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Design of Experiments and Response Surface Methodology to Tune Machine Learning Hyperparameters, with a Random Forest Case-Study

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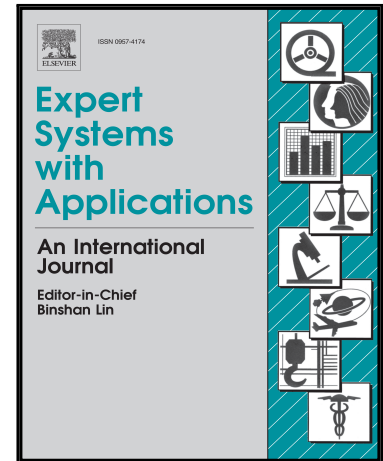
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## Highlights

- Design of experiments identified significant hyperparameters in the random forest
- No. of features and sampling with replacement were discarded in the screening
- Interaction between class weights and cutoff had the largest effect on the response
- Response surface methodology correctly tuned random forest hyperparameters
- The methodology achieved an outstanding 0.81 cross-validated BACC vs default of 0.64

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