Machine learning strategies

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1 Introduction

This note describes a number of strategies, tips and tricks for successfully navigating actual machine learning projects.

1.1 Orthogonalization

Orthogonalization is essentially knowing what to tune to achieve what effect.

Ideally, when turning one "knob" on you ML problem, it should only affect one aspect of the outcome - each does only one, easily interpretable, thing. That way, you may tune one "knob" at a time to get the desired behaviour from the algorithm.

1.1.1 Chain of assumptions

When building an ML product, there's a chain of assumptions being made:

- We can fit the parameters well to the training set, so that the chosen cost function is low. In other words, we assume that we can get an acceptable performance on the training set. Sometimes this means getting human level performance or better.

- We then hope this model also does well on the dev set.

- And on the test set as well.

- This should lead to good performance out in the real world.

For each of these problems, we have different "knobs" to turn in order to get the desired result.