



# 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 <sup>2</sup>	MSE	R Squared Score Cross Validation	R <sup>2</sup>	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 <sup>2</sup>	MSE	R Squared Score Cross Validation	R <sup>2</sup>	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 <sup>2</sup>	MSE	R Squared Score Cross Validation	R <sup>2</sup>	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 <sup>2</sup>	MSE	R Squared Score Cross Validation	R <sup>2</sup>	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



A person wearing a dark blue jacket is holding a white rectangular sign with both hands. The sign has the word "QUESTIONS?" written on it in a bold, dark blue, sans-serif font. The background is a solid dark blue color.

**QUESTIONS?**