Classification with Restricted Boltzmann Machines

Projects in Machine Learning and AI

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Table of Contents

Table of Contents

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A bit more information about this

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Table of Contents

Some useful math equations

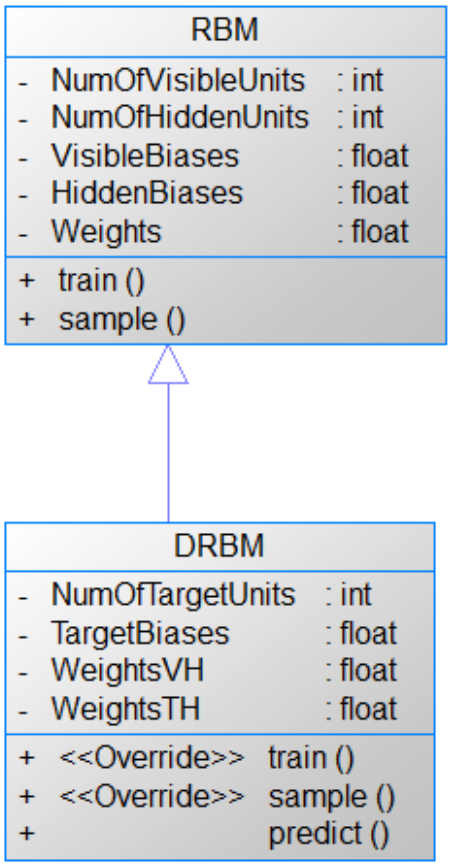
$$\mathbf{E}(\mathbf{v},\mathbf{h}) = \sum_{\mathbf{i}=1}^{\mathbf{V}} \frac{(\mathbf{v_i} - \mathbf{b_i^v})^2}{2\sigma_\mathbf{i}^2} - \sum_{\mathbf{j}=1}^{\mathbf{H}} \mathbf{b_j^h h_j} - \sum_{\mathbf{i}=1}^{\mathbf{V}} \sum_{\mathbf{j}=1}^{\mathbf{H}} \frac{\mathbf{v_i}}{\sigma_\mathbf{i}} \mathbf{h_j w_i j} \qquad (1)$$

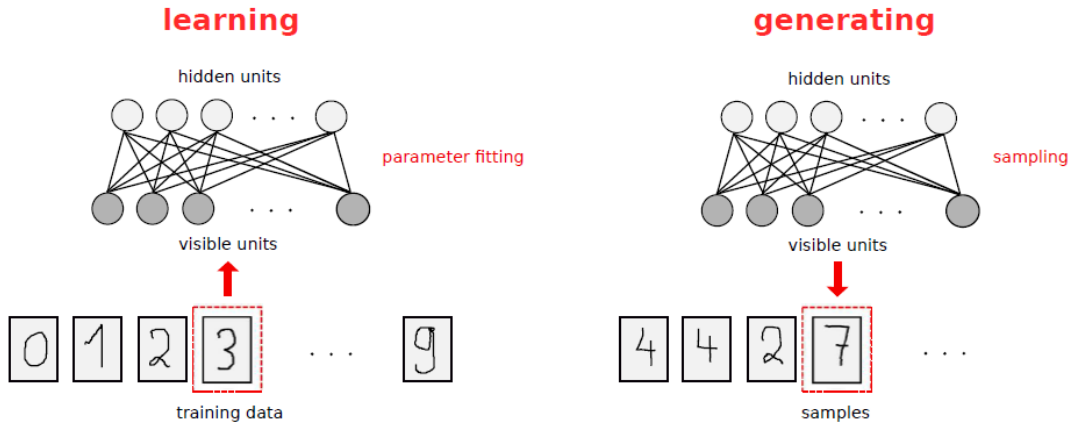
$$\mathbf{p}(\mathbf{v},\mathbf{h}) = \frac{\mathbf{e}^{-\mathbf{E}(\mathbf{v},\mathbf{h})}}{\sum_\mathbf{x} \sum_\mathbf{k} \mathbf{e}^{-\mathbf{E}(\mathbf{x},\mathbf{k})}} \qquad (2)$$

Table of Contents

Table of Contents

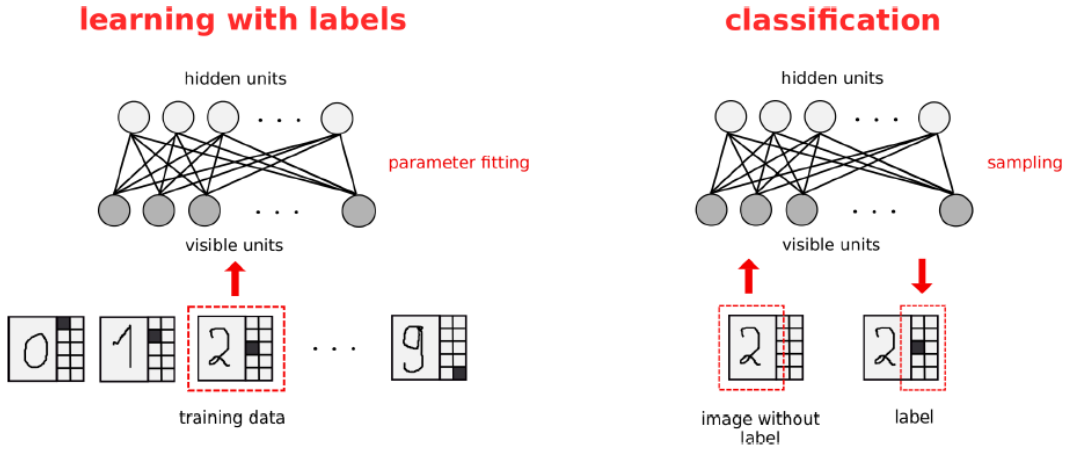
Implementation





GRBM

Source: A.Fischer, Ch.Igel: Training Restricted Boltzmann Machines: An Introduction



DRBM

Source: A.Fischer, Ch.Igel: Training Restricted Boltzmann Machines: An Introduction

Table of Contents

Further Reading I


A. Autor.
Introduction to Giving Presentations.
Klein-Verlag, 1990.


S. Jemand.
On this and that.
Journal of This and That, 2(1):50–100, 2000.