Module 2 Quiz

Тест, 5 вопроса

Поздравляем! Вы прошли тест! Далее

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1. What is the No Free Lunch theorem?

- [x] The No Free Lunch theorem states that all classification algorithm have exactly the same out-of-sample error rate when averaged over all possible data.

Правильно
Correct!

- [ ] An economic theory of the XIX century.

правильно, этот вариант не должен быть выбран

- [ ] The observation that Reinforcement Learning agents learn better when not provided a free lunch.

правильно, этот вариант не должен быть выбран

- [x] The statement that no single Machine Learning model can be universally better than all other models on all domains.

Правильно
Correct!

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2. Assume you have a complex model with a low bias and a high variance, and you want to reduce the variance.

What do you think would be the right way to proceed?

- ( ) Add more predictors.
- (•) Try to bound somehow the values of model parameters, so the model outputs would vary less with a variation of the input data.

Правильно
Correct!

- ( ) Use a simple model instead. Who needs complex models in Finance?

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3. Select all correct statements:

- [ ] Under-fitting leads to high in-sample errors but small out-of-sample errors.

правильно, этот вариант не должен быть выбран

- [ ] The right balance between over-fitting and under-fitting is obtained when all the training data is perfectly fit by the model.

правильно, этот вариант не должен быть выбран

- [x] Under-fitting is characterized by a high bias and a low variance.

Правильно
Correct!

- [x] Over-fitting leads to small in-sample errors, but large out-of-sample errors.

Правильно
Correct!

- [ ] Over-fitting is characterized by a high bias and a low variance.

правильно, этот вариант не должен быть выбран

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4. Select all correct statements:

- [ ] The projection matrix is orthogonal.

правильно, этот вариант не должен быть выбран

- [x] The square of the projection matrix is equal to the matrix itself.

Правильно
Correct!

- [ ] The projection matrix can be written as $H = X X^{+}$, where X is the Moore-Penrose matrix pseudo-inverse

Должен быть выбран этот вариант

- [x] The projection matrix projects the dependent variable in regression

The projection, or "hat" matrix projects the dependent variable in regression onto the predicted variable.

Правильно
Correct!

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Баллы

5. Select all correct statements:

- [x] None of the above.

Правильно
Correct!

- [ ] All of the above.
- [ ] Hyper-parameters are trained by minimization of MSE train.
- [ ] A simplest example of a hyper-parameter is given by the intercept a in Linear Regression y = a + bx + e . This is because a does not depend on x, therefore it cannot depend on MSE train.
- [ ] It is generally recommended to avoid using any hyper-parameters in Machine Learning algorithms, because they cannot be trained by minimization of MSE train, and therefore are completely arbitrary. No Model Validation group at any serious financial institution would ever approve a Machine Learning model that has hyper-parameters.
