7-fold cross-validation

$data_{holdout}$
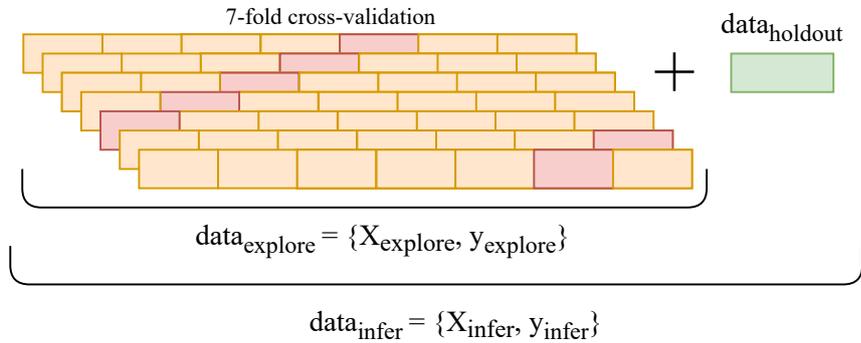
DATA

$data_{explore} = \{X_{explore}, y_{explore}\}$

$data_{infer} = \{X_{infer}, y_{infer}\}$

ML exploration with data explore

$X_{explore}$

Machine learning

$f : X_{explore} \mapsto y_{explore}$

$y_{explore}$
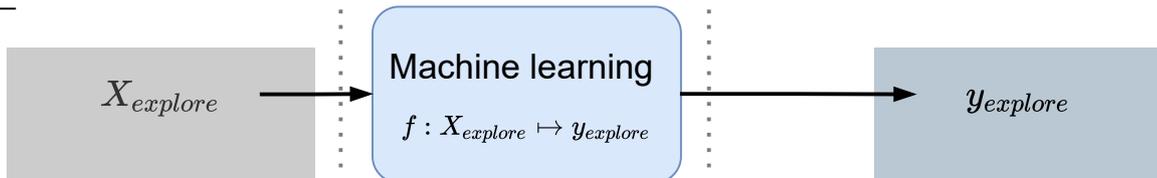
Brain features extracted from 2 sMRI modalities :

T1w

DTI-FA

4 models comparison :

Logistic Regression

Linear SVM

Kernel SVM

Gradient Boosting
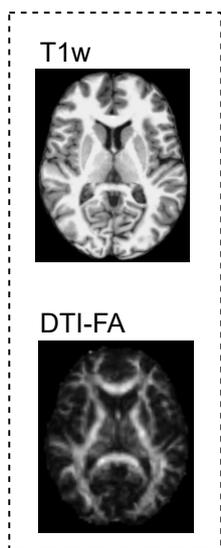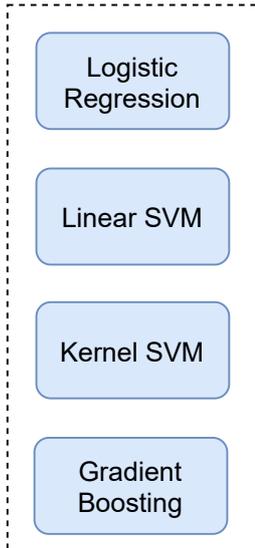
10 phenotypes of alcohol misuse (AAM) :

Binge growth

Binge drinking

Combined
(1) Ours
(2) Seo et al. 2019

Frequency

AUDIT

Amount

AUDIT quick

Onset

AUDIT growth

Best model

Best phenotype of AAM
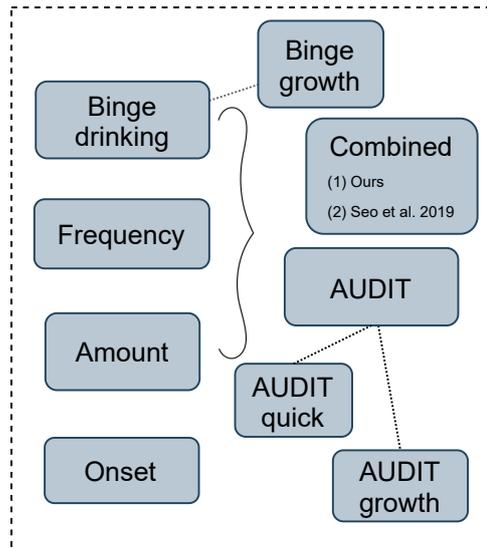
Generalization test with data infer

X_{infer}

Machine learning

$f : X_{infer} \mapsto y_{infer}$

y_{infer}

Shap

explanations
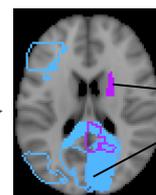
Important brain features