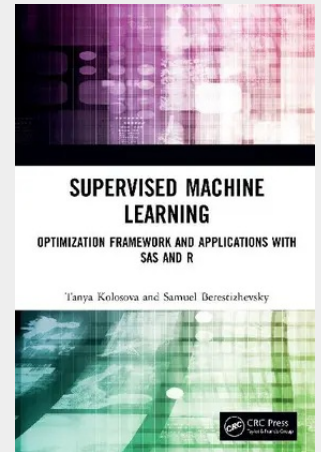


Supervised Machine Learning

Optimization Framework and Applications with SAS and R

AI framework intended to solve a problem of bias-variance tradeoff for supervised learning methods in real-life applications. The AI framework comprises of bootstrapping to create multiple training and testing data sets with various characteristics, design and analysis of statistical experiments to identify optimal feature subsets and optimal hyper-parameters for ML methods, data contamination to test for the robustness of the classifiers. Key Features: - Using ML methods by itself doesn't ensure building classifiers that generalize well for new data - Identifying optimal feature subsets and hyper-parameters of ML methods can be resolved using design and analysis of statistical experiments - Using a bootstrapping approach to massive sampling of training and tests datasets with various data characteristics (e.g.: contaminated training sets) allows dealing with bias - Developing of SAS-based table-driven environment allows managing all meta-data related to the proposed AI framework and creating interoperability with R libraries to accomplish variety of statistical and machine-learning tasks - Computer programs in R and SAS that create AI framework are available on GitHub

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