

# Chapter THREE Generative Models

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September 10, 2020

The notes is mainly based on the following books:

- Understanding Machine Learning: From Theory to Algorithms, Shai Shalev-Shwartz and Shai Ben-David, 2014 <sup>1</sup>
- Pattern Recognition and Machine Learning, Christopher M. Bishop, 2006 <sup>2</sup>
- Probabilistic Graphical Models: Principles and Techniques, Daphne Koller and Nir Friedman, 2009 <sup>3</sup>
- Graphical Models, Exponential Families, and Variational Inference, Martin J. Wainwright and Michael I. Jordan, 2008 <sup>4</sup>

This part corresponds to **Chapter 24, 31 in UML, Chapter ? in PRML, Chapter ? in PGM**, and mainly answers the following questions:

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<sup>1</sup><https://www.cs.huji.ac.il/~shais/UnderstandingMachineLearning/understanding-machine-learning-theory-algorithms.pdf>

<sup>2</sup><http://users.isr.ist.utl.pt/~wurmd/Livros/school/Bishop - Pattern Recognition And Machine Learning - Springer 2006.pdf>

<sup>3</sup><https://mitpress.mit.edu/books/probabilistic-graphical-models>

<sup>4</sup><https://people.eecs.berkeley.edu/~wainwrig/Papers/WaiJor08.FTML.pdf>

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*Chapter 4. Linear models, perceptron, MLP, deep learning, Generalization bounds on deep learning.*