MACHINE LEARNING MODULE INTRO

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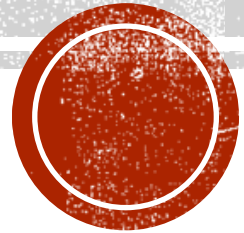

LEARNING OUTCOMES

- On completion of this module the learner will/should be able to;
  - Source documentation to use machine learning libraries and packages in computer programs.
  - Pre-process a data set for use in a machine learning context.
  - Select an appropriate mathematical model of a real-world problem.
  - Select an appropriate cost function for a given machine learning task.
  - Apply an optimisation technique to the parameters of a model.
  - Use a trained model to make a prediction.
- Note: 10 ECTS

COURSE SYLLABUS - SUBJECT TO CHANGE...

- General ML stuff:
  - Supervised and Unsupervised Algorithms
  - Classification
  - Regression
  - Generalisation
    - Underfit/Overfit
    - Bias/Variance
    - Training/Test sets
    - Error/Loss Functions
  - Cross-Validation
  - Gradient Descent
  - Regularisation

COURSE SYLLABUS - SUBJECT TO CHANGE...

- Models/Algorithms:
  - Naive Bayes
  - K-Nearest Neighbour
  - Support Vector Machines
  - Neural Networks
  - Principle Component Analysis - Eigenvectors
- Applications:
  - Natural Language Processing (NLP) (Speech Recognition)
  - Computer Vision
  - Some other things

ASSESSMENT

- Moodle MCQs
- Project
- Dates TBC

BOOKS

- There are loads of books on machine learning