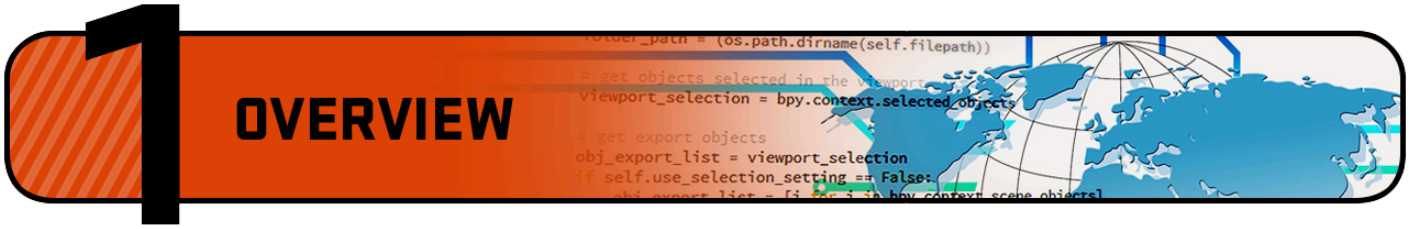
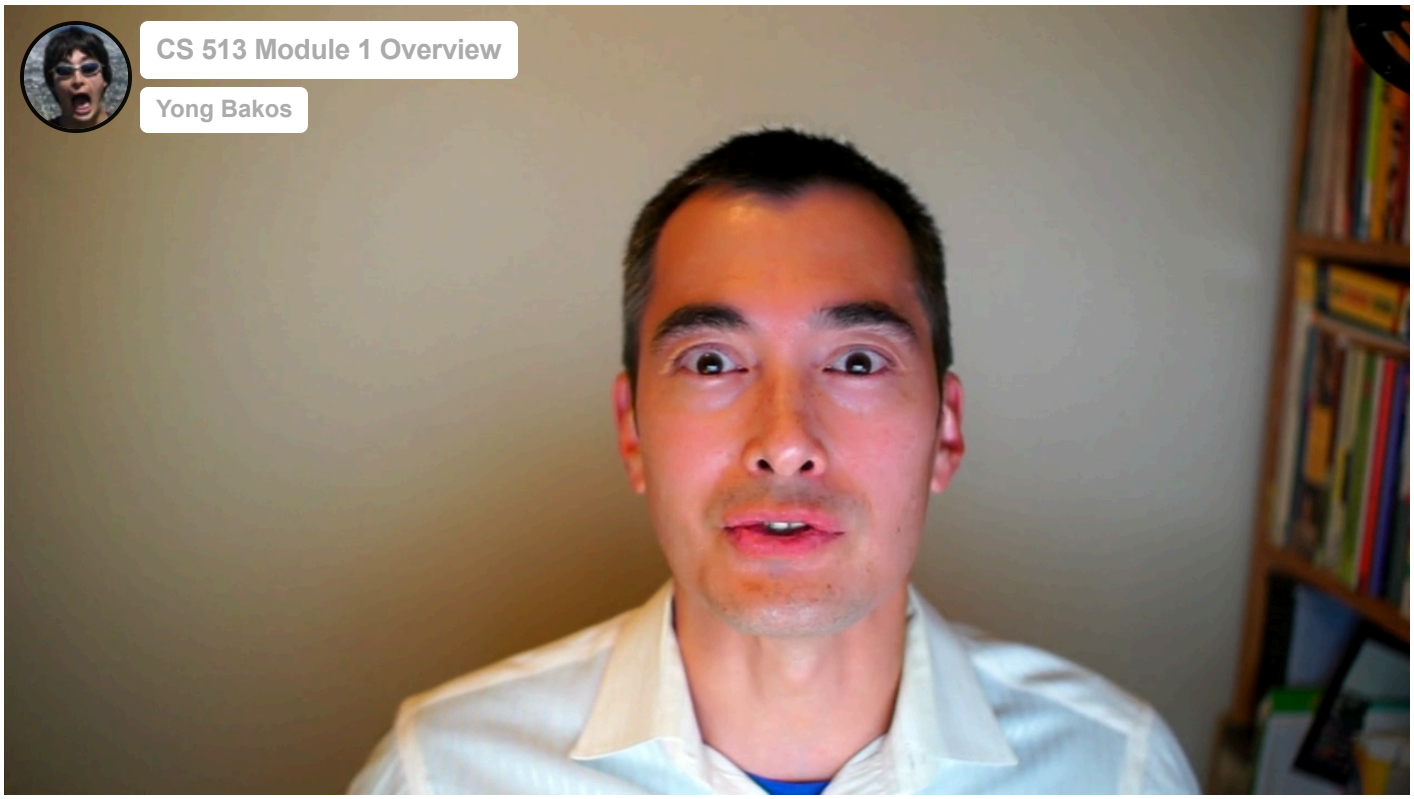
Overview: Introduction to Machine Learning (w1)



Introduction

Welcome to Applied Machine Learning. In this module, we will explore what machine learning is and define it. Our goal is to create a cognitive framework of high-level concepts and terminology in machine learning, so that, as we progress, we can store our new knowledge, algorithms and applications in the proper place during our learning journey. We will define machine learning and see how it is related to statistics and other disciplines; and we will see how machine learning is split into two general strategies: supervised and unsupervised learning. We'll see examples of supervised and unsupervised algorithms, as a preview of what we will be learning in this course.



We will check our knowledge with a quiz, and practice working with Jupyter Notebooks to both present and run our machine learning code, in Python.

Module Learning Outcomes

After successful completion of this module, you should be able to do the following (in addition to answering the questions listed below):

1. Define machine learning and define common terms from the domain of machine learning (CLOs 1 & 2)
   - What is machine learning? How is it related to statistics, big data, artificial intelligence, data mining and data science?
2. Describe the differences between supervised and unsupervised learning (CLOs 1 & 2)
   - What is supervised learning, and what does it require?
   - What is unsupervised learning, and how is it different from supervised learning?
   - What are the general categories of supervised and unsupervised machine learning techniques?
3. Describe the general machine learning process (CLOs 1 & 2)
   - What are the general "big picture" steps of applying machine learning?
4. Describe example real-world applications of machine learning (CLO 1)
   - How do practitioners apply machine learning in the real world?
5. View, modify and execute a Jupyter Notebook (CLOs 3, 4, 6 - 8)
   - How do you open, view, modify and execute a Jupyter Notebook?

Explorations

Use the pages within this module to explore the following concepts:

- **Exploration: What is Machine Learning? (https://canvas.oregonstate.edu/courses/2025514/modules/items/25512048)** (MLOs 1 - 4)
- **Exploration: The Machine Learning Process (https://canvas.oregonstate.edu/courses/2025514/modules/items/25512049)** (MLO 3)
- **Exploration: Introduction to Jupyter Notebooks (https://canvas.oregonstate.edu/courses/2025514/modules/items/25512050)** (MLO 5)

Task List

Please make sure to complete the following assignments and other tasks:

- Read **the Overview (https://canvas.oregonstate.edu/courses/2025514/modules/items/25512047)** and watch the module overview video (MLOs 1 - 5)
- Complete the Explorations, and ask two questions on the forum (MLOs 1 - 5)
- Complete **Quiz 1 (https://canvas.oregonstate.edu/courses/2025514/modules/items/25512052)** (MLOs 1 - 4)

- Complete **Notebook 1** **(https://canvas.oregonstate.edu/courses/2025514/modules/items/25512051)** (MLO 5)
- Read **the Review** **(https://canvas.oregonstate.edu/courses/2025514/modules/items/25512053)** and practice your recall with the review questions (MLOs 1 - 4)

(https://canvas.oregonstate.edu/courses/2025514/modules)

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