ActivPal Week 15

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WHAT HAVE WE DONE PREVIOUS WEEK?

WHAT ARE OUR GOALS FOR THE NEW SPRINT?

What have we done in the previous week?

1. Finalized MET regression models

2. Written chapters of research paper

Applied Test Set On MET Prediction Models

Compared Random Forest with XGBoost after applying the test results

Activity	Random Forest	Random Forest Test		XGBoost	XGBoost Test	
	R Squared Score Cross Validation	R^2	MSE	R Squared Score Cross Validation	R^2	MSE
Walking	0.40 (+/- 0.15)	0.40	0.65	0.32 (+/- 0.12)	0.29	0.70

We decided to pick Random Forest for Walking

Activity	Random Forest	Random Forest Test		XGBoost	XGBoost Test	
	R Squared Score Cross Validation	R^2	MSE	R Squared Score Cross Validation	R^2	MSE
Running	0.60 (+/- 0.20)	0.58	1.57	0.63 (+/- 0.15)	0.45	1.80

We decided to pick Random Forest for Running

Applied Test Set On MET Prediction Models

Compared Random Forest with XGBoost after applying the test results

Activity	Random Forest	Random Forest Test		XGBoost	XGBoost Test	
	R Squared Score Cross Validation	R^2	MSE	R Squared Score Cross Validation	R^2	MSE
Cycling Light	0.41 (+/- 0.28)	-0.70	1.78	0.41 (+/- 0.23)	-1.03	1.95

We decided to pick Random Forest for Cycling Light

Activity	Random Forest	Random Forest Test		XGBoost	XGBoost Test	
	R Squared Score Cross Validation	R^2	MSE	R Squared Score Cross Validation	R^2	MSE
Cycling Heavy	-0.39 (+/- 1.18)	0.02	1.67	0.12 (+/- 0.59)	-0.08	1.23

We decided to pick XGBoost for Cycling Heavy

Final result of the MET prediction models

- Our conclusion:

  - Models are overfitting

- Our theory is that there is too little data

- The test set had only 14/15 rows of data and the train/validation set had 84/22 rows of data

Written multiple iterations of research paper chapters

- Introduction

- Subject field

- Study design

- Data: Subjects

- Methods: Activity classification

- Methods: International recommendation of PA

- Results: Activity classification

- Results: International recommendation of PA

What are our goals for the new sprint?

01

Continue writing paper

02

Discuss models with teachers