How To Measure Fatigue

What factors contribute to fatigue more using random forest

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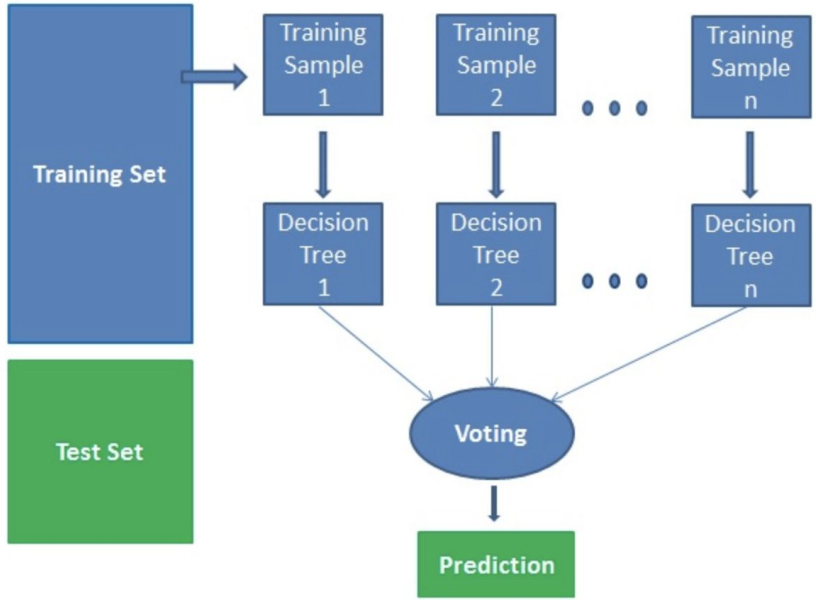
Big Picture

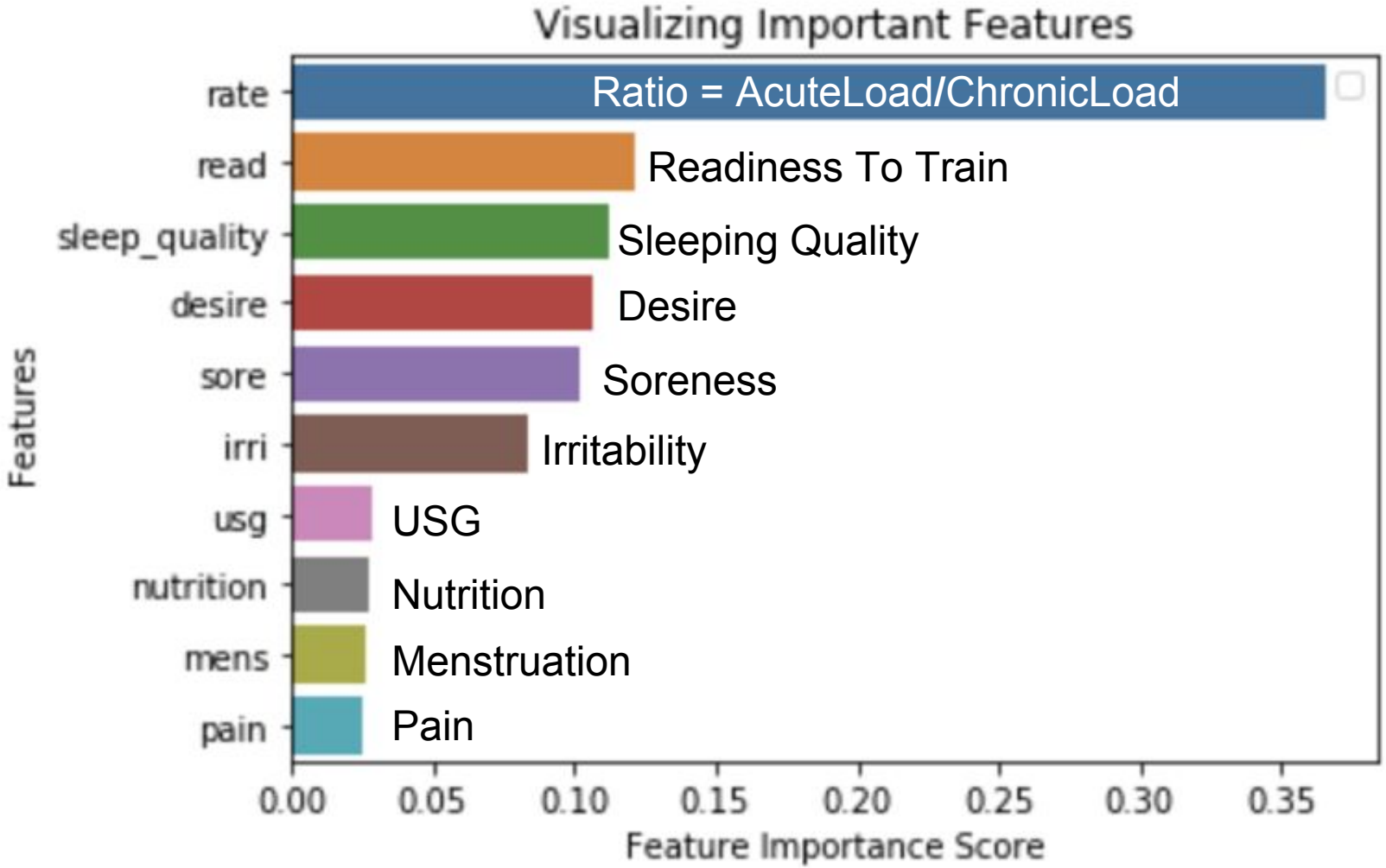
Finding important features in Sklearn

- First, we created a random forests model.
- Second, we used the feature importance variable to see feature importance scores.
- Third, we visualize these scores using the seaborn library and matplotlib.



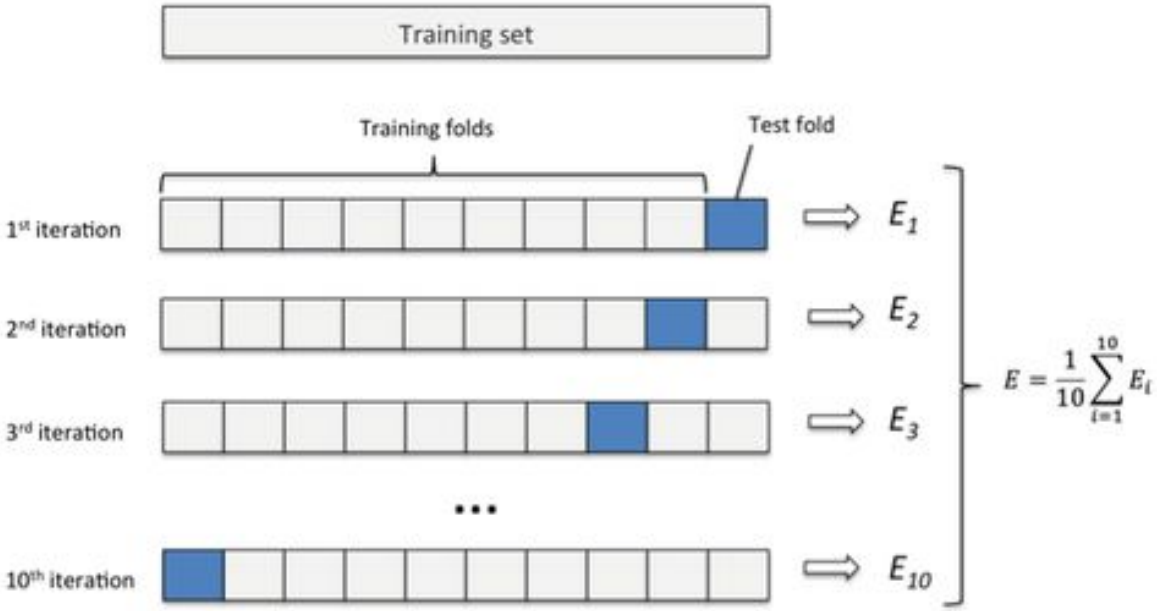
Generate a New Model on important features

- We remove the less important features and generate a new model


Visualizing Important Features
rate
read
sleep_quality
desire
sore
irri
usg
nutrition
mens
pain
Features
Ratio = AcuteLoad/ChronicLoad
Readiness To Train
Sleeping Quality
Desire
Soreness
Irritability
USG
Nutrition
Menstruation
Pain
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
Feature Importance Score

We use 10 folds cross validation to prevent overfitting.

We use selected features to train random forest model again.




```
0
Train Accuracy: 0.9983108108108109
1
Train Accuracy: 0.9979729729729729
2
Train Accuracy: 0.9979729729729729
3
Train Accuracy: 0.9986486486486487
4
Train Accuracy: 0.9983108108108109
5
Train Accuracy: 0.9983108108108109
6
Train Accuracy: 0.9976351351351351
7
Train Accuracy: 0.9983108108108109
8
Train Accuracy: 0.9986486486486487
9
Train Accuracy: 0.9979729729729729
```

Suggestions

When coaches build the new equation to test the fatigue of athlete, they can consider the significant factors we choose (Rate (AcuteLoad/ChronicLoad), Readiness To Train, Sleeping Quality, Desire, Soreness, and Irritability). These factors have a crucial effect on the fatigue level of athletes. By considering these factors, the coach can adjust the training plan of each athlete and help them to reach their ideal condition.