Day 3
Cognitive Applications

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Learn with
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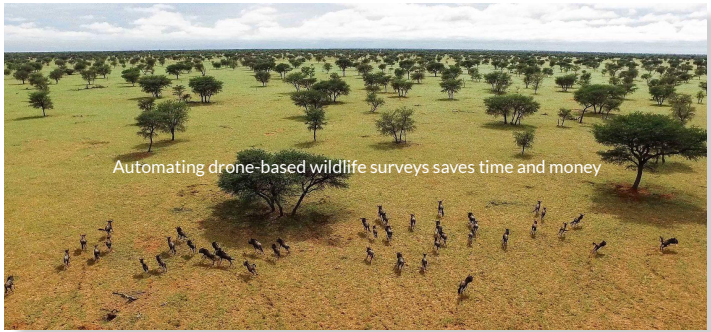
Examples of Machine Learning



Read a couple of news articles involving applications of ML.

1. Would a traditional programming solution be more efficient?
2. Could a human perform the same task in less time?
3. What are the benefits of a Machine Learning model in these instances?

Features

Predicting the Price of a House

- Location
- Number of bedrooms
- Size of property

- Number of light switches?
- Color of house?

Features

Recommending which video a user should watch next

- Topic
- Popularity of a video/Number of views
- Creator of video

- Length of video?
- Age of video?

Checkpoint on Learning

A baker would like to optimize pricing of cakes in their bakery depending on previous pricing, cost to make, and time of year.

1. What about the scenario make it suitable for ML?
2. What is the benefit to the business?
3. Would a human perform the job better?
4. What are the inputs to the system?
5. How could the ML model go wrong?

Checkpoint on Learning

An ocean conservationist would like to track fish populations over time.

1. What about the scenario make it suitable for ML?
2. What is the benefit for the organization?
3. Would a human perform the job better?
4. What are the inputs to the system?
5. How could the ML model go wrong?

Checkpoint on Learning

An online brand influencer wants a model that can predict the number of 'likes' that a particular post may get.

1. What about the scenario make it suitable for ML?
2. What is the benefit for the business or individual?
3. Would a human perform the job better?
4. What are the inputs to the system?
5. How could the ML model go wrong?

Problem Framing

What is Supervised Machine Learning?

In 90 seconds,
summarise what you know in pairs. Go!

Terminology : Label and Framing

Label is the true thing we are predicting "**y**"

- The y variable in basic linear regression

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Label is the true thing we are predicting “**y**”

Features are input variables describing our data “x1”

- The `x1, x2, xn` variables in basic linear regression

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Labeled example {features, label}: (x,y)

- Used to train the model

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Label is the true thing we are predicting "**y**"

Features are input variables describing our data "x1"

Example is a particular instance of data, x

Labeled example {features, label}: (x,y)

Unlabeled example {feature,?}: (x,?)

- Used for making predictions on new data

Terminology : Label and Framing

Label is the true thing we are predicting "**y**"

Features are input variables describing our data "x1"

Example is a particular instance of data, x

Labeled example {features, label}: (x,y)

Unlabeled example {feature,?}: (x,?)

Model maps examples to prediction labels: y

- Defined by internal parameters, which are learned

Problem Framing Feedback

A teacher wants to predict a student's end-of-year test result based on a student's performance on mini tests throughout the year.

1. Clear use case
2. Know the problem
3. You have a lot of data
4. Predictive power
5. Decisions, not just predictions