**Predicting Concrete Compressive Strength using Linear Regression**

Oswaldo David García Rodríguez

Tecnológico de Monterrey, Campus Querétaro

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*Abstract: This document presents the training process of a linear regression algorithm to estimate concrete compressive strength using a dataset of 1030 examples*

**INTRODUCCION**

During construction, it is important to choose the most appropriate type of concrete that ensures the strength of the structures. The most used attribute is the concrete compressive strength, which depends on the type of mixture.

According to the article “Testing Compressive Strength of Concrete”, this is measured using a compression-test machine that tries to break a cylindrical concrete sample. Then it is calculated the failure load divided by the cross-sectional area resisting the load. The result is represented in pound-force per square inch (psi) or megapascals (MPa).

Figure 1. Example of a compression test machine

The use of a linear regression algorithm will try to make an estimation of the compressive strength of concrete given the concentrations for each material that makes up the mixture.

**DATASET**

It contains 1030 samples of concrete expressed in 8 quantitative values and the compressive strength given in MPa.

The following attributes represents the components of the mixture, represented in kg per cubic meter:

1. Cement
2. Blast furnace slag
3. Fly ash
4. Water
5. Superplasticizer
6. Coarse aggregate
7. Fine aggregate

The last attribute is the age of the concrete, expressed in days.

**REFERENCES**

Jamal, H. (2017). *Procedure for Concrete Compression Test.* Retrieved from: <https://www.aboutcivil.org/method-process-compression-test.html>

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