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Boosting Regression Models With Neural Networks, Because We CANN

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Abstract

The purpose of this thesis is to gain an understanding of neural networks and how they can be used to boost regression models. A theoretical foundation is presented, covering both generalized linear models (GLMs) and feed-forward neural networks (FNNs). This is followed by application in a non-life actuarial environment using the well–studied dataset `freMTPL2freq`, which contains French insurance data. GLMs are used as cornerstone models and are compared with feed-forward neural networks FNNs. Subsequently, the two are combined into a combined actuarial neural network (CANN) model in an attempt to boost the initial GLM model via skip connection, with successful results.

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