

New model to predict accident severity

Wouldn't it be nice to have a machine learning model to predict the severity of a road accident based on certain conditions? For example: an emergency first-response organisation (hospital or fire department) could be interested in such a model: if the severity increases when certain conditions are met, the necessary precautionary measures can be taken to prepare the organisation for the processing of more severe cases.

We can imagine the practical implications of such a model. In the case of a hospital it might be possible to prepare an extra trauma team or to start diverting patients to other hospitals if the operating theater or intensive care unit are at maximum capacity.

I created a predictive model using machine learning with as dependent variable (the variable we want to predict) the severity of an accident, and as predictors (the independent variables) the ambient weather, road and lighting conditions at the time of the accident. Using a database than 160,000 road accidents – after cleansing and slicing of course – I determined that the NKK model would be our best choice to predict the severity of a road accident.

The accuracy of our model is not entirely adequate, however, so it can only be used as a rough estimate. Nonetheless, in larger urban areas with multiple accidents per day, a rough estimate might be enough to make the decision to divert resources from non acute services to trauma first response when certain physical conditions are met.