

# Topics in Machine Learning

Spring 2021, CS185C Section 1

## Instructor Information

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## Course Description

In this course, we will cover the following machine learning and deep learning topics:

- Hidden Markov Model (HMM)
- Principal Component Analysis (PCA)
- Support Vector Machine (SVM)
- Multilayer Perceptron (MLP)
- Backpropagation
- Convolutional Neural Network (CNN)
- Recurrent Neural Network (RNN)
- Long Short-Term Memory (LSTM)
- Generative Adversarial Network (GAN)

and much, much more!

For each major topic covered, illustrative applications—many drawn from the field of information security—will be discussed. The class will include hands-on lab exercises involving each of the neural network architectures listed above. These labs will be based on Google's TensorFlow. A semester-long team project will be required. Note that this class *cannot* be used as an elective in the MSCS program.

