

*Regression*

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# Contents

<b>1</b>	<i>A Map of This Paper: a View from 30,000 feet</i>	<b>4</b>
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## 0.1 Motivation/Background

I am starting to learn and immerse myself in machine learning and image processing field. I decided to take notes and collect everything new and useful I learn. Perhaps, I can combine them in one single file and put it on arXiv eventually.

## Chapter 1

# A Map of This Paper: a View from 30,000 feet

How do we extract usable information from data, especially data that is full of noise and or information that has nothing to do with the information we are interested in extracting?

That this is an old challenge is underlined by the fact that the first appearance of the phrase “Looking for a needle in a haystack” is nearly 500 years old. But the fact that life introduces confounding data – entropy, noise, etc – has made this idiom a part of the working wisdom of anyone trying to make careful inferences, implying the idea is much, much older.

First known appearance of the idiom “Looking for a needle in a haystack”, in written English, is from St. Thomas More, in 1532. The actual quote is “to go looking for a needle in a meadow”.