CSIT 260
Introduction to Machine Learning
3 Credits

Community College of Baltimore County
Common Course Outline

Description

CSIT 260 – Introduction to Machine Learning: allows students to explore current trends and techniques related to machine learning (ML), blending theoretical concepts with applied projects in artificial intelligence. Topics include machine learning methodologies, classification algorithms, evolutionary computation, neural networks, deep learning, reasoning, modeling, and examination of emerging trends in the field.

Pre-requisites: CSIT 210 and MATH 153 or permission of the program director

Overall Course Objectives

Upon completion of this course, students will be able to:

1. describe various machine learning algorithms;
2. design programs using appropriate machine learning algorithms;
3. demonstrate the use of evolutionary computational techniques;
4. describe supervised, unsupervised, and reinforcement learning;
5. apply sentiment analysis for text-based data;
6. use algorithms for pattern recognition;
7. design programs and models using various datasets;
8. demonstrate predictive modeling to forecast trends in data;
9. write programs that use clustering algorithms;
10. solve programming problems using classification algorithms;
11. discuss the goals and applications of deep learning;
12. design programs that use neural networks;
13. identify ethical issues, bias, and problems of fairness in machine learning based systems; and
14. explain emerging trends and technologies in the field of machine learning.

Major Topics
I. Introduction to machine learning
II. Supervised, unsupervised, and reinforcement learning
III. Working with various datasets
IV. Classification
V. Clustering
VI. Evolutionary computation
VII. Deep learning
VIII. Neural network architectures
IX. Predictive modeling

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor's syllabus.

X. Pattern recognition
XI. Sentiment analysis
XII. Ethics, bias, and fairness in machine learning
XIII. Emerging topics

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Six quizzes or assignments
- Six projects
- Two exams
- One comprehensive final exam and/or final project

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

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