

# Fundamentals of Data Science

Introduction: Core Concepts and Technologies

# The Results of data science: example applications

# Healthcare

- activity and cost data
  - what diseases, where, spread, cost of treatment etc.
- amount of care, and cost
- clinical data
- pharmaceutical R&D data
- patient behaviour

# Healthcare (2)

Data Science Process Stage	Application
Data collection	Collecting data through sensors, either within a hospital or outside (e.g. using wearables).
Machine learning	Identify when a patient may be at risk.
Product	Application to warn patient or hospital if the individual is at risk.

# Personal assistants: Google Now

Data Science Process Stage	Application
Data collection	Scans users emails to extract details about events
Machine learning	Identifies data relevant to particular events
Visualisation	Presents information as 'cards' to remind the user about events
Product	An application for phone or computer that reminds user of events at appropriate times.

# Twitter: while you were away

- machine learning driven process
- selects relevant or interesting tweets that have come in since you last checked your feed

# Twitter

Data Science Process Stage	Application
Data collection	Collects tweets from the accounts that the user follows
Machine learning	Algorithm detects which of the tweets the user will find most interesting
Visualisation	Filters tweets on the timeline to highlight those that the user may be interested in but would have missed
Product	Part of the larger Twitter product.

# IBM Chef Watson

Data Science Process Stage	Application
Data collection	Analyses corpus of existing recipes
Machine learning	Extracts patterns from recipes. Uses these to create new recipes.
Product	Recipes displayed on a website on which the user selects key ingredients.