



model blending; repeat model selection using level 2 validation  
? should the choice of u be made first for each base model?

1. Choose best row (dynamic system for generating a model for a week of games) from level 2 merged validation results
2. Use the system chosen to evaluate approximate unbiased test error using the held out test data

For each base model (i.e., boosted trees, k-NN), perform 1 and 2

1 For w in fit window sizes:

- a. For m in 1:number of model configurations:
  - i. For v in 1:(n-w):
    1. Fit model with data in columns v:(v+w-1)
    2. Evaluate model summary statistic/s by making predictions with data in column v+w
    3. Store summary statistics in validation results table for w in cell (m,v)

2 For u in validation window sizes:

- a. For x in 1:(n-w-u):
  - i. Choose best row, model configuration, given validation window summ stats summary statistics (orange)
  - ii. Use best model (model corresponding to the row with the bes summary statistics) to generate predictions for final prediction on week x
  - ii. Store predictions or summary statistics in level 2 validation results table for u in element x

validation window (u weeks of m summ stat/s)

first final prediction week

(num model configs) by (n-w weeks)

model m summary stat/s for validation week v with w = 10 fit weeks

validation results

validation window (u weeks)

first final prediction week

(num model settings) by (validation weeks)

each row is a possible configuration of the base model, including internal and external tuning parameters.

base model level 2 validation results

u = 5

u = 6

...

u = 30

prediction/summ statistic vector of best model for x = 2, second final prediction week, using u = 30

boosted trees

k-NN

...

random forests

level 2 merged validation results

(num u)\*(num base models) by (num final prediction weeks)

Each row contains information about the best of all model configurations, at the each choice of validation window size u, for a given base model. Each column is a given final prediction week.