

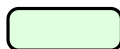
Legend



Optimiser



Training



Evaluation

Define hyperparameter search space
(`max_depth`, `learning_rate`, `subsampling`, `regularisation`)

OPTUNA proposes a trial λ
(Bayesian optimisation)

Train XGBOOST with early stopping
on the training sample

Evaluate objective on validation sample
(weighted `mlogloss` / `logloss`)

Update optimiser with $(\lambda, \mathcal{L}_{\text{val}})$
and propose next trial

Select best configuration
 $\lambda^* = \arg \min_{\lambda} \mathcal{L}_{\text{val}}$

