Energy efficiency Data Set

Download: Data Folder, Data Set Description

Abstract: This study looked into assessing the heating load and cooling load requirements of buildings (that is, energy efficiency) as a function of building parameters.

Data Set Characteristics:	Multivariate	**Number of Instances:**	768	**Area:**	Computer
Attribute Characteristics:	Integer, Real	**Number of Attributes:**	8	**Date Donated**	2012-11-30
Associated Tasks:	Classification, Regression	**Missing Values?**	N/A	**Number of Web Hits:**	105370

Source:

The dataset was created by Angeliki Xifara (angxifara '@' gmail.com, Civil/Structural Engineer) and was processed by Athanasios Tsanas (tsanasthanasis '@' gmail.com, Oxford Centre for Industrial and Applied Mathematics, University of Oxford, UK).

Data Set Information:

We perform energy analysis using 12 different building shapes simulated in Ecotect. The buildings differ with respect to the glazing area, the glazing area distribution, and the orientation, amongst other parameters. We simulate various settings as functions of the afore-mentioned characteristics to obtain 768 building shapes. The dataset comprises 768 samples and 8 features, aiming to predict two real valued responses. It can also be used as a multi-class classification problem if the response is rounded to the nearest integer.

Attribute Information:

The dataset contains eight attributes (or features, denoted by X1...X8) and two responses (or outcomes, denoted by y1 and y2). The aim is to use the eight features to predict each of the two responses.

Specifically:
X1 Relative Compactness
X2 Surface Area
X3 Wall Area
X4 Roof Area
X5 Overall Height
X6 Orientation
X7 Glazing Area
X8 Glazing Area Distribution
y1 Heating Load
y2 Cooling Load

Relevant Papers:

A. Tsanas, A. Xifara: 'Accurate quantitative estimation of energy performance of residential buildings using statistical machine learning tools', Energy and Buildings, Vol. 49, pp. 560-567, 2012

Citation Request:

A. Tsanas, A. Xifara: 'Accurate quantitative estimation of energy performance of residential buildings using statistical machine learning tools', Energy and Buildings, Vol. 49, pp. 560-567, 2012 (the paper can be accessed from [Web Link])

For further details on the data analysis methodology:
A. Tsanas, 'Accurate telemonitoring of Parkinsonâ€™s disease symptom severity using nonlinear speech signal processing and statistical machine learning', D.Phil. thesis, University of Oxford, 2012 (which can be accessed from [Web Link])
