



Training Artificial Neural Networks

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Introduction

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1. Basic Concepts

Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 10 pt. Here follows further instructions for authors.

1.1. Which Function ?

An ANNs classifier that is trained with cross-entropy loss approximates the conditional probability distribution function. More specifically, for an input data, the output of the classifier is a probability distribution for the classes. The cross-entropy loss function is a measure between the predicted probability distribution and the true distribution. The form of the loss function is decreasing, smooth and differentiable, which makes it easier to optimize using gradient-based methods. This form is also known as the negative log-like function.

1.2. Gradient Computation

1.3. Some Training Parameters and Basic Parameter Calculations

1. First point
2. Second point
3. And so on

1.4. Computing Number of Parameters of ANN Classifiers

1. First point
2. Second point

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An example of a column heading	Column A (<i>t</i>)	Column B (<i>t</i>)
And an entry	1	2
And another entry	3	4
And another entry	5	6

1.5. Implementing a Convolutional Layer with NumPy

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Fig. 1. (a) first picture; (b) second picture.

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$$X_r = \dot{Q}_{rad}'' / (\dot{Q}_{rad}'' + \dot{Q}_{conv}'') \quad (1)$$

$$\rho = \frac{\vec{E}}{J_c(T = \text{const.}) \cdot \left(P \cdot \left(\frac{\vec{E}}{E_c} \right)^m + (1 - P) \right)}$$

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References

- [1] Filippini, Massimo, and Lester C. Hunt. (2011) “Energy demand and energy efficiency in the OECD countries: a stochastic demand frontier approach.” *Energy Journal* **32** (2): 59–80.
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- [4] Saunders, Harry (2009) “Theoretical Foundations of the Rebound Effect”, in Joanne Evans and Lester Hunt (eds) *International Handbook on the Economics of Energy*, Cheltenham, Edward Elgar
- [5] Sorrell, Steve (2009) “The Rebound Effect: definition and estimation”, in Joanne Evans and Lester Hunt (eds) *International Handbook on the Economics of Energy*, Cheltenham, Edward Elgar

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