

# Outline

Introduction—What is Machine Learning?

Probability Theory Review

Bayesian Machine Learning

Working with Gaussians

Density estimation

Linear Regression

Linear Classification

- Generative Classification

- Discriminative Classification

Clustering with Gaussian Mixture Models

The (General) EM Algorithm

Continuous Latent Variable Models—FA, PCA, ICA

Temporal Latent Variable Models—Kalman Filtering and HMM

Review and Perspective