

ARTIFICIAL NEURAL NETWORK FOR REGRESSION

1. **Classification-(Supervised):** Predict a Category
 - Winner of Next Football Game
 - Next President of Country
2. **Regression-(Supervised):** Continuous Outcome
 - Real value like salary of New Emp
 - Temp of Tomorrow
 - Energy Output of a System
3. **Clustering-(Unsupervised):** Identify Some pattern in Data in form of Patterns , Clusters, Segments

ANN BUILT USING REGRESSION

COMBINED CYCLE POWER PLANT DATA SET

Abstract:

The dataset contains 9568 data points collected from a Combined Cycle Power Plant over 6 years (2006-2011), when the plant was set to work with full load.

Data Set Characteristics:	Multivariate	Number of Instances:	9568
Attribute Characteristics:	Real Values	Number of Attributes:	4
Associated Tasks:	Regression		

Data Set Information:

The dataset contains 9568 data points collected from a Combined Cycle Power Plant over 6 years (2006-2011), when the power plant was set to work with full load. Features consist of hourly average ambient variables Temperature (T), Ambient Pressure (AP), Relative Humidity (RH) and Exhaust Vacuum (V) to predict the net hourly electrical energy output (EP) of the plant.

A combined cycle power plant (CCPP) is composed of gas turbines (GT), steam turbines (ST) and heat recovery steam generators. In a CCPP, the electricity is generated by gas and steam turbines, which are combined in one cycle, and is transferred from one turbine to another. While the Vacuum is collected from and has effect on the Steam Turbine, the other three of the ambient variables effect the GT performance.

For comparability with our baseline studies, and to allow 5x2 fold statistical tests be carried out, we provide the data shuffled five times. For each shuffling 2-fold CV is carried out and the resulting 10 measurements are used for statistical testing. We provide the data both in .ods and in .xlsx formats.

Attribute Information:

- 1) Features consist of hourly average ambient variables
- 2) Temperature (T) in the range 1.81°C and 37.11°C,
- 3) Ambient Pressure (AP) in the range 992.89-1033.30 milibar,
- 4) Relative Humidity (RH) in the range 25.56% to 100.16%
- 5) Exhaust Vacuum (V) in teh range 25.36-81.56 cm Hg
- 6) Net hourly electrical energy output (EP) 420.26-495.76 MW

The averages are taken from various sensors located around the plant that record the ambient variables every second. The variables are given without normalization.

Artificial Neural Network

