CS-370-X6161 Current/Emerging Trends in CS 23EW6

Module Two Introduction

Module Two

Learning Objectives

By the end of this module, you will meet these learning objectives:

- ☑ Compare human and machine intelligence

- ☑ Apply concepts of neural networks to solve programming problems

Module Overview

Now that you've had an introduction to the basic concepts of artificial intelligence, it's time to start learning the details. In this class, we will focus on some of the current and emerging trends in the field. It is fair to say that deep learning is dominating the industry today.

This week, we will begin creating neural networks using the Keras library. Artificial neural nets are a biologically inspired machine learning approach that simulate layers of interconnected neurons, which fire when a certain threshold is reached. Once a neural network is trained using training data, it can be used to accurately classify test data. Neural networks are used across industries in everything from sales forecasting, customer research, data validation, and risk management to anomaly detection in data and natural language understanding.

Your textbook does an excellent job of explaining the basics of how neural networks work, but it does get a bit math-heavy at times. In this class we will focus more on implementation than theory, and a deep understanding of the underlying mathematics is not required to succeed in this course. Of course, for those of you who are up for the challenge, we welcome you to go into more depth and ask questions!

You will also have a graded discussion and an assignment for this week. The discussion will ask you to compare the biological neural networks that we all possess to their artificial counterparts. The goal of your assignment is to help you familiarize yourself with the technology you will be using this term: Jupyter Notebook, the Virtual Lab (Apporto), Python, and Keras. You will be asked to create a Jupyter Notebook from scratch, run some code examples from your textbook, and interpret the results. Be sure to reach out to your instructor if you have any questions!

Module at a Glance

This is the recommended plan for completing the reading assignments and activities within the

module. Additional information can be found in the module Resources section and on the module
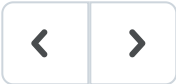table of contents page.

Reflect in ePortfolio   Download   Print

1   Review the Module Two resources.
Open with docReader

2   Post your initial response to this week's discussion.

3   Complete the Module Two Assignment.

Activity Details

Review the Project One reminder.

You have viewed this topic

5   Post peer responses to the discussion.
Read this introduction to learn what you'll be working on in this module.

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