Multiple Regression

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Multiple Regression

- Multiple regression is an extension of linear regression models that allow predictions of systems with multiple independent variables.

- Multiple regression is specifically designed to create regressions on models with a single dependent variable and multiple independent variables.

Multiple Regression

- You can use multiple linear regression when you want to know:

  – How strong the relationship is between two or more independent variables and one dependent variable (e.g. how rainfall, temperature, and amount of fertilizer added affect crop growth).

  – The value of the dependent variable at a certain value of the independent variables (e.g. the expected yield of a crop at certain levels of rainfall, temperature, and fertilizer addition).

Multiple Regression: Example

- You are a public health researcher interested in social factors that influence heart disease. You survey 500 towns and gather data on the percentage of people in each town who smoke, the percentage of people in each town who bike to work, and the percentage of people in each town who have heart disease.

- Because you have two independent variables and one dependent variable, and all your variables are quantitative, you can use multiple linear regression to analyze the relationship between them.

- The difference between the equation for linear regression and the equation for multiple regression is that the equation for multiple regression must be able to handle several inputs, instead of only the single input of linear regression.

- To account for this change, the equation for multiple regression looks like this:

$$y = b_1 x_1 + b_2 x_2 + \ldots + b_n * x_n + c$$

Visually
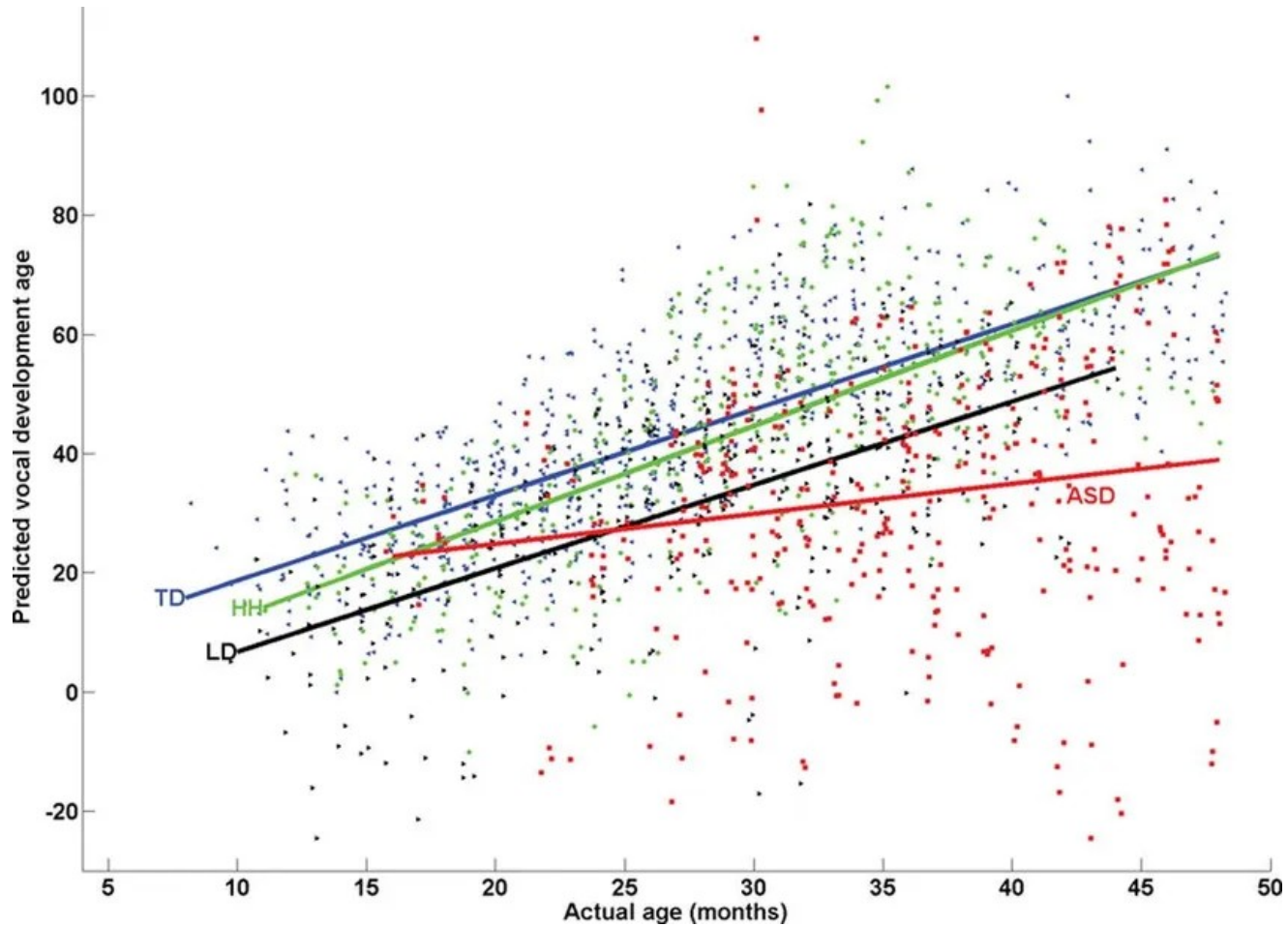
Useful web resources

- www.mitu.co.in

- www.scikit-learn.org

- www.towardsdatascience.com

- www.medium.com

- www.analyticsvidhya.com

- www.kaggle.com

- www.stephacking.com

- www.github.com

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