# Intro to ML, Weka, Scikit, and more…

Sai

# What is Machine Learning?

- Teaches a computer a new capability *by example* without explicitly programming
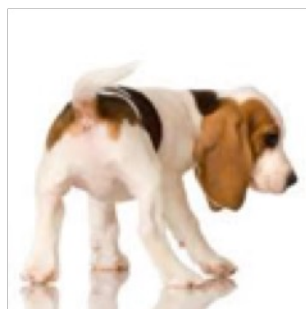
**Computer Facts**
@computerfact

concerned parent: if all your friends jumped off a bridge would you follow them?
machine learning algorithm: yes.

2:20 PM · Mar 15, 2018

# Types of Learning

- Supervised Learning
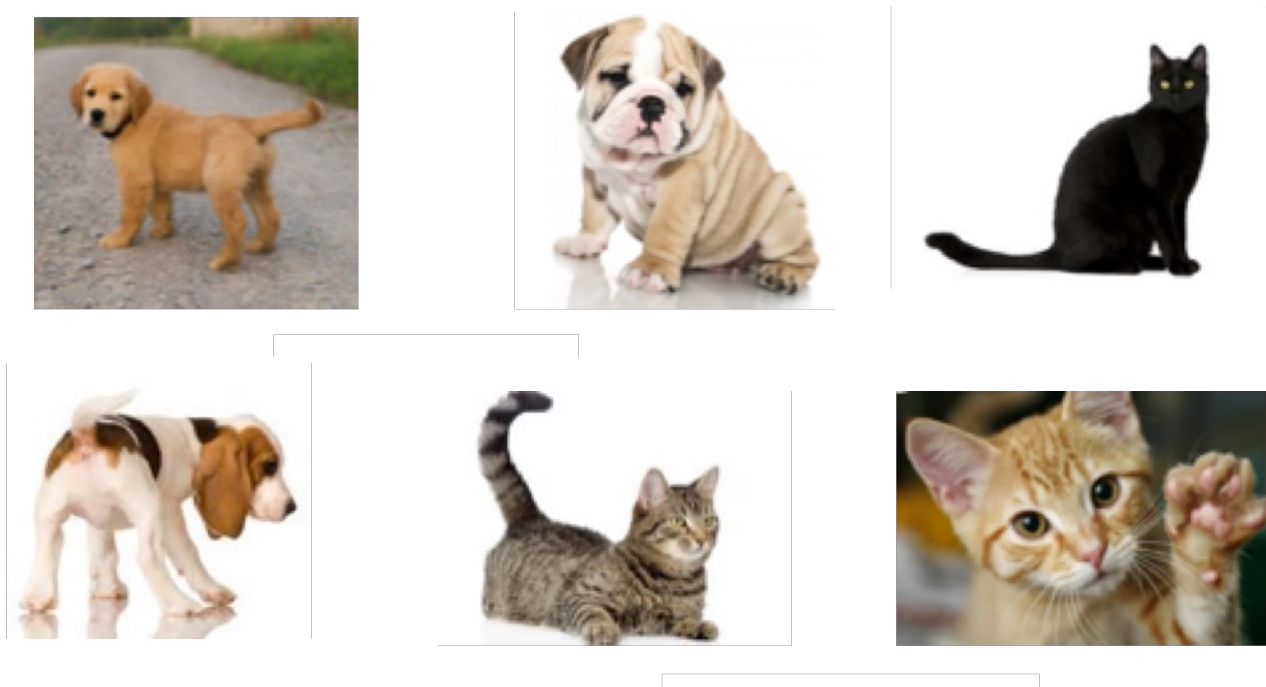
  - data comes with expected outcomes or labels



Dogs



Cats

# Types of Learning

- Unsupervised Learning

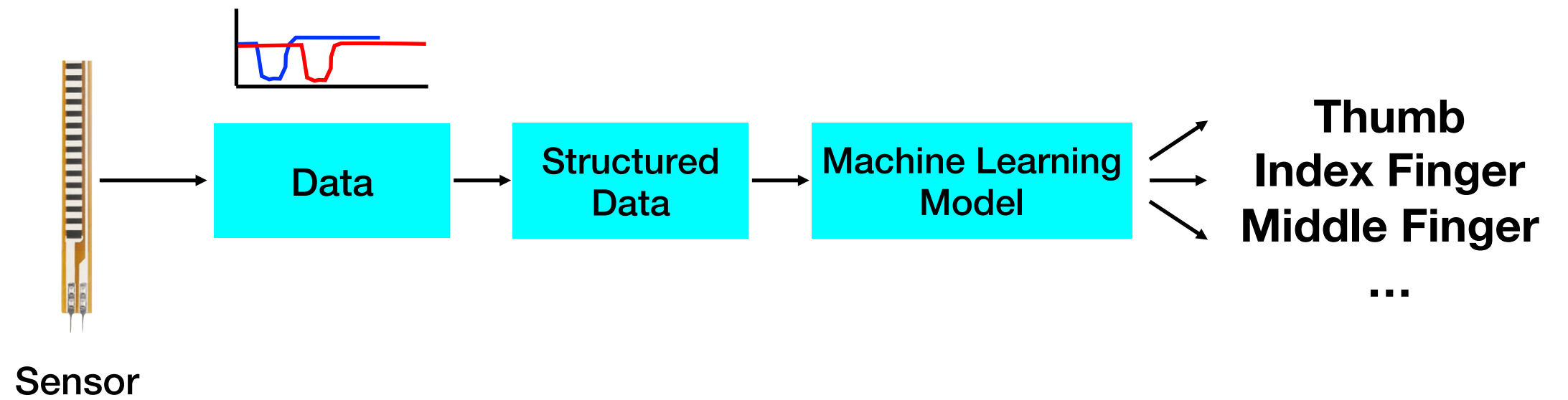  - data does not come with expected outcomes or labels
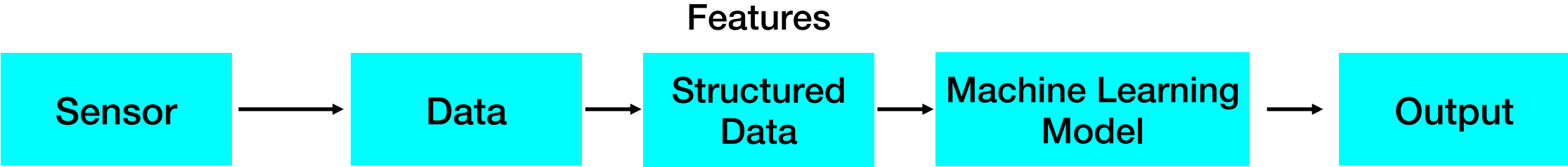


Put these images in XX different groups

# Classification *vs* Regression

- Classification: categorizing things

  - *e.g.,* Is this an apple?

- Regression: estimating a value

  - *e.g.,* What is the weight of this apple?

Sensor

Data

Structured Data

Machine Learning Model

**Thumb**
**Index Finger**
**Middle Finger**
**...**

Features

| Sensor | → | Data | → | Structured Data | → | Machine Learning Model | → | Output |

# Features



vs.

What is a good data representation?

What captures the difference here?

What can I measure?

Weight? Color? Texture? Softness? Taste?
Number of seeds?

# Assignment 3

- Collect a dataset of motion sensors on the phone for a set of daily activities

- Make sure to at least include:

  - Walking (at least 4 hours)

  - Climbing up the stairs (at least 20 minutes)

  - Climbing down the stairs (at least 20 minutes)

  - Standing up (at least 50 instances)

  - *one more activity of your choice*
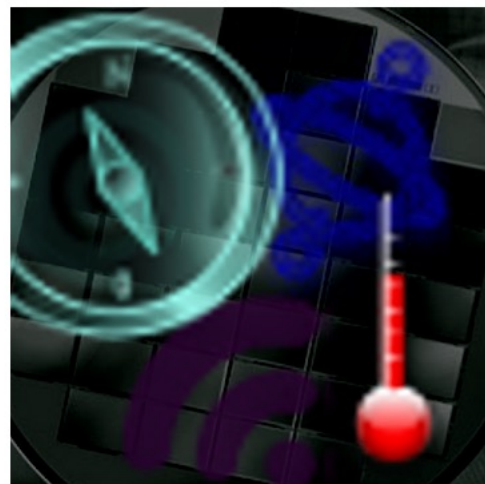
# Apps to use for Assignment 3

iOS

**VibSensor - accelerometer recorder, vibration analysis, and data export** `4+`
Now Instruments and Software, Inc.
★★★★★ 4.3, 15 Ratings
Free · Offers In-App Purchases

Android

## AndroSensor

**Fiv Asim**  **Tools**

★★★★☆ 7,369

E  Everyone

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