Liverpool John Moores University

Title:	Enterprise Machine Learning
Status:	Definitive
Code:	**7147COMP** (127281)
Version Start Date:	01-08-2021
Owning School/Faculty:	Computer Science and Mathematics
Teaching School/Faculty:	Computer Science and Mathematics

Team	Leader
Carl Chalmers	Y
Paul Fergus	

Academic Level:	FHEQ7	**Credit Value:**	20	**Total Delivered Hours:**	33
Total Learning Hours:	200	**Private Study:**	167		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	11
Practical	11
Tutorial	11

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	A critical review of a range of enterprise deployment tools for large machine learning projects. Design of enterprise-ready machine learning project.	40	
Artefacts	AS2	Develop an enterprise-ready machine learning solution for large machine learning project.	60	

Aims

To develop knowledge of enterprise machine learning at master's degree level and provide guidance on the design decisions required for large scale deployment.
To provide an understanding of enterprise tools and how they can be used to deploy machine learning projects.
To provide help on establishing deployment strategies for large scale machine learning projects.

Learning Outcomes

After completing the module the student should be able to:

1	Critically analyse enterprise ready tools for large scale machine learning projects and implementation.
2	Critically evaluate the benefits provided by Commercial and Open Source enterprise tools (including those provided by Cloud) for machine learning deployment.
3	Design an enterprise-ready machine learning deployment strategy for a large scale machine learning project.
4	Develop an enterprise-ready machine learning solution for a large scale machine learning project.
5	Demonstrate an advanced understanding of the end-to-end ML pipeline.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Report	1	2	3
Prototype	4	5	

Outline Syllabus

1.Introduction to Machine Learning (ML) Production
2.Deployment Frameworks and Technologies
3.Hardware Consideration and Planning
4.Model Deployment
5.Hosting Architectures
4. Web Deployment with Flask
5. Application Deployment
6. Component Oriented Computing
7. Docker and Containerisation
8. Virtualisation
9. Performance Testing and Tuning
10. Resilient Services
11. ML Algorithms as a Service; Future Directions and Advancements

Learning Activities

Formal lectures will introduce core topics. Tutorials and in-class practical group activities will provide exercises to develop skills

Notes

This module provides a best-practice set of enterprise tools for deploying large-scale machine learning projects. This will help to equip the student with enterprise ready skills need to deploy large-scale machine learning projects in industry.