Data Science Capstone Project: Human Activity Recognition

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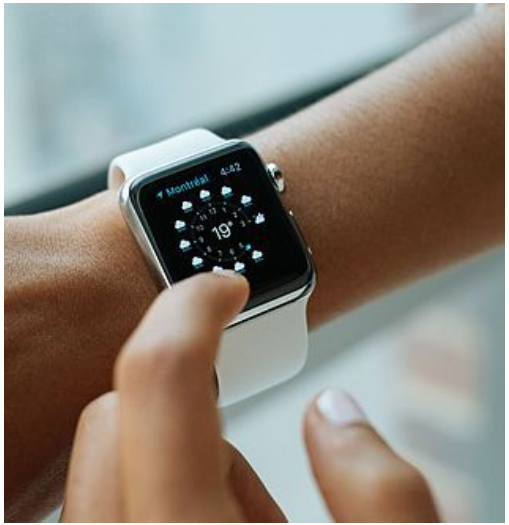
Presentation Outline

- Introduction: Motivations and Problem Description
- Dataset and Feature Engineering
- Exploratory Data Analysis
- Statistical Inference
- Machine Learning Models
- Conclusions

Introduction: Motivations and Dataset

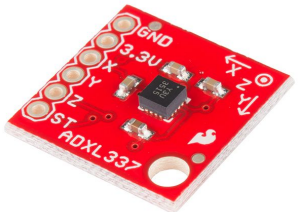
Background/Motivation

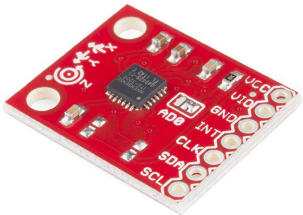
- Human activity recognition (HAR) has become an in-demand capability for several growing applications over recent years, including:
  - monitoring of activities of patients suffering from chronic diseases (such as diabetes or COPD) to continuously manage their health/treatments
  - monitoring sleep and exercise patterns
- The reduced size of accelerometers and gyroscope components have made them standard in most smartphone and wearable computer devices.
- However, accurate activity classification is an ongoing area of research.



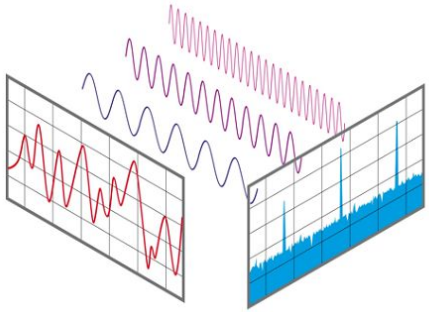
Problem Description

Given sensor data gathered from several subjects performing several activity types, train a model that is able to classify new sensor data into one of the observed activity types.

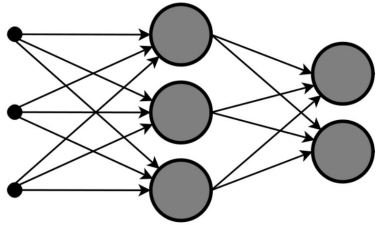


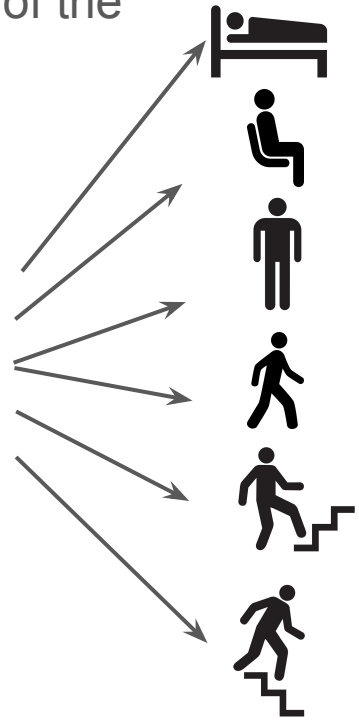


raw sensor data



extract feature set





train neural network classifier