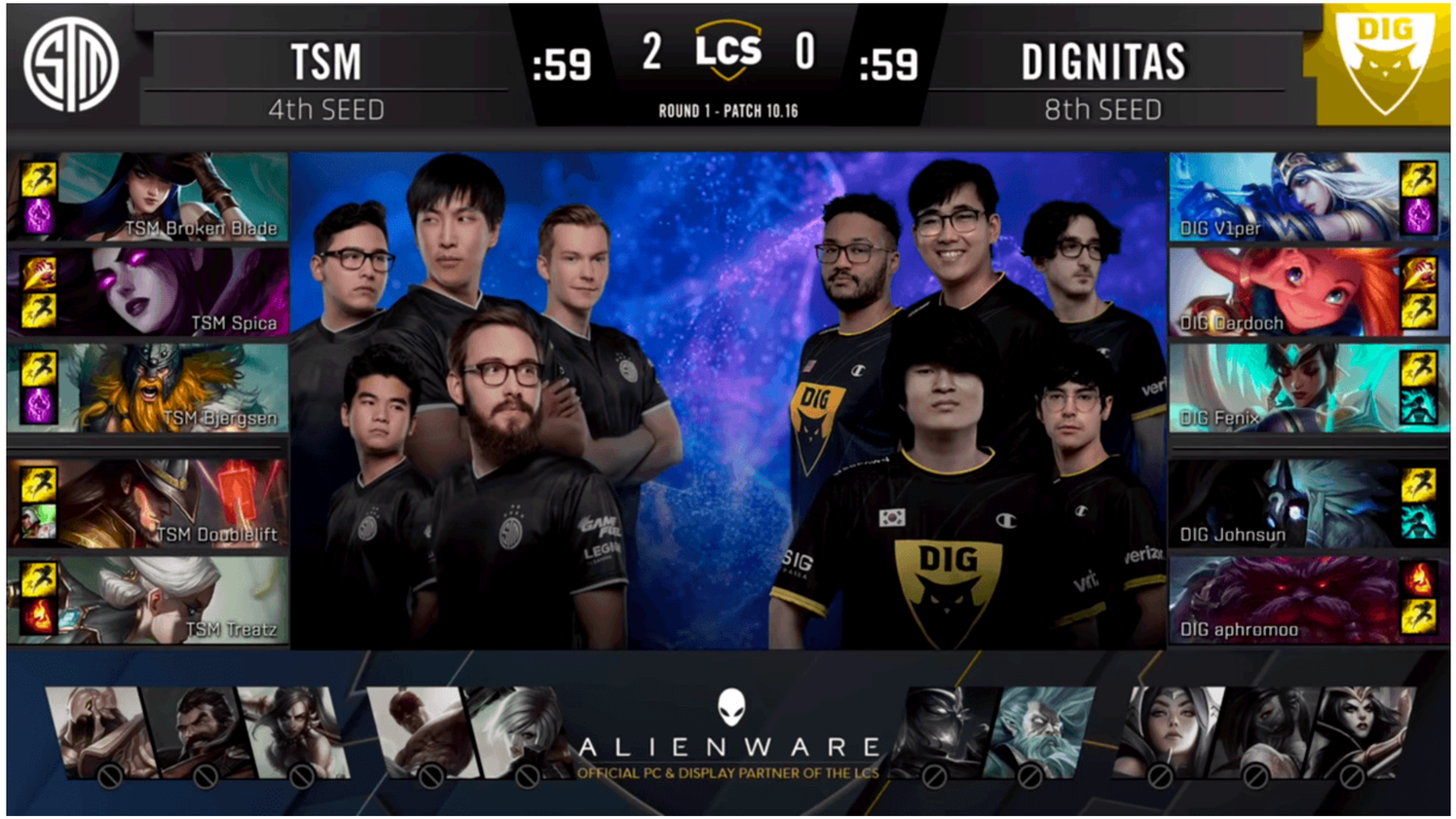
lieum.gg

League of Legends (LoL) win predictor with the aim of connecting LoL players with their data using XGBoost

10-Feb-2021

5v5, each player picks a “champion” (1 of ~150)



Roadmap

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- What is the data?
- Ensemble modeling with RandomForest & XGBoost
- Model interpretation using SHAP values - **what makes people good at the game win and how**
- Model relation to front-end development - **how do I stack up to them?**

Credit @schlieffenplan

Part I: The Data

100k games of high-ranked Korean solo-queue players

Assume game's philosophy is the same as 8 mo. ago (8 or so patches behind)

Assume Korean high-ranked players are generalizable, even as "here's what you could be doing"

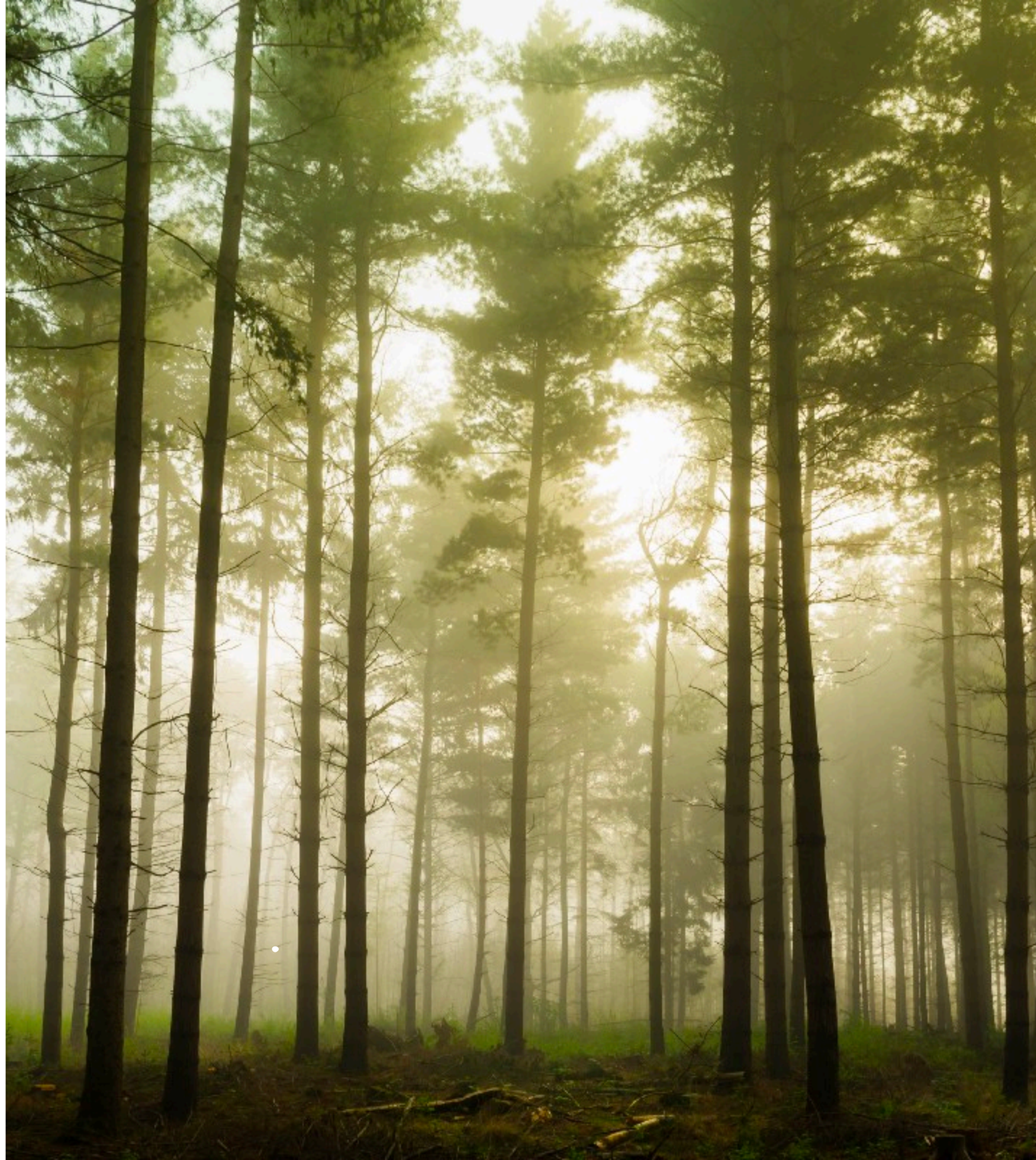
Part II: The Models

Jump straight to ensemble models (RF & XGBoost)

League is a series of decisions

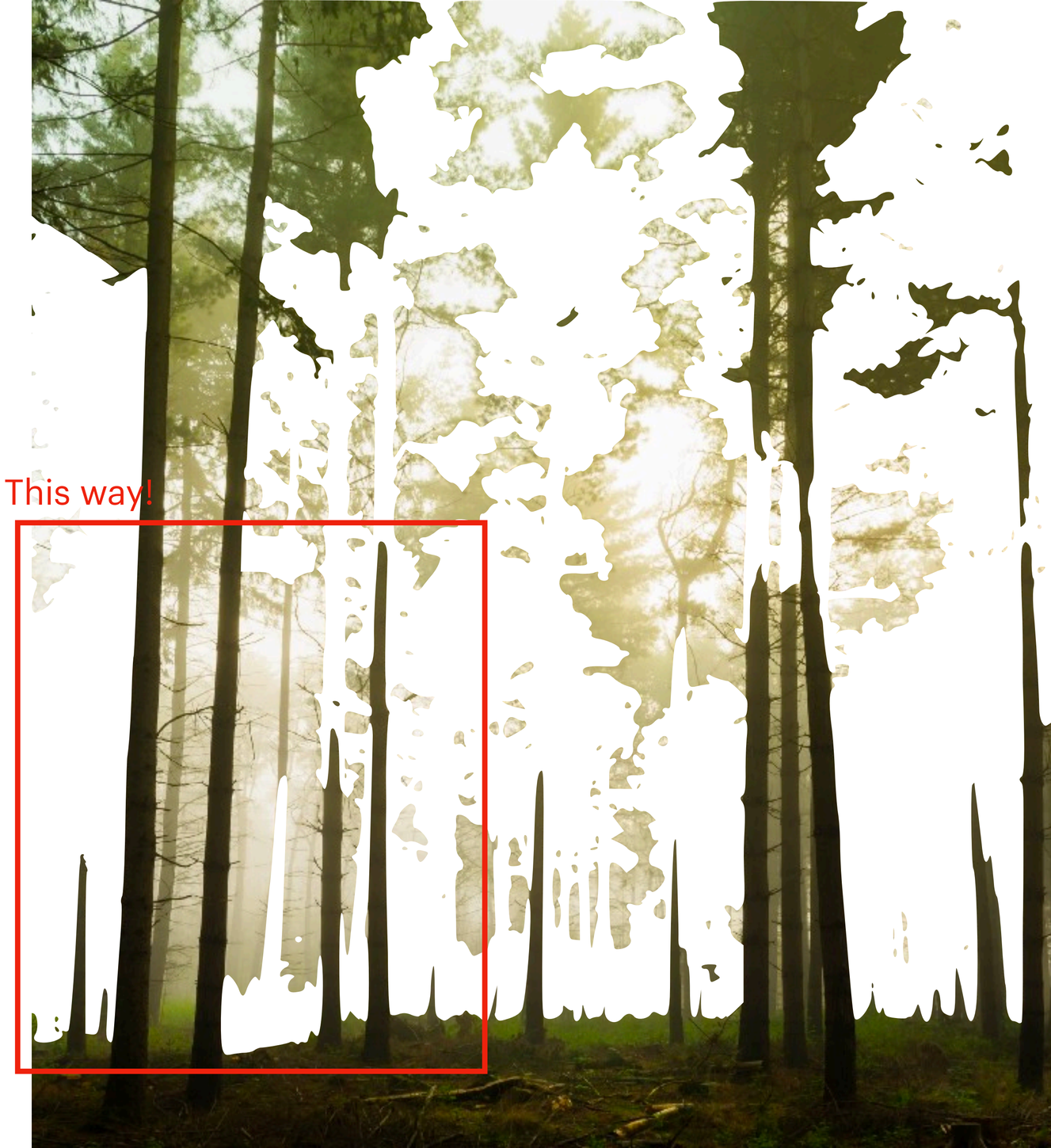
RandomForest

bagging & feature randomness



RandomForest

bagging & feature randomness



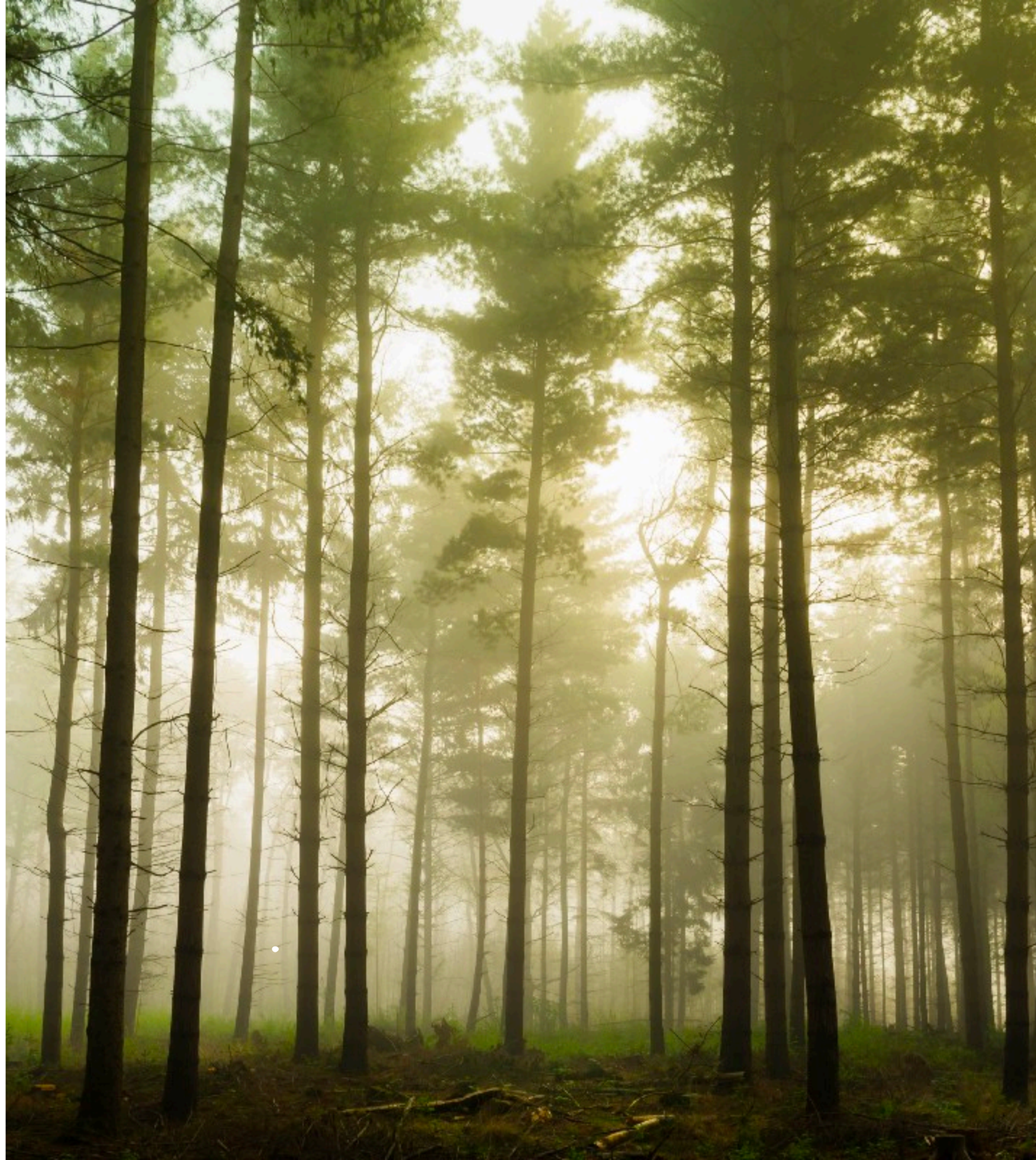
RandomForest

bagging & feature randomness

RandomForest

bagging & feature randomness

- Randomizes your path (your features) & aggregates where you have gone
- There are other malleable parts of your forest journey (optimized by trying a bunch of different combinations that minimize error)
- Evaluate!



	Precision	Recall	F1-score
RandomForest model	0.91	0.90	0.90

Table 1: Classification metrics of RandomForest.

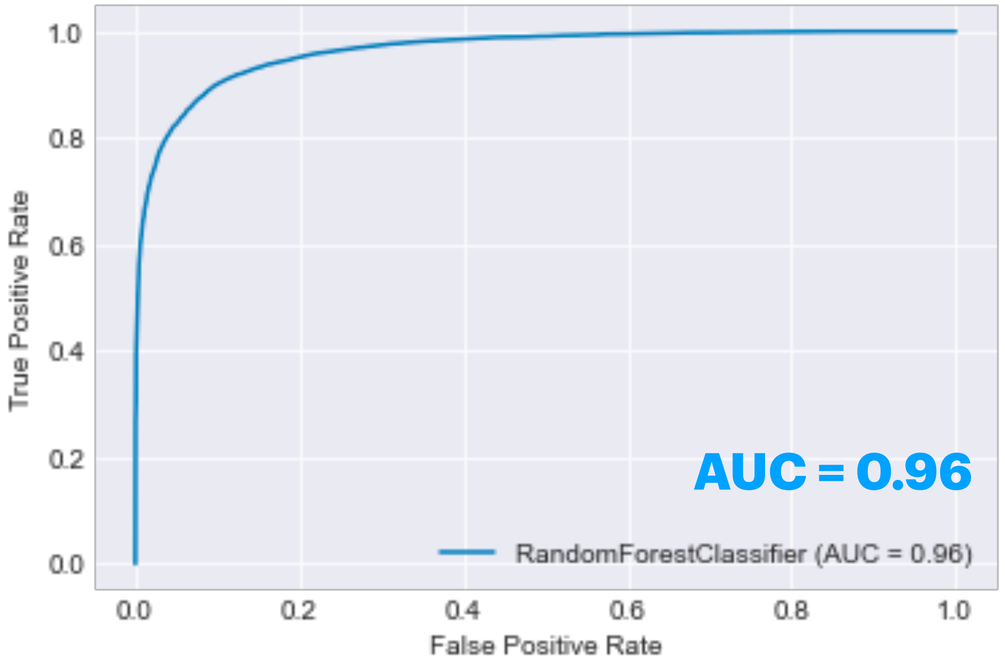


Figure 1: Receiver operating characteristic curve of RF model.

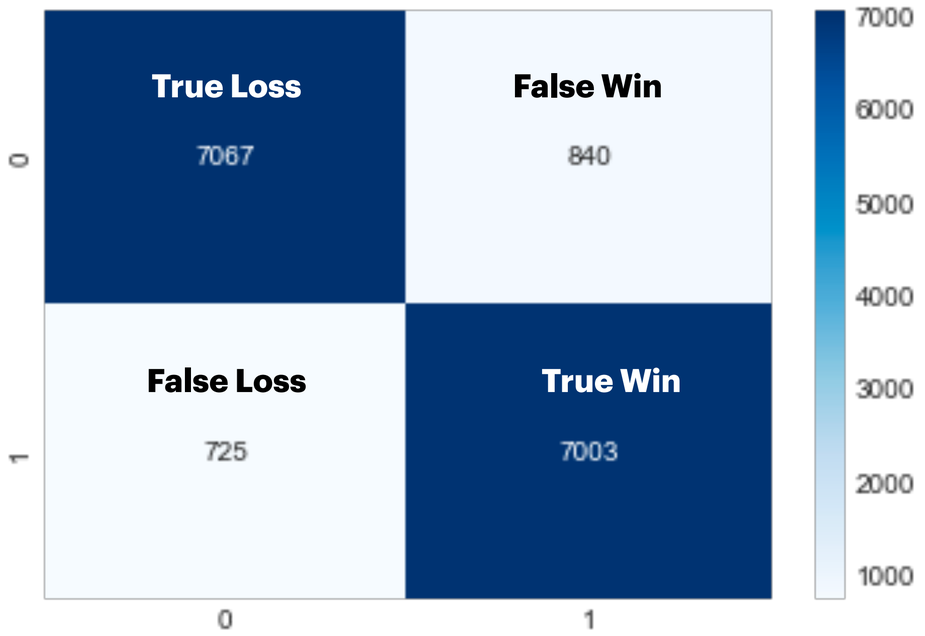
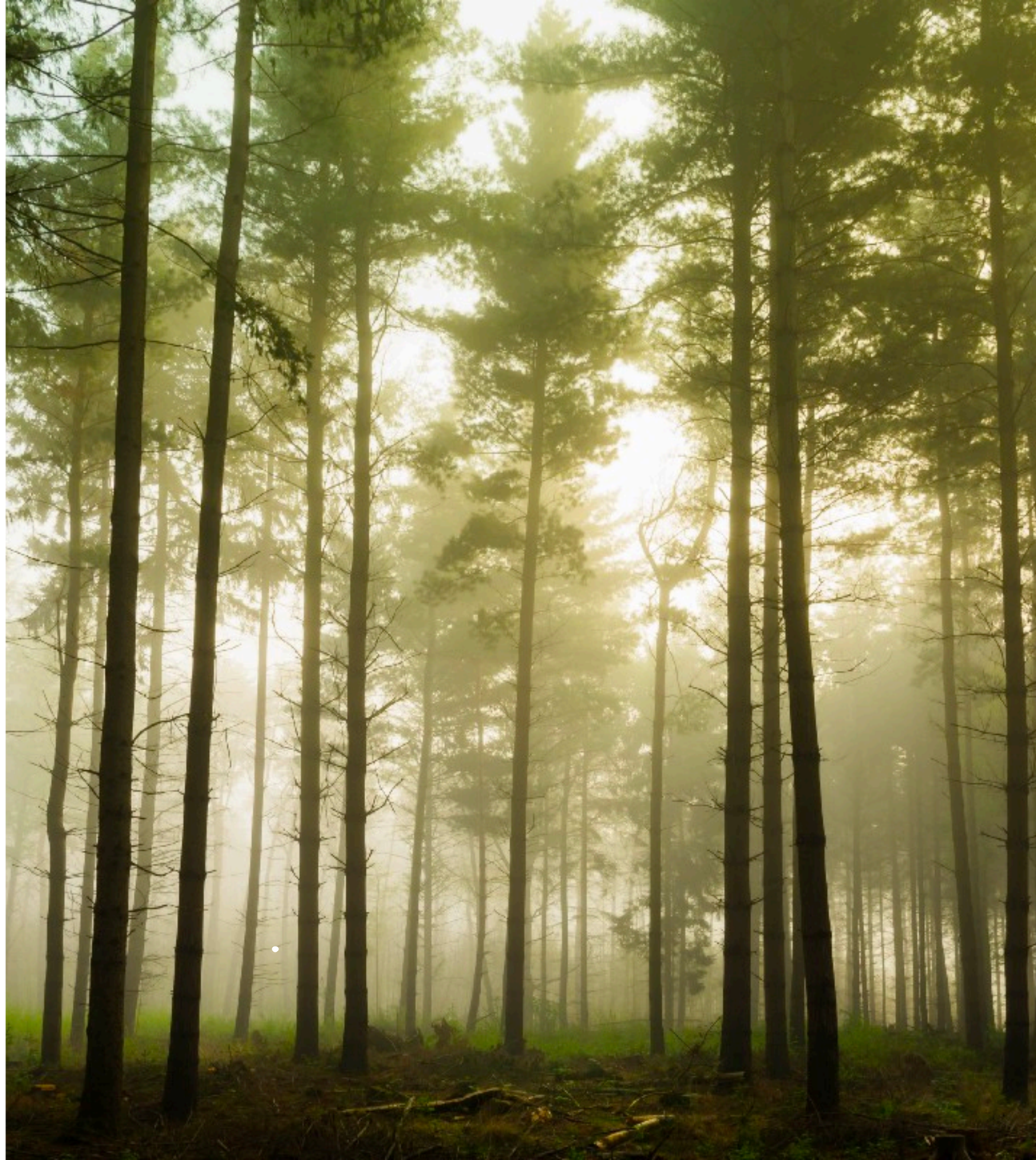


Figure 2: Confusion matrix RF model.

XGBoost

Boosted trees!

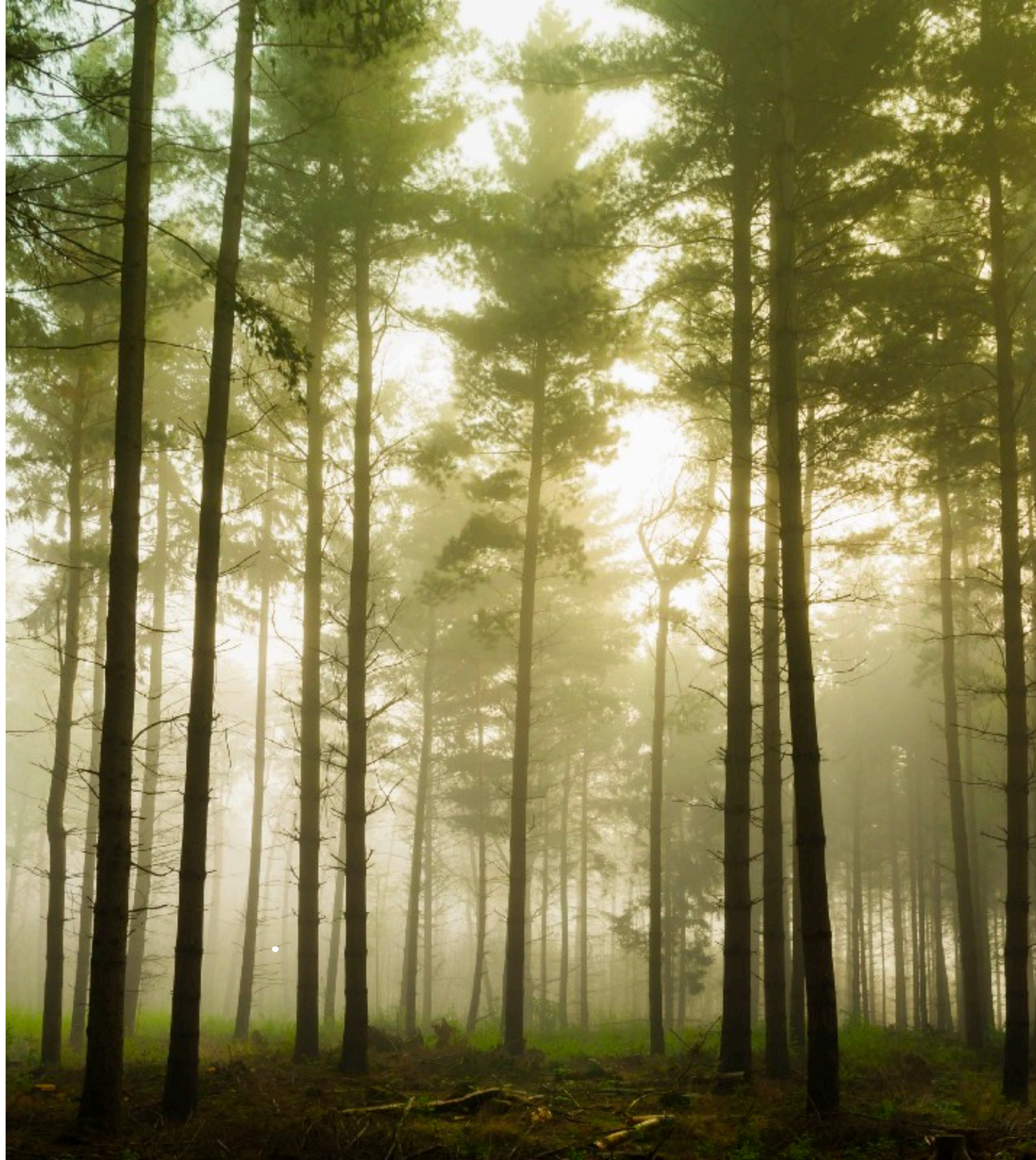
- Create week trees sequentially w/ primary objective of reducing bias and variance
- Each tree (learner) focuses on the weaknesses (misclassified data) of the previous one
- *Faster*



XGBoost

Boosted trees!

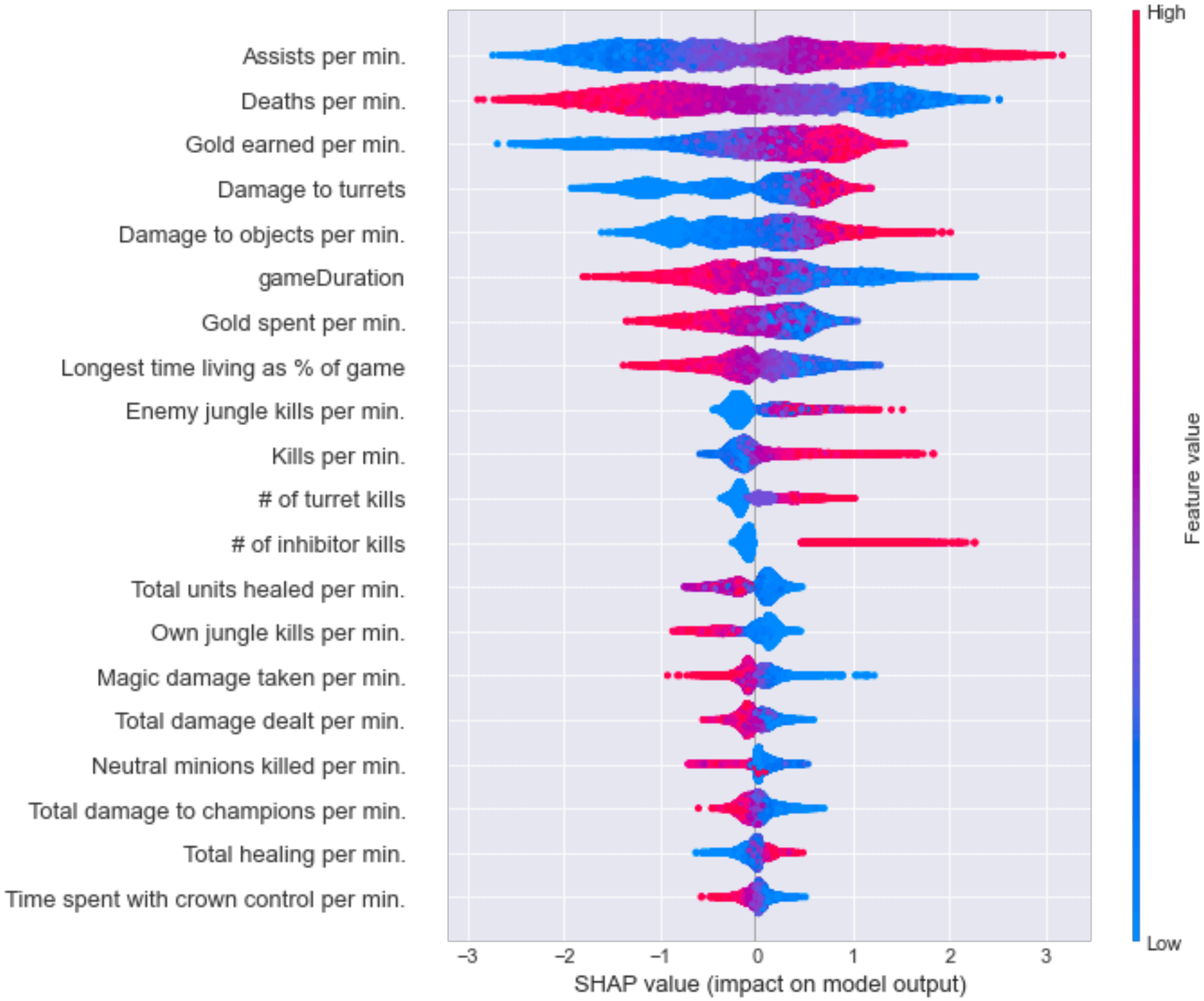
- Can look @ SHAP values!!!! (Shows us *how much the model changes* when we observe that feature)
- SHAP is model agnostic



SHAP summary

Boosted trees!

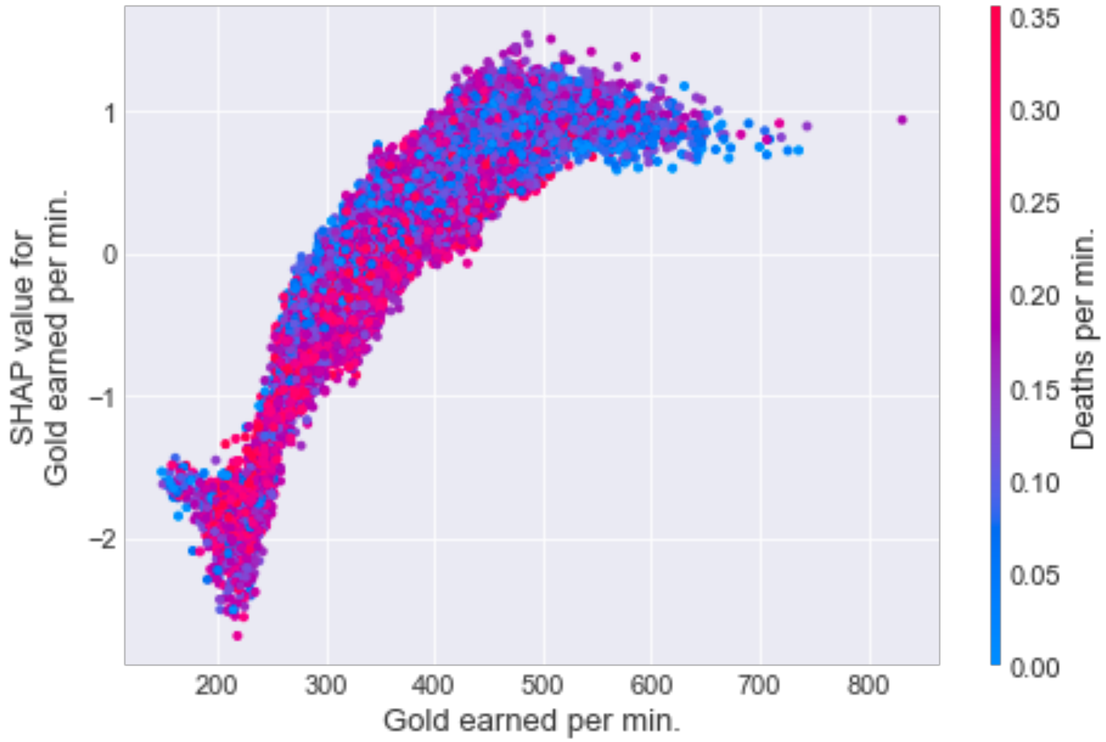
- SHAP values for a single feature on a row, x-axis is SHAP Value (units is log odds of winning)
- What characteristics arise from this?



SHAP dependence

Boosted trees!

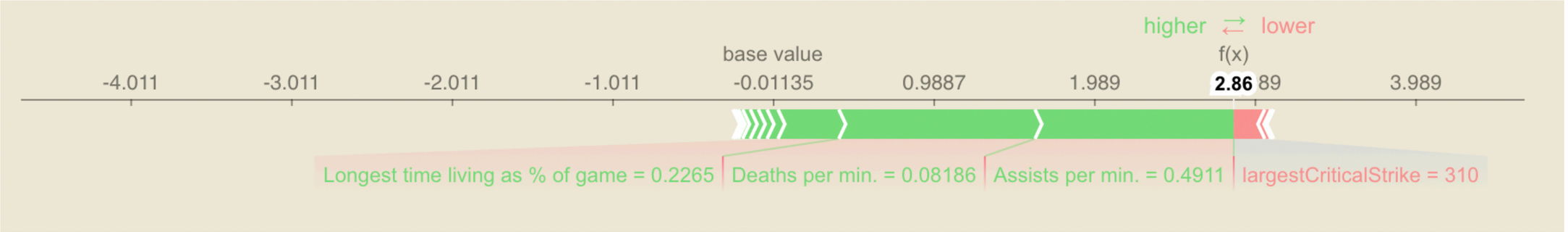
- Do I make more gold if I die less? *Just reflects the model, not reality*



SHAP force plots

Boosted trees!

- Do my odds of winning go up when I do this? *Just reflects the model, not reality*



Part III: The Vis

League is a group of gamers

SHAP dependence

Boosted trees!

- Helps to debug — should filter out game duration...