# Assessment of Uncertainty of Neural Net Predictions in the Tasks of Classification, Detection and Segmentation

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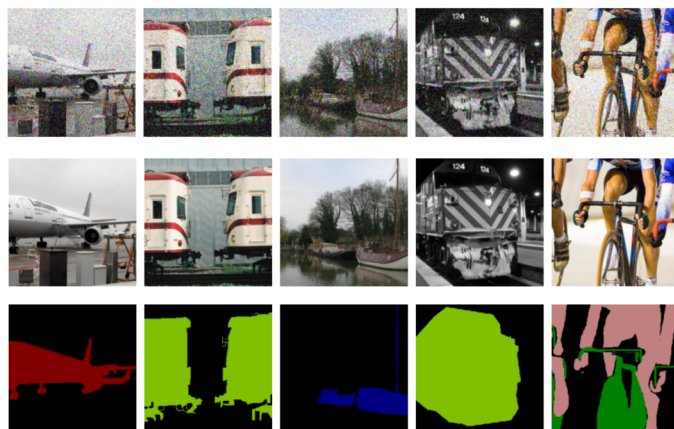supervisor: prof. Ing. Adam Herout. Ph.D

Modern deep neural networks achieve great performance. However, they can be overconfident, especially when faced with unknown data.

Training on CIFAR10 – Test on SVHN

Dog (100%) · Bird (100%) · Airplane (100%)
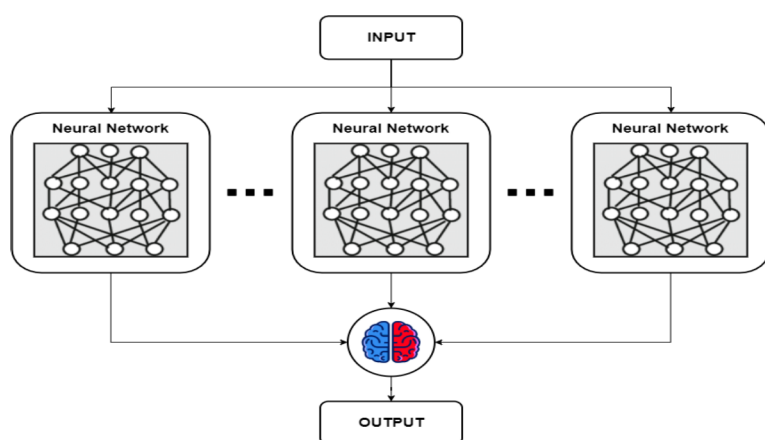
This work compares several widely used methods to improve uncertainty estimations.

These methods are evaulated on common datasets as well as shifted datasets that simulate data out of training distribution.

Intensity of shift vs accuracy

Intensity of shift vs Precision-Recall

Legend: Vanilla, Temperature scaling, Dropout training, MC Dropout, Ensemble

These methods can improve the prediction accuracy as well as the quality of uncertainty estimations on in distribution as well as out of distribution data.