Abstract: Visual tools for distributional regression models

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Interpretability of the results in a model regression analysis is always desirable but not always easy to get. The quality of the interpretation of a fitted model also depends on the stability of the fitted model. For example, it is well known that multicollinearity affects the interpretation of the coefficients of a fitted linear regression model. This talk is about ways of trying to interpret a *distributional regression* model. A distributional regression model is a regression model in which the response (target) variable is assumed to have a proper theoretical distribution (density or probability function) and where all aspects of the assumed distribution can be affected by the features (the explanatory variables).

This talk discusses ways of checking the stability of the fitted distributional regression model and then proceeds by considering several graphical tools which can help with the interpretation of the fitted model. Note that with any *interpretation* tool we are trying to understand *why* and *how* the fitted model is working. Interpretation tools can be either *model-specific*, or *model-agnostic* in the sense that they can be applied generally to any fitted model. Also those tools can be classified as *observational* oriented tools, i.e. highlighting specific observations, or *feature* oriented tools, i.e. highlighting the behaviour of explanatory variables in the data. A lot of ideas presented here are from the forth-coming book "Generalized Additive Models for Location, Scale and Shape, A Distributional Regression Approach".