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Welcome!


Classification is one of the most widely used techniques in machine learning, with a broad array of applications, including sentiment analysis, ad targeting, spam detection, risk assessment, medical diagnosis and image classification. The core goal of classification is to predict a category or class y from some inputs x. Through this course, you will become familiar with the fundamental models and algorithms used in classification, as well as a number of core machine learning concepts. Rather than covering all aspects of classification, you will focus on a few core techniques, which are widely used in the real-world to get state-of-the-art performance. By following our hands-on approach, you will implement your own algorithms on multiple real-world tasks, and deeply grasp the core techniques needed to be successful with these approaches in practice. This introduction to the course provides you with an overview of the topics we will cover and the background knowledge and resources we assume you have.

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Help Center

Welcome to the course

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- Welcome to the classification course, a part of the Machine Learning Specialization 1 min (/learn/ml-classification/lecture/YMpzf/welcome-to-the-classification-course-a-part-of-the-machine-learning)
- What is this course about? 6 min (/learn/ml-classification/lecture/qZhKx/what-is-this-course-about)
- Impact of classification 1 min (/learn/ml-classification/lecture/OnpWH/impact-of-classification)

Course overview and details

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- Reading: Software tools you'll

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Installing correct version of GraphLab Create

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Linear Classifiers & Logistic Regression


Linear classifiers are amongst the most practical classification methods. For example, in our sentiment analysis case-study, a linear classifier associates a coefficient with the counts of each word in the sentence. In this module, you will become proficient in this type of representation. You will focus on a particularly useful type of linear classifier called logistic regression, which, in addition to allowing you to predict a class, provides a probability associated with the prediction. These probabilities are extremely useful, since they provide a degree of confidence in the predictions. In this module, you will also be able to construct features from categorical inputs, and to tackle classification problems with more than two class (multiclass problems). You will examine the results of these techniques on a real-world product sentiment analysis task.

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Linear classifiers Start Lesson (/learn/ml-classification/lecture/HNKIj/linear-classifiers-a-motivating-example)

Slides presented in this module

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Linear classifiers: A motivating example 2 min

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Intuition behind linear classifiers 4 min

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Decision boundaries 3 min

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Linear classifier model 6 min

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Effect of coefficient values on decision boundary 2 min

(/learn/ml-classification/lecture/Qy2js/effect-of-coefficient-values-on-decision-boundary)

Using features of the inputs 2 min

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Class probabilities

Predicting class probabilities 2 min

(/learn/ml-classification/lecture/j4Ji0/predicting-class-probabilities)

Review of basics of probabilities 6 min

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Review of basics of conditional probabilities 9 min

(/learn/ml-classification/lecture/Cun2N/review-of-basics-of-conditional-probabilities)

Using probabilities in classification 3 min

(/learn/ml-classification/lecture/f0nhO/using-probabilities-in-classification)

Logistic regression

Predicting class probabilities with (generalized) linear models 5 min

(/learn/ml-classification/lecture/OV5Kt/predicting-class-probabilities-with-generalized-linear-models)

The sigmoid (or logistic) link function 5 min

(/learn/ml-classification/lecture/KXvGC/the-sigmoid-or-logistic-link-function)

Logistic regression model 5 min

(/learn/ml-classification/lecture/OJQXu/logistic-regression-model)

Effect of coefficient values on predicted probabilities 7 min

(/learn/ml-classification/lecture/JkEEH/effect-of-coefficient-values-on-predicted-probabilities)

Overview of learning logistic regression models 2 min

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Practical issues for classification

Encoding categorical inputs 5 min

(/learn/ml-classification/lecture/kCY0D/encoding-categorical-inputs)

Multiclass classification with 1 versus all 7 min

(/learn/ml-classification/lecture/N7QA6/multiclass-classification-with-1-versus-all)

Summarizing linear classifiers & logistic regression

Recap of logistic regression classifier 1 min

(/learn/ml-classification/lecture/laPcB/recap-of-logistic-regression-classifier)

Quiz: Linear Classifiers & Logistic Regression 5 questions

(/learn/ml-classification/exam/cddwS/linear-classifiers-logistic-regression)

Programming Assignment

Predicting sentiment from product reviews

(/learn/ml-classification/supplement/NtMAS/predicting-sentiment-from-product-reviews)

Quiz: Predicting sentiment from product reviews 13 questions

(/learn/ml-classification/exam/gLYyl/predicting-sentiment-from-product-reviews)