are the most portable. But, intrinsically interpretable methods might have a use for some cases.

Most systems will include automated interpretability in the same way they include automatic hyperparameter selection and automatic ensembling.

People will be able to train machine learning models even without knowing how to program.

People will use interpretable machine learning to glean insights about their data, not just for using the model.

Traditional methods, like linear models, make too many unrealistic assumptions, so black box models will become more widely used because they will achieve better performance.

Traditional statistical techniques like hypothesis tests and confidence intervals will be adapted for black box methods.

Data scientists will automate away many of their tasks.

Robots and programs will have user interfaces to explain why they make certain decisions.

Interpretability might help us understand more about intelligence in general.