Symbols and Abbreviations

This appendix contains an overview of all symbols and abbreviations defined and used in the book.

# Symbols

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|  |  |
|  | Input observations. The index indicates the feature or component and the index indicates the observation. In general, is a real number. |
|  | When indicated in bold face with one single index, this indicates the input observation . The bold face indicates that this is a vector of which is the component. |
|  |  |
|  | is the loss (or sometimes called cost) function. |
|  | With I indicated the target variables, or labels. In general, they can be multi-dimensional. |
|  | Output of the neural network for observation . |
|  | Number of observations in the dataset. |
|  | The weight matrix for a FFNN between layer and . |
|  | Number of layers in te FFNN. |
|  | Number of neurons in layer in a FFNN. |
|  | Activation function of layer . |
|  | Probability that given observation the predicted class will be . |
|  | Gradient of the loss function. Note that this is a vector and not a scalar in general. |

# Abbreviations

|  |  |
| --- | --- |
| FFNN | Feed Forward Neural Network |
| CNN | Convolutional Neural Network |
| MSE | Mean Squared Error |
| MAE | Mean Absolute Error |
| GD | Gradient Descent |
| Adam | Adam Optimizer. Note that the name Adam is derived from adaptive moment estimation and is not an acronym[[1]](#footnote-1). |
| RMSProp | Root Mean Squared Propagation. RMSProp is an optimizer. |

1. Kingma, Diederik P., and Jimmy Ba. "Adam: A method for stochastic optimization." arXiv preprint arXiv:1412.6980 (2014). [↑](#footnote-ref-1)