WM9M9-15 Artificial Intelligence for Healthcare

25/26

Department
  WMG
Level
  Taught Postgraduate Level
Module leader
  Mohannad Alajlani
Credit value
  15
Module duration
  4 weeks
Assessment
  100% coursework
Study location
  University of Warwick main campus, Coventry

Description

Introductory description

Utilise AI principles to develop intelligent digital healthcare systems that have the potential to revolutionise healthcare and produce more accurate diagnoses and treatment plans that could lead to better patient outcomes. This module explores the principles of AI deployment in healthcare and the framework used to evaluate downstream effects of AI healthcare solutions. In the process to understand the above, this module will explore the fundamental concepts and principles of machine learning, medical use cases, metrics unique to healthcare, as well as best practices for designing, building, and evaluating machine learning applications in healthcare.

Module aims

Develop knowledge on concepts of Artificial Intelligence, machine learning and deep learning and their application in national and international healthcare systems

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be

covered. Actual sessions held may differ.

- Principals of Artificial Intelligence, Machine Learning and Deep Learning
- use AI for Medical Diagnosis
- use AI to predict and help in prognosis in clinical care
- Definition and use of natural language processing
- Definition and evaluate of AI enabled Clinical decision support

Learning outcomes

By the end of the module, students should be able to:

- Critically evaluate how Artificial Intelligence, Machine Learning and Deep Learning techniques could be deployed in a workplace scenario including the business case rationale and governance for AI
- Interpret and build basic models that use AI for medical diagnosis and medical treatment and appraise standard evaluation metrics to determine how well a model performs in diagnosing diseases
- Develop a critical understanding of how to build models that use natural language processing to extract information from electronic health records and other data repositories
- Appraise how knowledge can be transformed from generation to modelling into a computable form
- Formulate and evaluate AI enabled Clinical Decision Support Systems (CDSS) and translate clinical pathways and guidelines into decision support tools

Indicative reading list

TBC

Subject specific skills

- Deploying Artificial Intelligence, Machine Learning and Deep Learning techniques in healthcare
- Ability to build models that use AI for medical diagnosis and medical treatment
- Ability to design and evaluate AI enabled Clinical Decision Support Systems (CDSS)

Transferable skills

- Deployment of Artificial Intelligence, Machine Learning and Deep Learning techniques
- Process relevant historical data and make a precise decisions.
- Design and evaluate CDSS

Study

Study time

Type	Required
Seminars	30 sessions of 1 hour (20%)
Private study	60 hours (40%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Directed study based around trigger activities and consolidation to support learning

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time	Eligible for self-certification
Basic AI model	50%	30 hours	Yes (extension)
Build basic AI model based on a healthcare problem			
Reflective piece on an AI activity	50%	30 hours	Yes (extension)
A reflection on the process of the development of the AI activity and the outcome achieved			

Feedback on assessment

Written feedback via Tabula

Availability

Courses

This module is Core for:

- MSc Digital Transformation for Healthcare