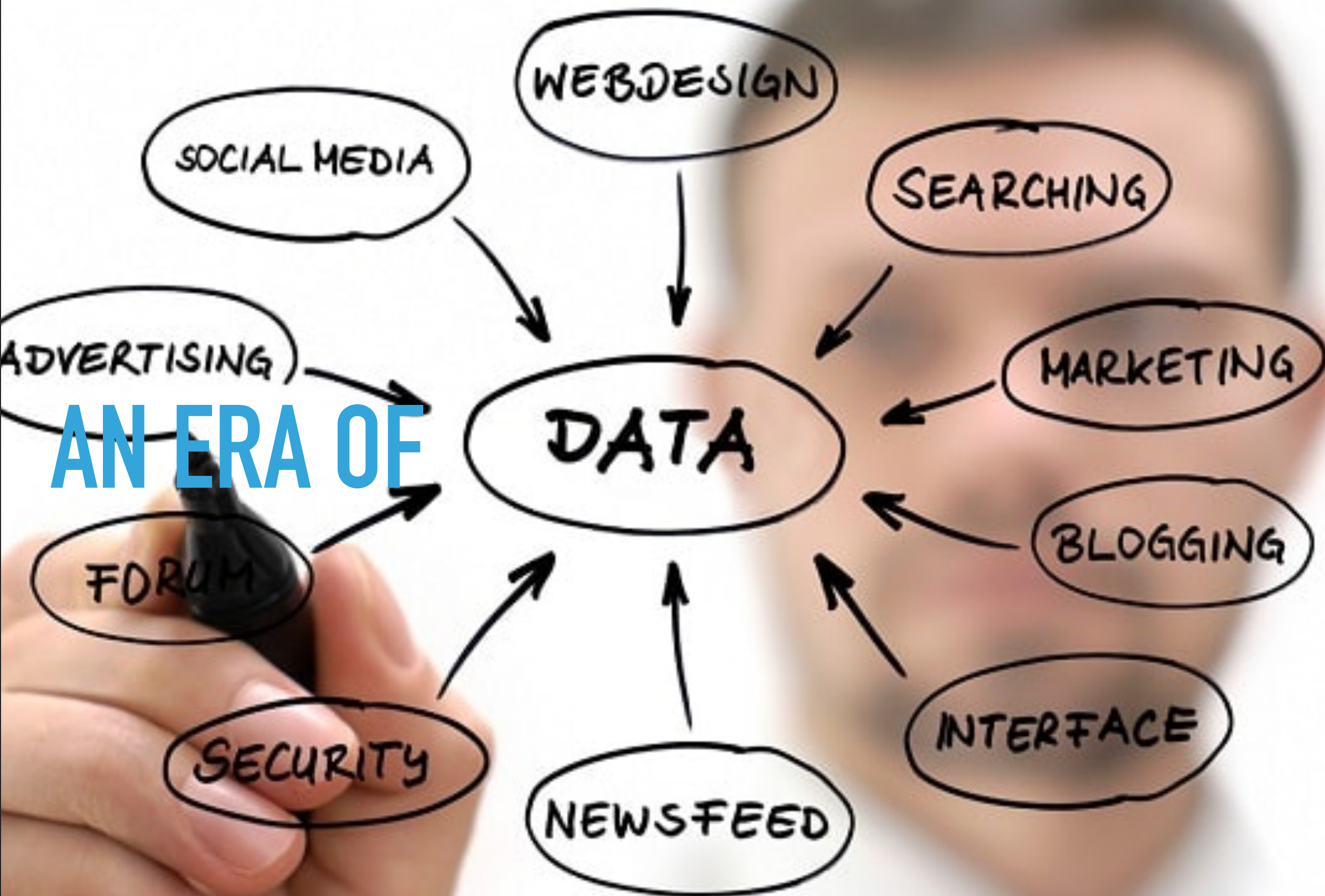


HAND-WRITTEN DIGITS RECOGNITION

**A SNEAK PEEK OF MACHINE LEARNING**

# AN ERA OF





# Gartner Hype Cycle for Emerging Technologies, 2016

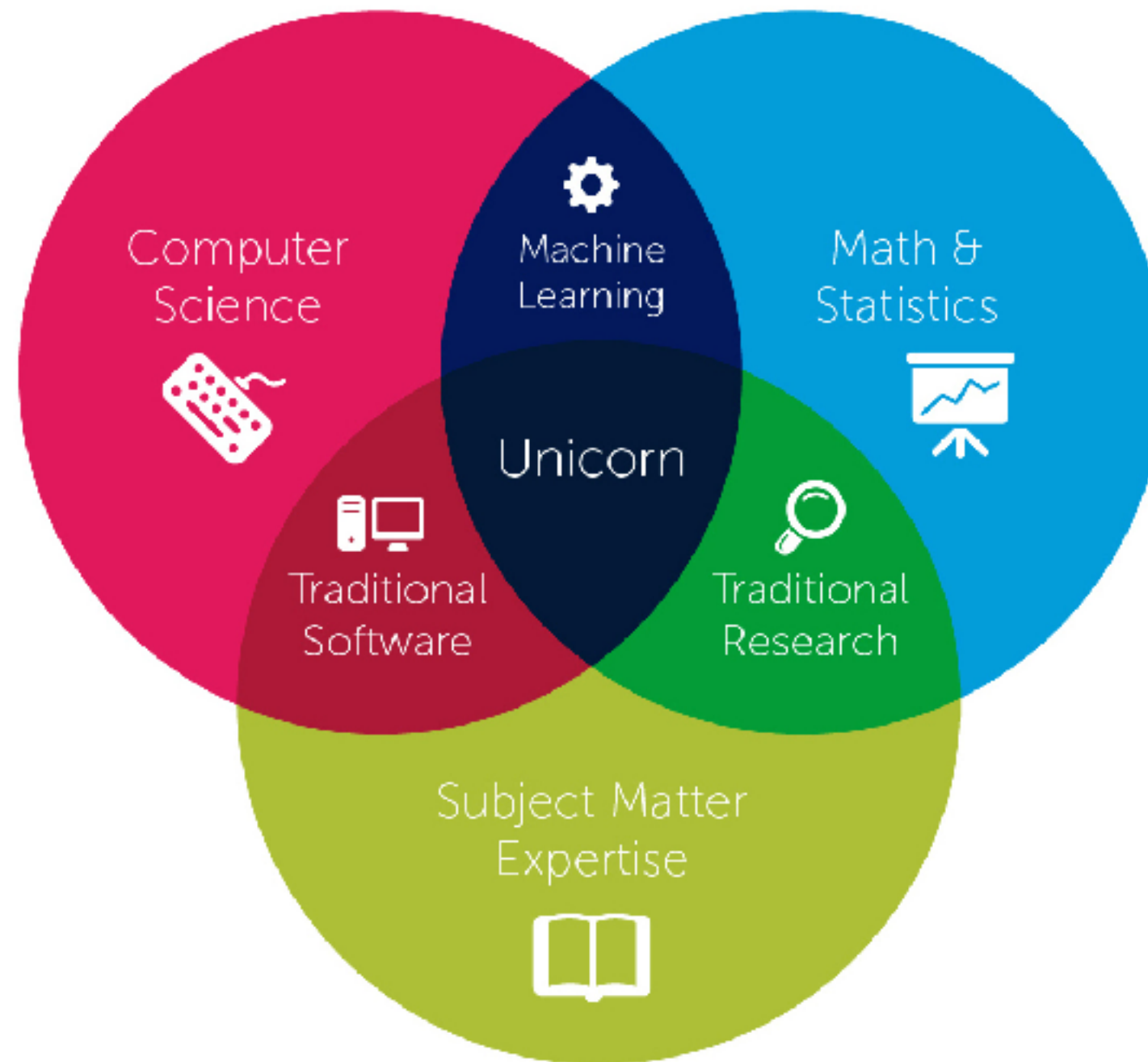


[gartner.com/SmarterWithGartner](http://gartner.com/SmarterWithGartner)

Source: Gartner  
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**Gartner.**

# What is Data Science?

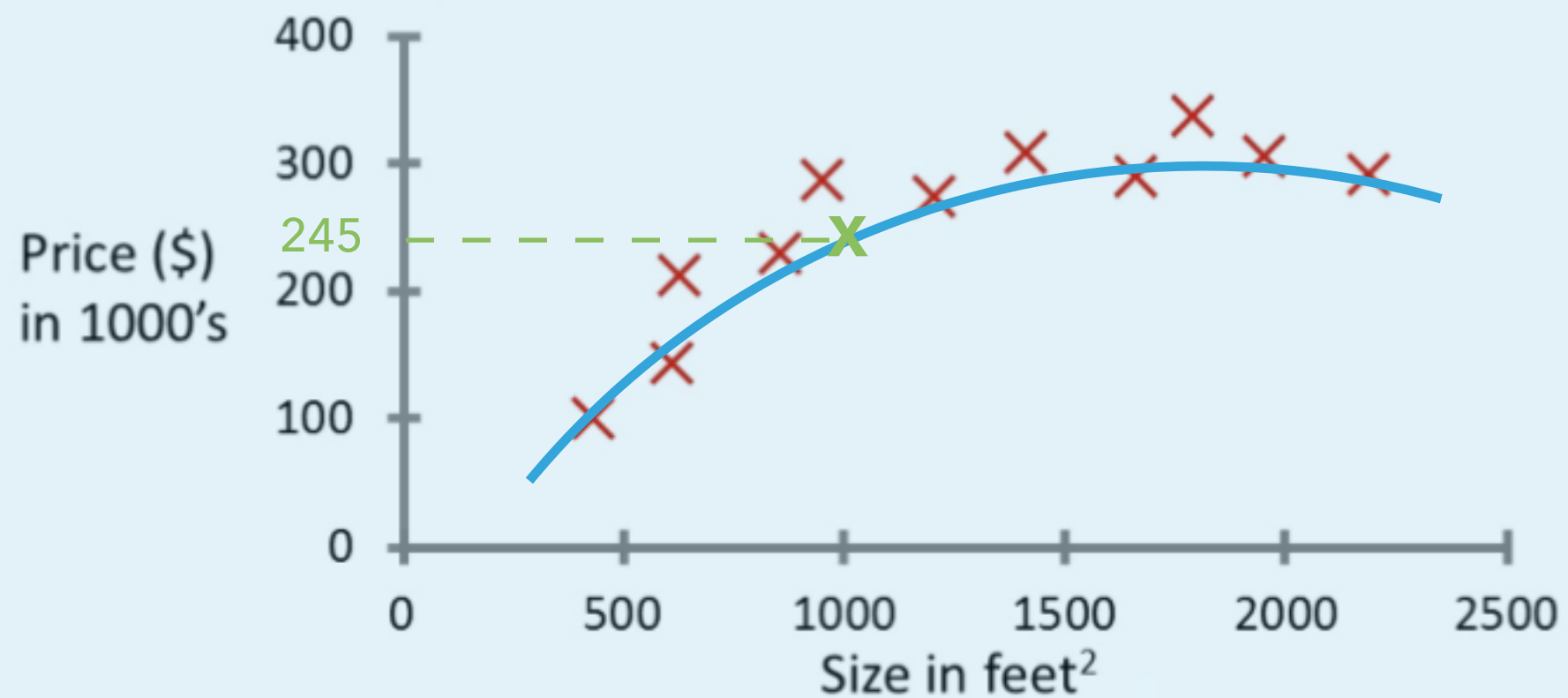




**MACHINE LEARNING IS THE SCIENCE OF GETTING COMPUTERS TO ACT WITHOUT BEING EXPLICITLY PROGRAMMED.**

**Andrew Ng**

## Housing price prediction.



✕ training data

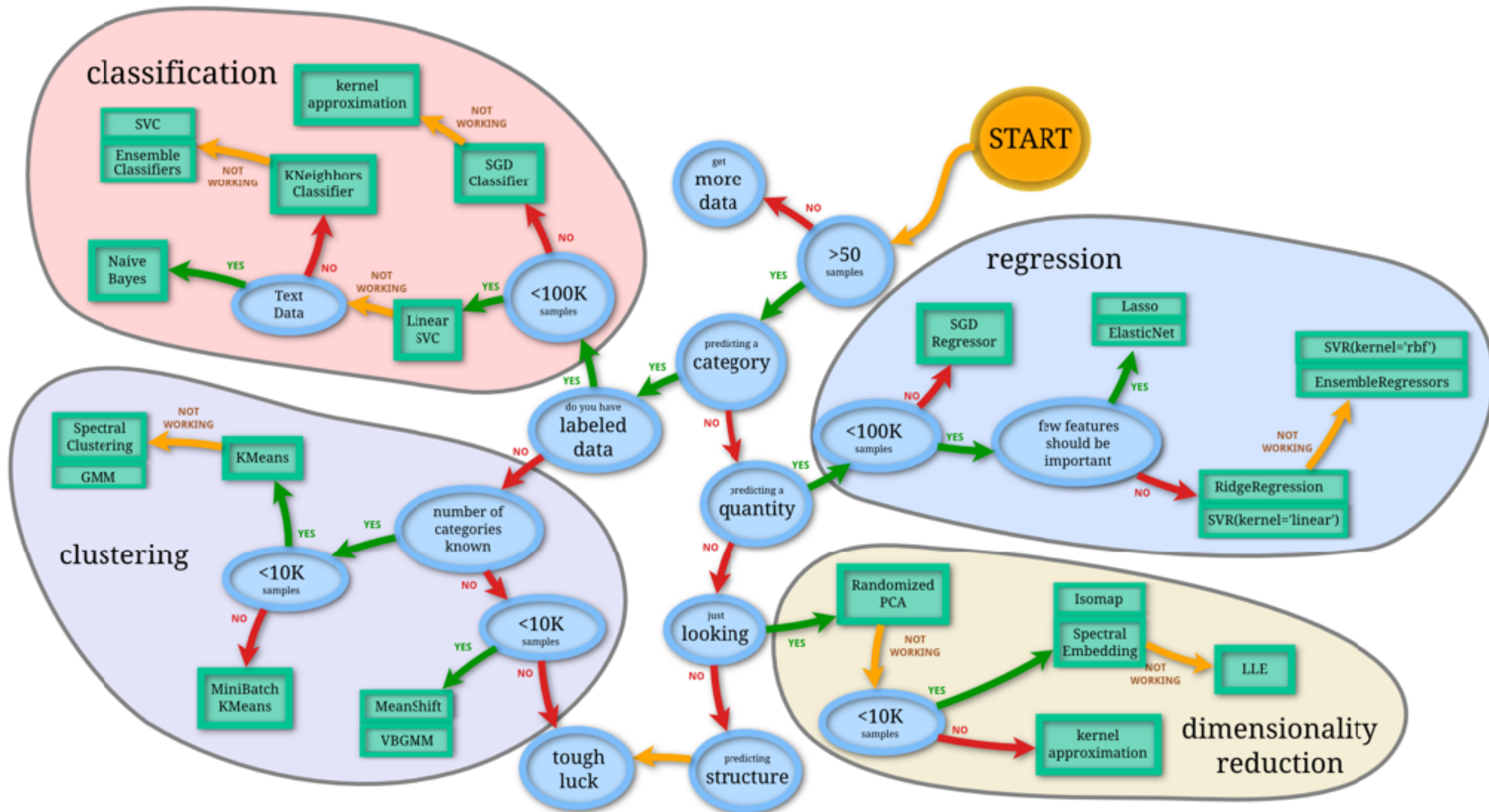
✕ size: 1000 feet<sup>2</sup> price: 245K

# WHAT CAN MACHINE LEARNING DO

- ▶ Recommendation Engine
- ▶ Customer Churn and Marketing Response
- ▶ Fraud Detection
- ▶ Image Recognition
- ▶ Natural Language Processing (NLP)

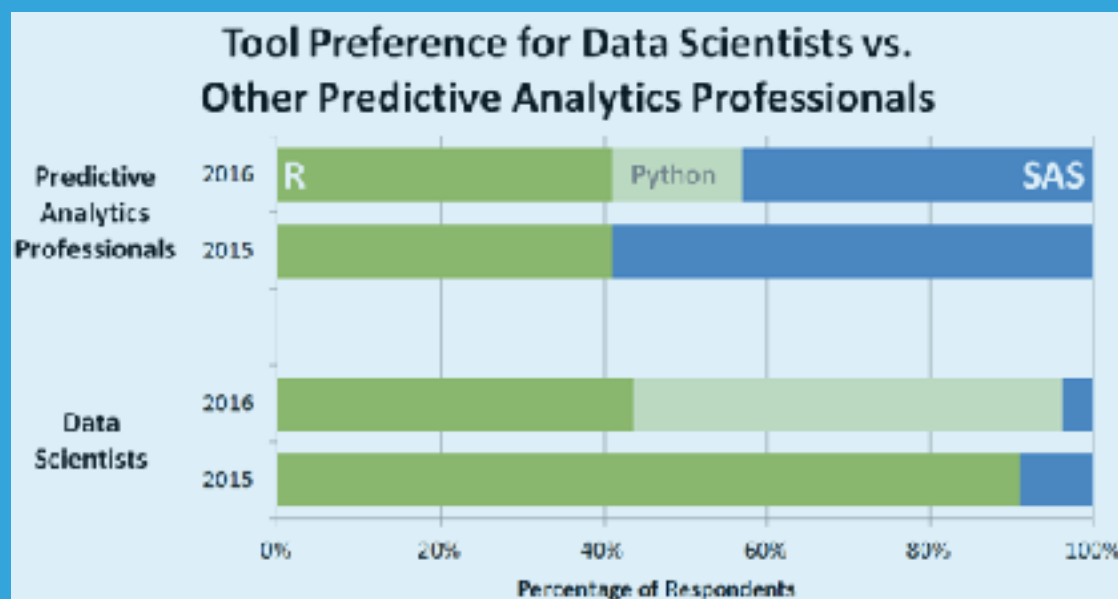
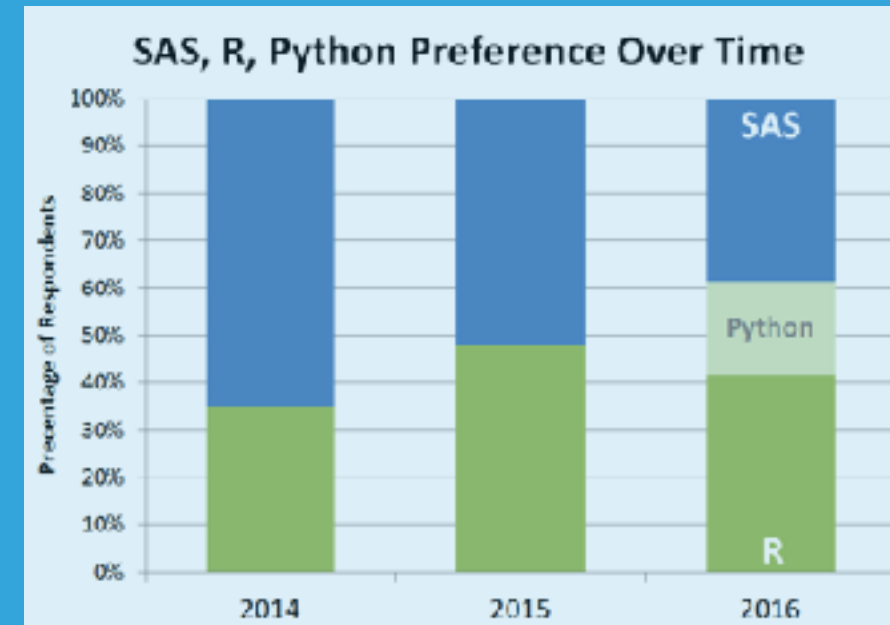
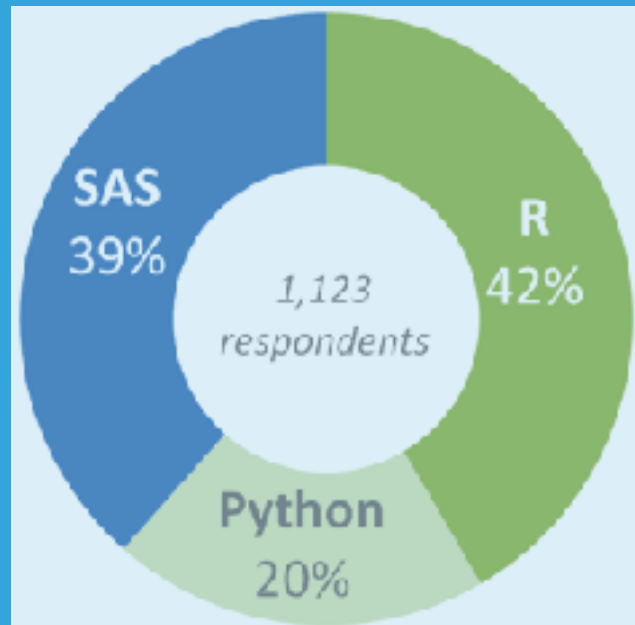


# MACHINE LEARNING ALGORITHMS





# LANGUAGE PREFERENCE



# RECOGNIZE HANDWRITTEN DIGITS



The MNIST digits dataset is a classic within the Machine Learning community that has been extensively studied.

Each image is 28 pixels in height and 28 pixels in width, for a total of 784 pixels in total.

You are challenged to take an image of a handwritten single digit, and determine what that digit is.



4 or 9?

# RANDOM FOREST – FROM TREE TO WOODS

