Astroinformatics school - "Rise of the machines"

Curtin University
THE CURTIN INSTITUTE FOR COMPUTATION

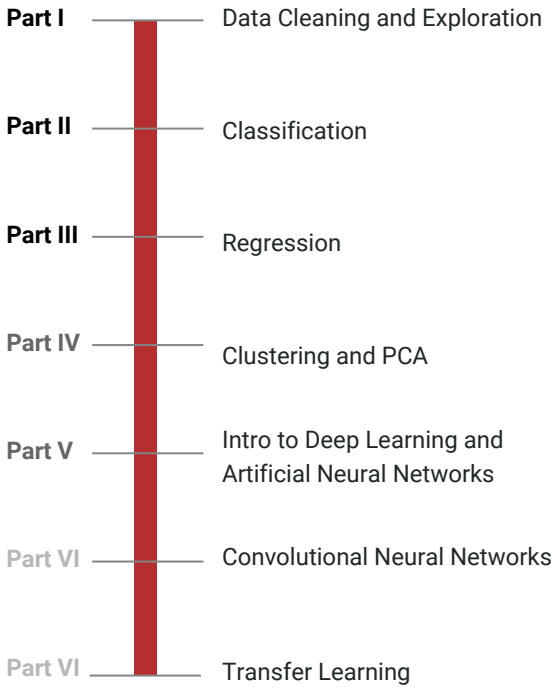
4 to 6 February 2019

Presented by Rebecca Lange and Dan Marrable

Agenda

ADACS
ASTRONOMY DATA AND COMPUTING SERVICES

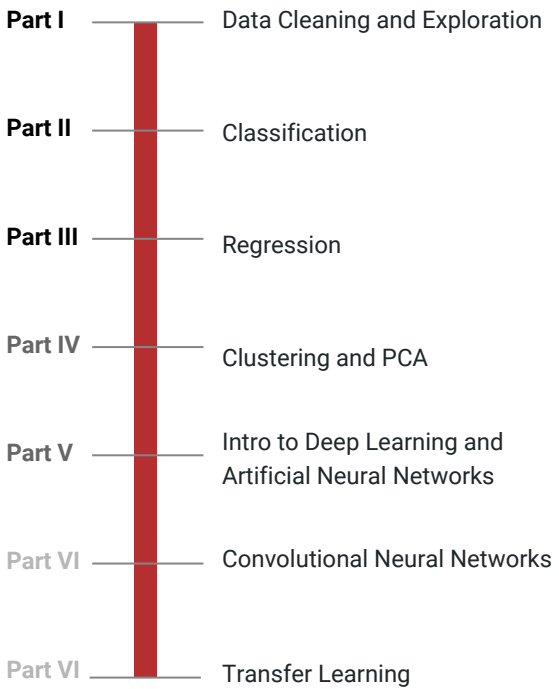
- Introduction & what to expect
- Workshop
- Presentations
- Hack session -> present your work
- Q&A



What to expect

ASTRONOMY DATA AND COMPUTING SERVICES

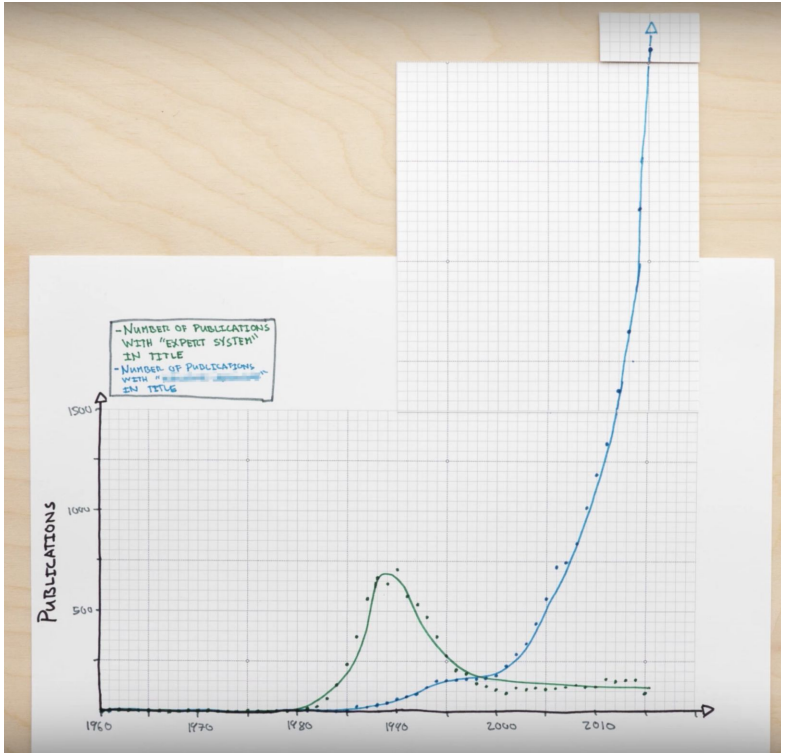
- Housekeeping
  - Breaks @ 10.30am - 11am, 12.30pm - 1.30pm, 3pm -3.30pm
  - Evacuation
  - Facilities
- Instructors/Helpers
  - Dan, Rebecca
  - Matt, Leoni
- Workshop format
  - Mix of lecture and hands on jupyter notebooks
  - There will be challenges - form teams of 4 to 6 people
  - Time to present solutions on day 3
  - Afternoon of Day 3 will be talks, challenge solutions (by you) and time for Q&A



Machine Learning

ADACS
ASTRONOMY DATA AND COMPUTING SERVICES

- Algorithms that learn from examples and experiences (data)
- ML is about mapping: input → target
- Performs better than hard coded rules for complex problems



Source: Welch Labs, Learning to See - Part 3, video series 2016

Examples

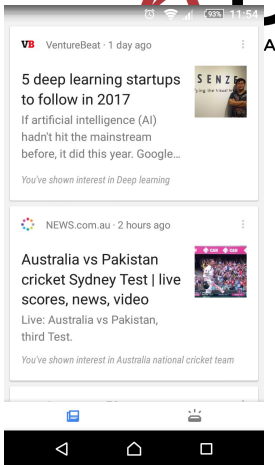
Google
Australia

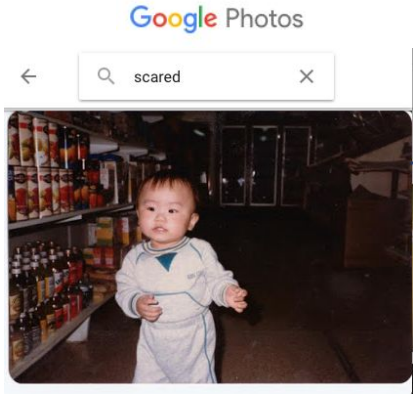
"Hey Siri, what's the best sushi place in town?"

NETFLIX

Other Movies You Might Enjoy
2001: A Space Odyssey has been added to your Queue at position 339.
This movie is available now.
Move To Top Of My Queue
Continue Browsing
Visit your Queue

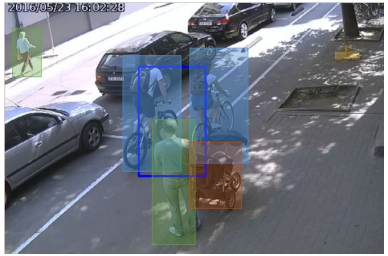
Google
Translate


VentureBeat · 1 day ago
5 deep learning startups to follow in 2017
If artificial intelligence (AI) hadn't hit the mainstream before, it did this year. Google...
You've shown interest in Deep learning
NEWS.com.au · 2 hours ago
Australia vs Pakistan cricket Sydney Test | live scores, news, video
Live: Australia vs Pakistan, third Test.
You've shown interest in Australia national cricket team


Google Photos
scared

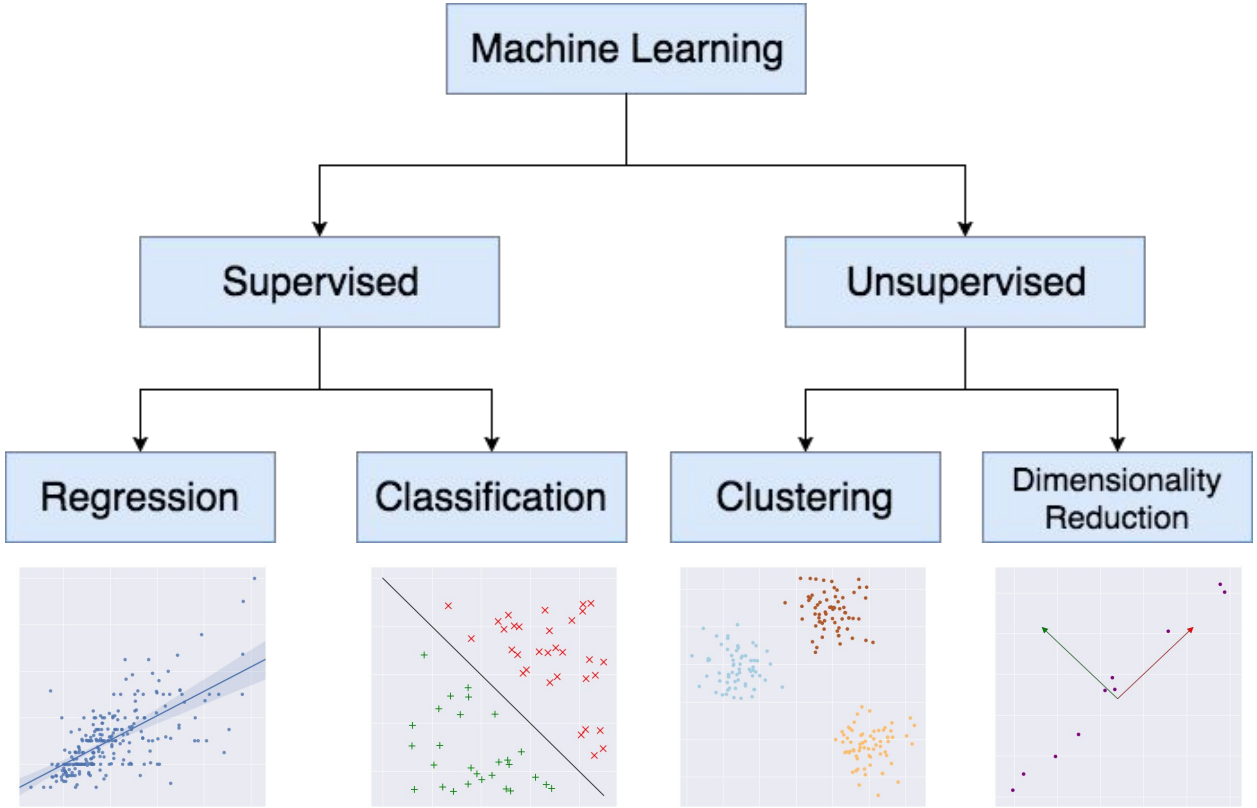
Examples

ADACS
ASTRONOMY DATA AND COMPUTING SERVICES

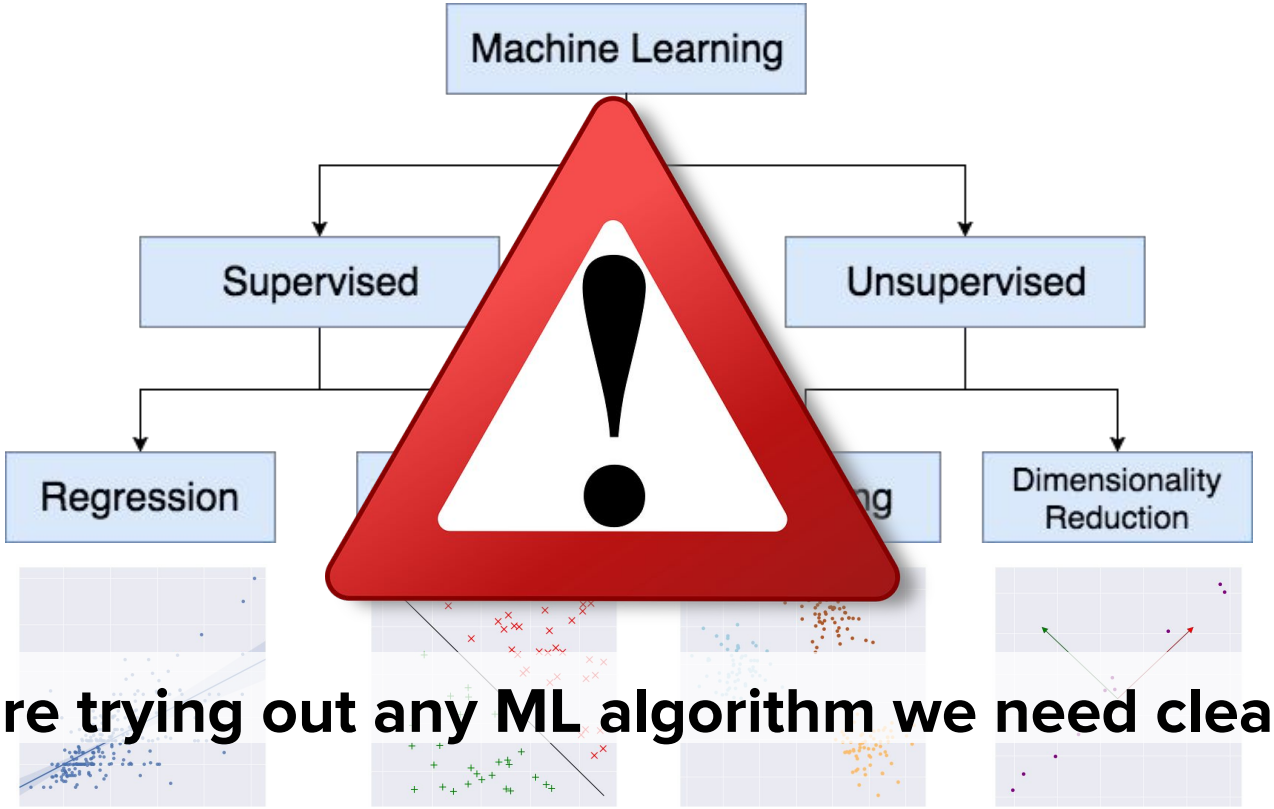


Algorithms

ASTRONOMY DATA AND COMPUTING SERVICES



Algorithms



Before trying out any ML algorithm we need clean data