

# PREDICTING THE WIN

# OVERVIEW

## THE GAME

League of Legends is one of the most popular video games in the world, with a reported monthly active player-base of ~**115 million** players as of 2020 and a peak concurrent player-count in Sept. 2021 of over **2 million** players

## THE SPORT

As an e-sport, League of Legends has shown immense growth over the past decade, with the 2020 League of Legends World Championship finals reaching a peak concurrent viewership of **49.5 million** viewers

## THE DATA SCIENCE APPLICATION

With traditional sportscast level viewership, we want traditional sportscast professionalism. To strengthen the analytics tools available to the casting team, we want to design an application that predicts the probability that a team will win a game based on the current in-game conditions

# METHODOLOGY



## METHODOLOGY

### DATA

Initial data:

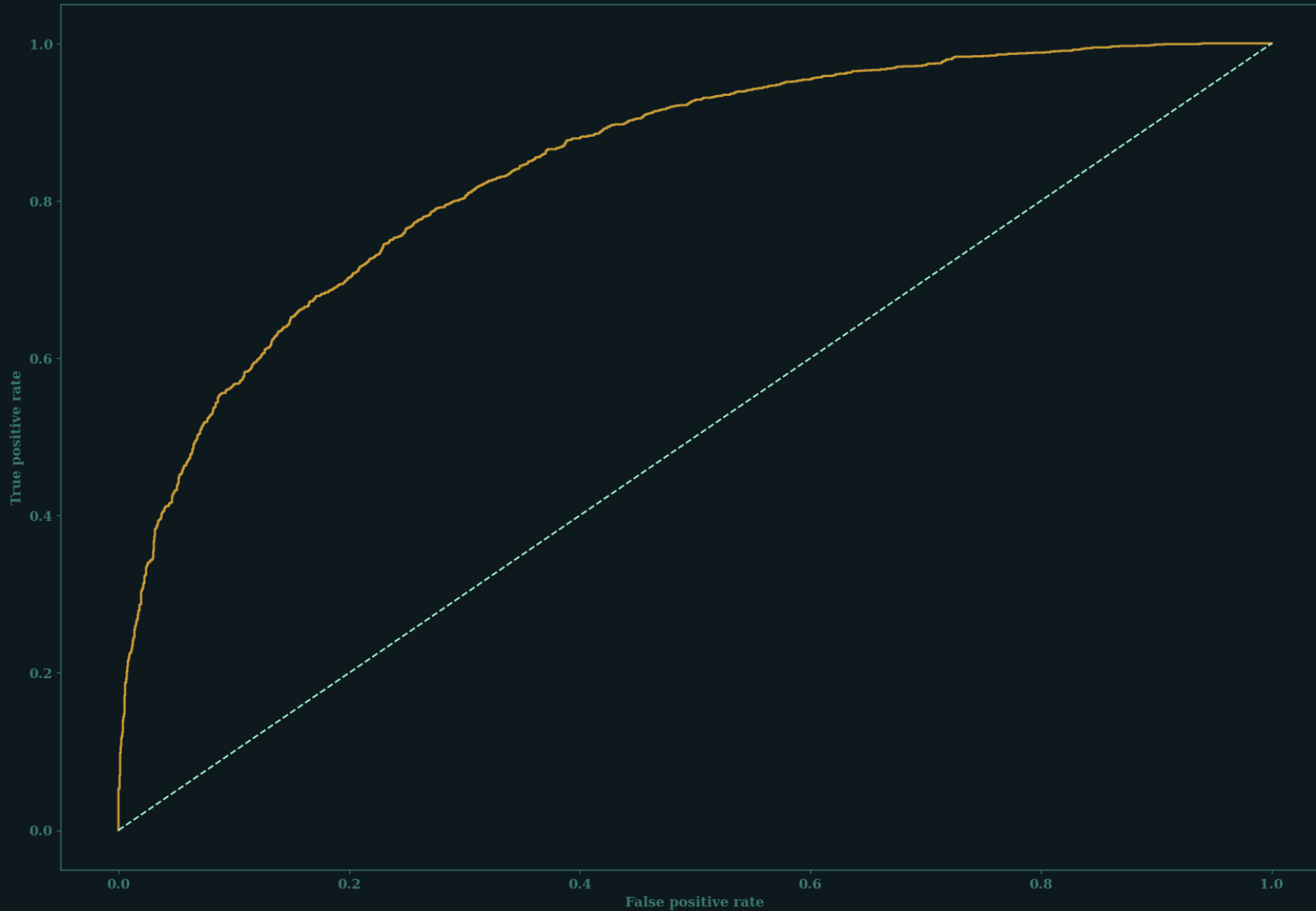
- 11,604 pro games from 2021
- 12 data-points per game
- 138,528 data-points
- 122 columns

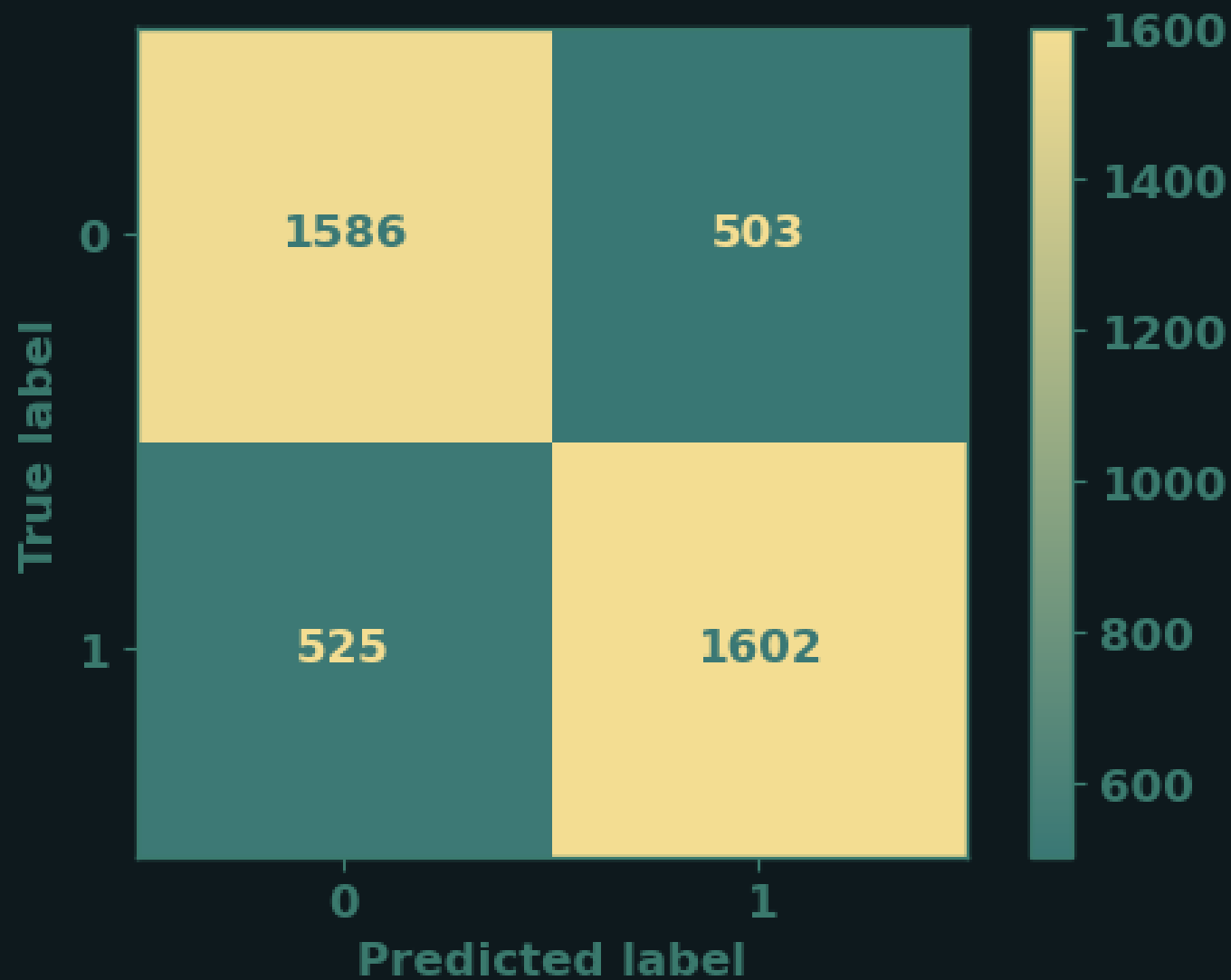
After EDA/cleaning:

- 10,538 games
- 2 data-points per game, one from each team's perspective
- 14 features, describing state of game at 15 minutes

## MODELING

- Started with a simple logistic regression model predicting hard classifications
- After using cross-validation to determine the best level of complexity, our model was trained on our training data
- Decision threshold was set at 50%



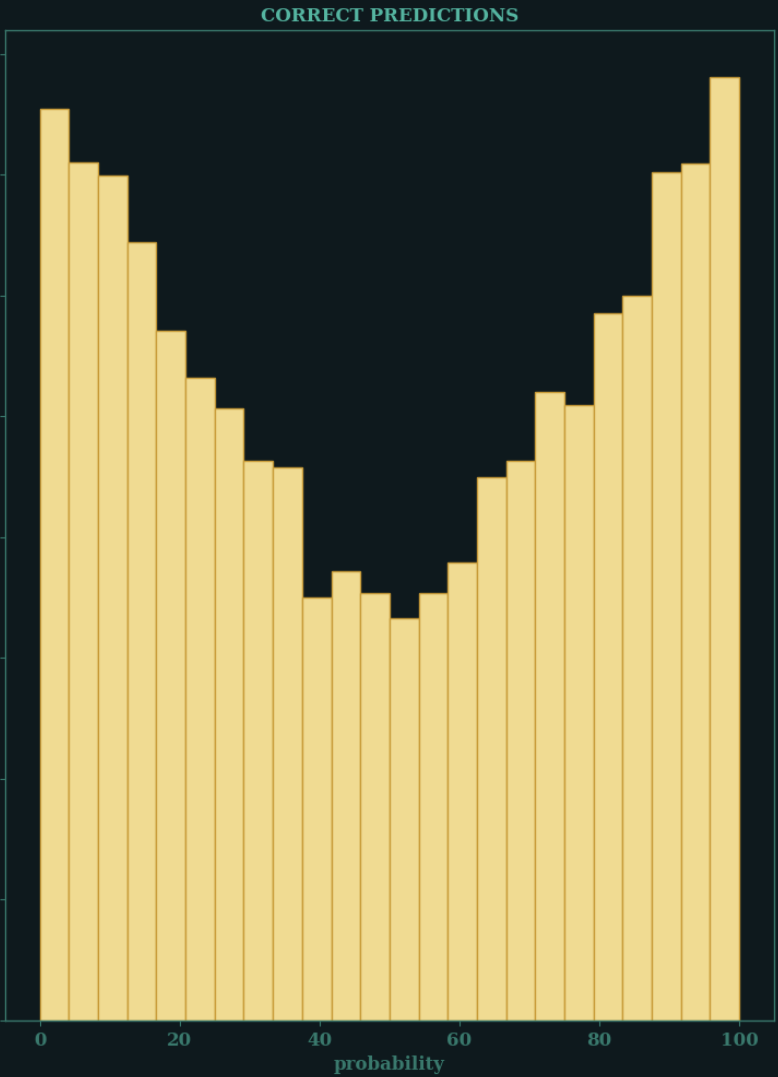
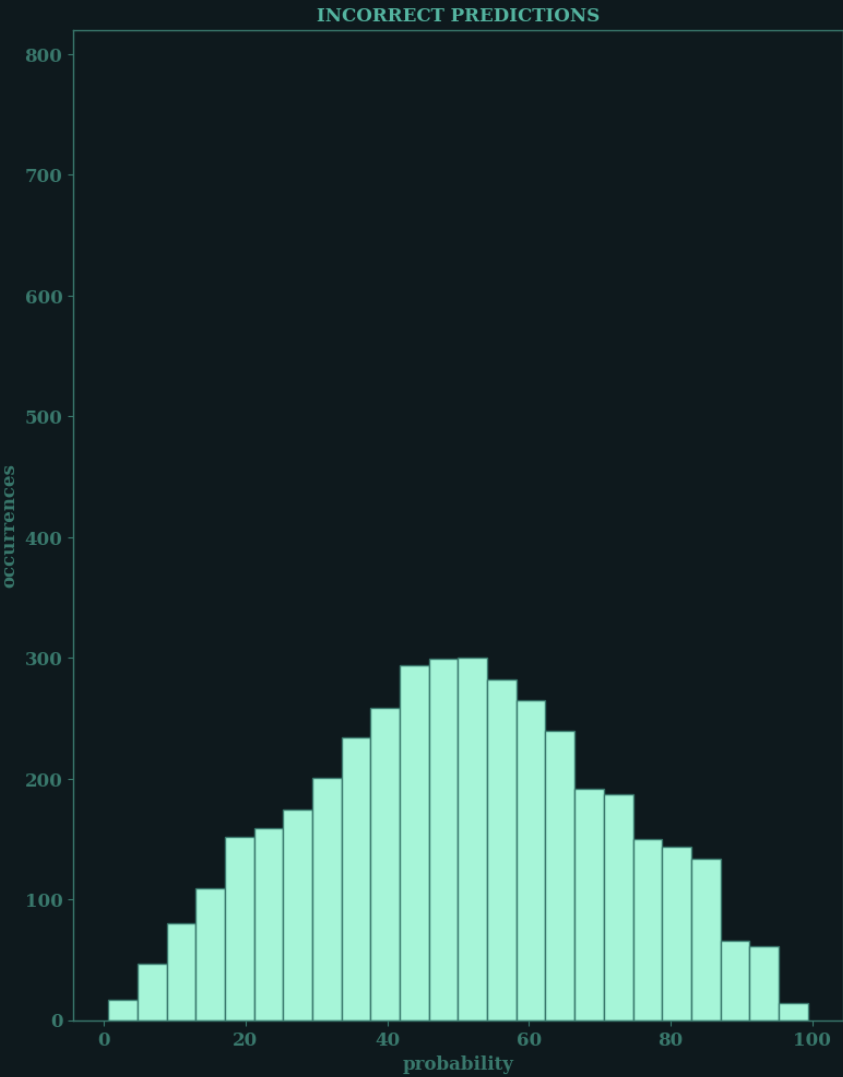


## EVALUATION

Using a standard 50% decision threshold, our models accuracy was 76%

- Roughly equal distribution of false positives and false negatives

Distribution of soft-probabilities predictions



METHODOLOGY

EVALUATION

- Most incorrect predictions centered around 50% probability
- False positives had a mean predicted probability of ~67%
- False negatives had a mean predicted probability of ~34%



# ANALYSIS



## ANALYSIS

### TAKEAWAYS

We are confident this tool can be used by e-sports casters in assessing games

### LOOKING FORWARD

- Dive deeper into false positives and negatives
- Use stats at 10 minutes to assess win probability at earlier in the game
- Potential to implement this model on all player-base games to help inform game balance decisions

# THANK YOU

CLOSING

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## CONTACTS



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