Course Name

Introduction to Machine Learning

Course Description

This course provides students with the essential knowledge on key concepts and technologies in Machine Learning (ML), and how to apply them to solve given data, document or text processing tasks. The first component of this course will introduce basic concepts like regression, classification and clustering, illustrated by examples. It will also prepare the basic understanding about probabilities which the following lectures will use. The second component will introduce Graphical Models as modern tools for designing and solving ML tasks, and the third component will focus on applications of Graphical Models to solve tasks in computer vision. The final component will discuss the important topic of how to select appropriate models for ML which can be confidently applied to predict future information. This component will be complemented with applications of ML in Text and Document processing. During the tutorial sessions, the students will deepen their understanding of ML by solving data processing tasks using some characteristic data sets and algorithms.

Load – Hours per Week

This course will run over a contact time of 2 days, with 8 hours per day, plus an additional 8 hours of self directed work. No additional workload outside of these hours is expected from the student.

Proposed Teaching Methods and Assessment Practices

Lecture style morning sessions on two days; afternoon guided experiments. Plus another 8 hours self-guided project work on a small project.

Assessment Grades to be used

No assessment is currently being considered for this course. However as mentioned above, a Pass/Fail grading system could be adopted if required.

Mode of Delivery

Internal. This course will be provided from NICTA's CRL and ATP Laboratory.

Information Technology Requirements for Students

For the afternoon tutorials, students are expected to bring their own laptops, or share a laptop with another student. Prior to the tutorials, students will be expected to download several software packages and make sure that they can successfully use them.

Textbook

There is no requirement for a textbook.

Teaching Arrangements

No other unit courses will contribute to this course.

Administrative Arrangements

- Delivery of course material: provided through a web portal to be set up at NICTA.
- Timetable coordination will be done by NICTA
- Examination cost, invigilation and location: will be handled by NICTA.