

# League of Legends Classification Analysis

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# Project Summary

- Esports - League of Legends for Cloud9
- Player Coach/Analyst
- Extract valuable information from high level player data
- What should our team focus on?
- Priorities?

# What we already know

A screenshot from a League of Legends match between TSM and C9. The top scoreboard shows TSM with 0 kills, 15.1k gold, and 9/1 K/D, while C9 has 11.9k gold and 0 kills. Blue arrows point to TSM's gold and C9's gold. Red arrows point to TSM's K/D and C9's gold. A green arrow points to TSM's K/D. In the center, Dr. Mundo Bot is leveling up (+21 gold). The bottom left shows a player's stats (6/5/1344, 484/521, 0.79 CS) and the Honda logo. The bottom center features a table titled '2018 LCS SUMMER SPLIT' with player statistics. The bottom right shows a mini-map.

Rank	Player	K/D	CS	Team	Rank	Player	K/D	CS	Team
0		0/0/0	0		27		0/0/0		
0 <sup>2</sup>		0/0/0	29		15		1/4/0		
0 <sup>2</sup>		3/0/5	54		44		0/0/0		
0 <sup>2</sup>		0/0/0	26		37		0/0/0		
0 <sup>2</sup>		6/1/3	25		14		0/5/0		

# What we already know



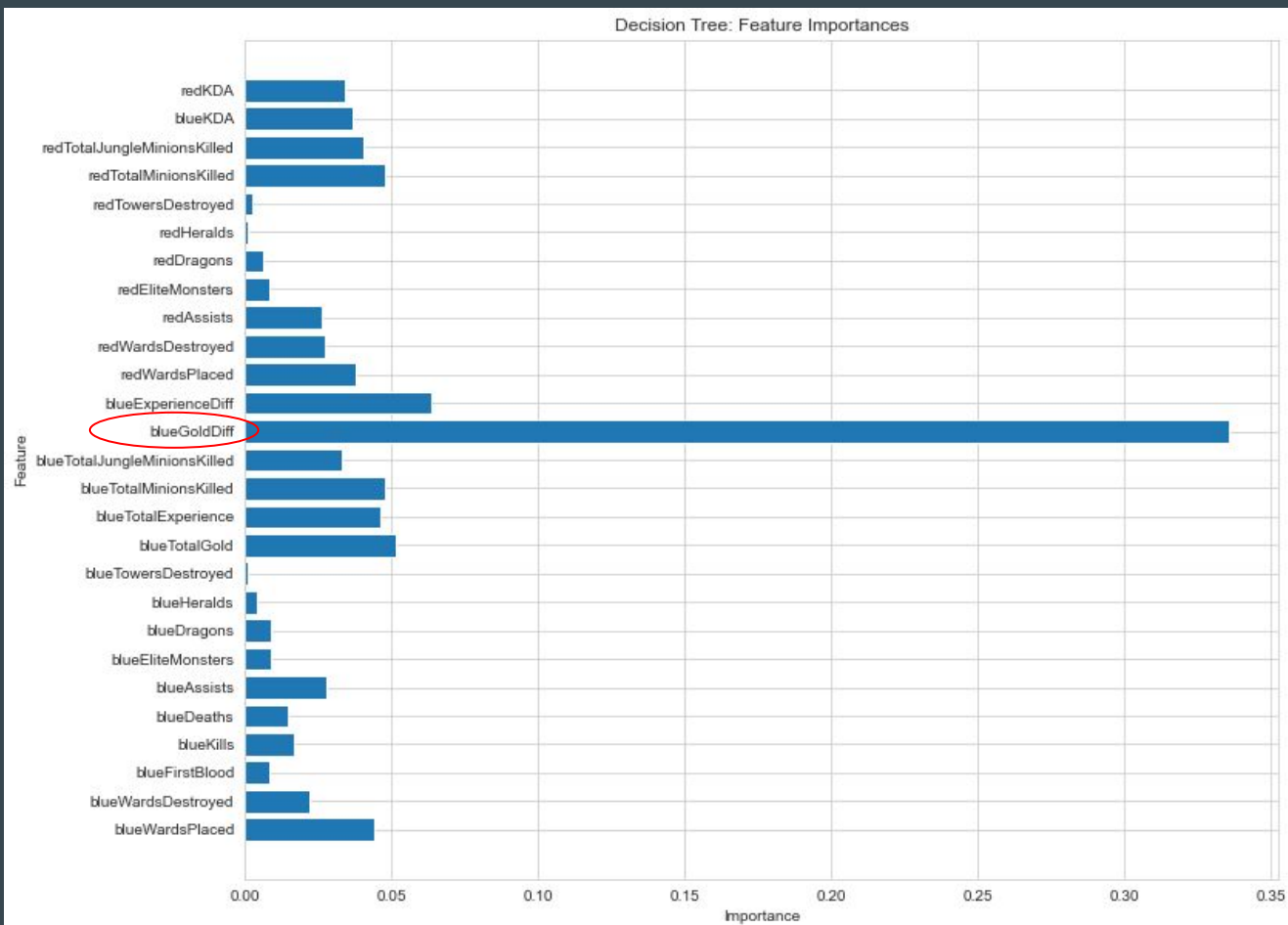
# Metrics to Rank

- Gold
  - Kills/Deaths/Assists (KDA ratio)
  - Experience
  - Wards Placed
  - Wards Destroyed
  - First Blood
  - Towers
  - Dragons
  - Rift Herald
  - Minions
  - Monsters
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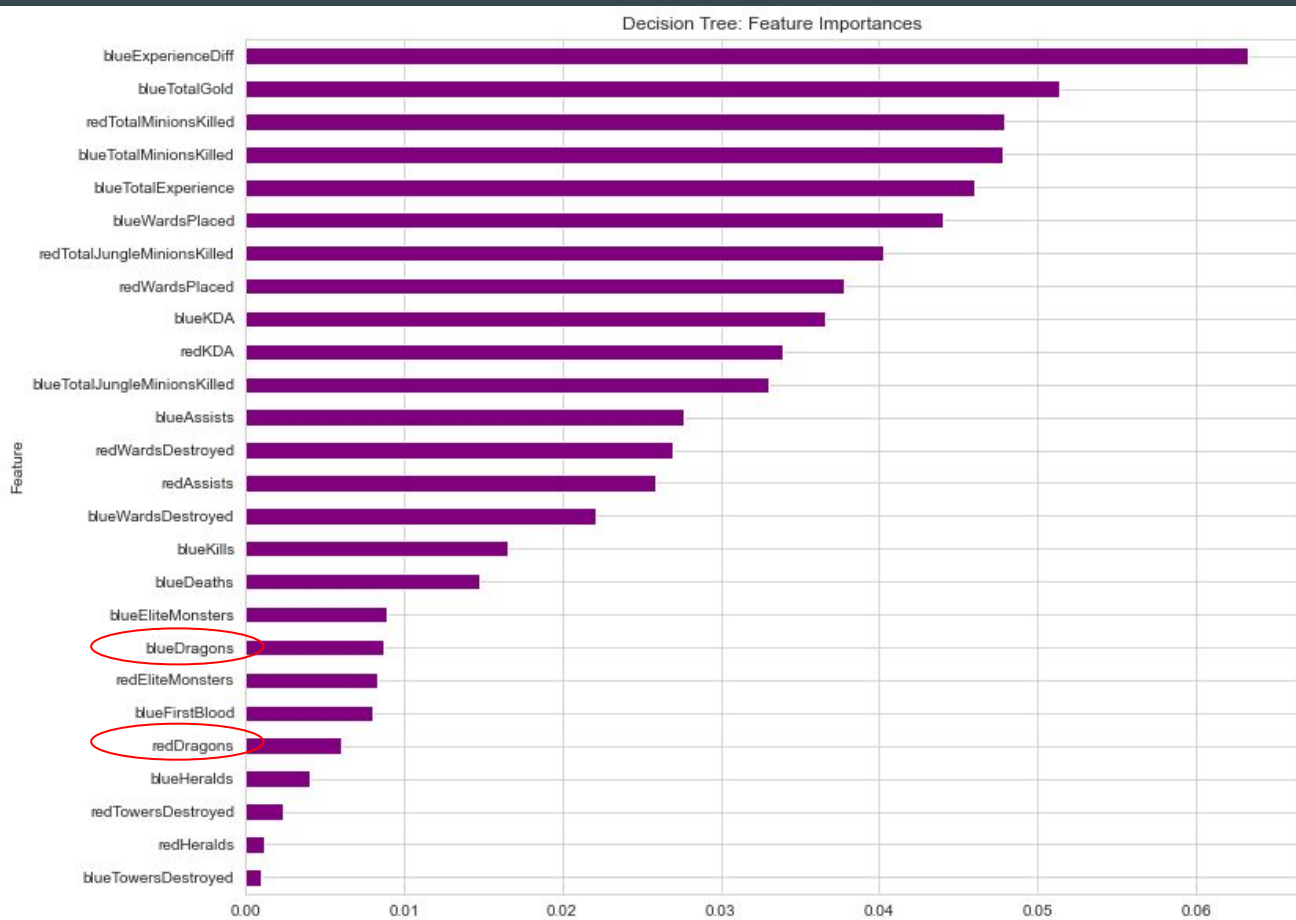
# Classification Models

- What does “Classification Model” mean?
- Predict the outcome based on in-game metrics at exactly 10 minutes
- Data taken from games between the top 1% of players
- Feature Importances
- Two Models with a accuracy score (F1-score)
- Low false positives and low false negatives, so you're correctly identifying real threats and you are not disturbed by false alarms

# First Model - Decision Tree Classifier



# First Model - Decision Tree Classifier



Top Features:

1. Experience
2. Minions
3. Wards Placed
4. KDA

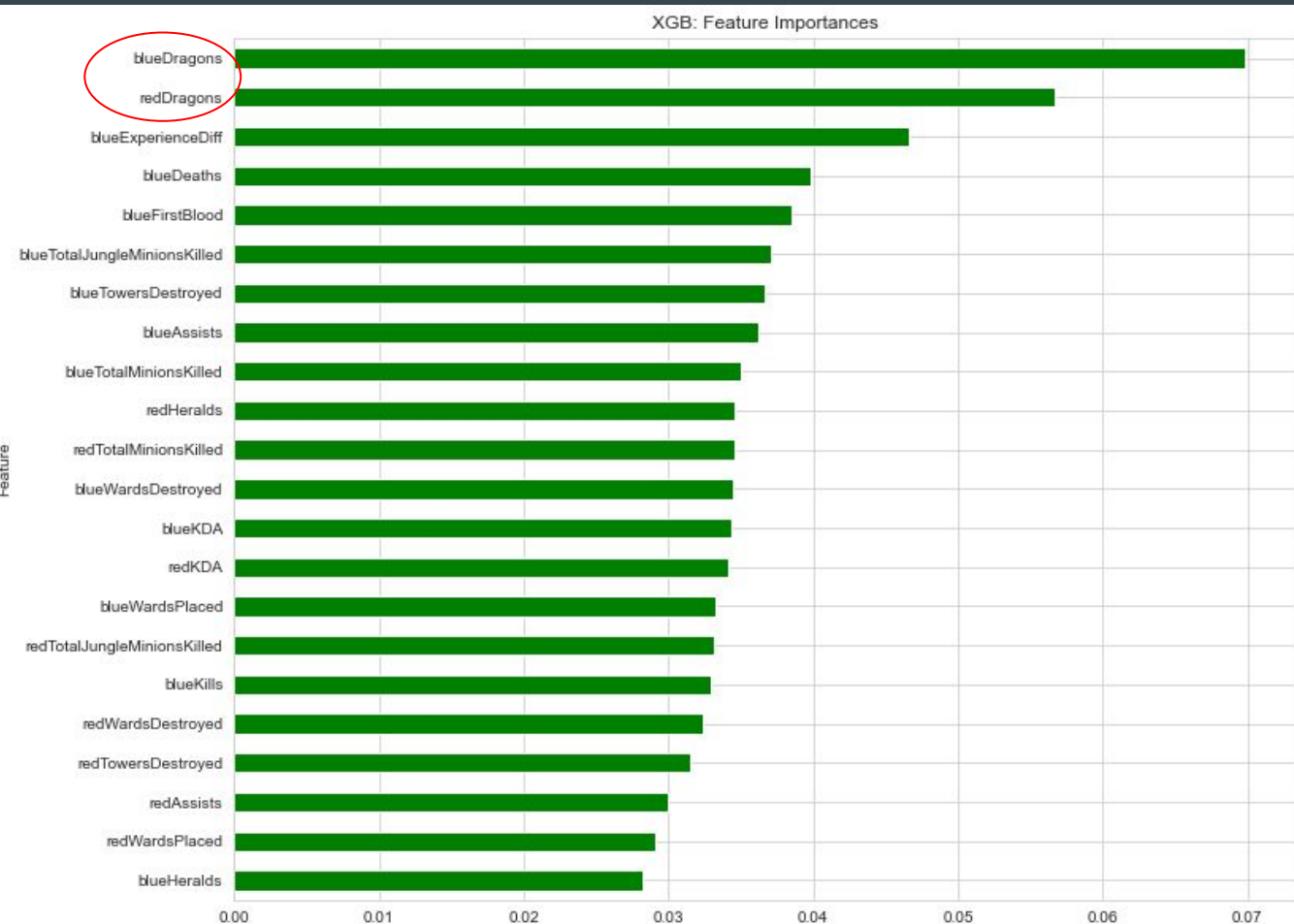
Bottom Features:

1. Towers
2. Heralds
3. Dragons

64.1% accuracy  
(F1-score)



# Second Model - XGBoost Classifier



Top Features:

1. Dragons
2. Experience
3. First Blood

Bottom Features:

1. Heralds
2. Wards Placed
3. Towers?

70.7% accuracy  
(F1-score)

# Conclusions and Results

**GOLD = WIN**

What objectives should we prioritize during the first 10 minutes of a game?

- **Experience and Dragons**

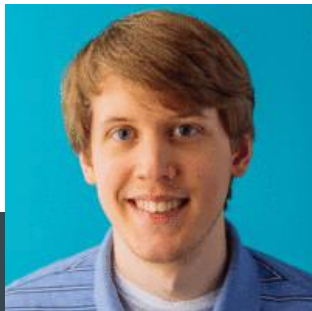
What should we ignore/let the enemy team take instead?

- **Rift Heralds and Towers**

# Future Work

- Datasets beyond 10 minute mark (15+, 20+min?)
- Team compositions are considered (Playing for “late game”/falling off)
- Types of dragons (Air, Earth, Fire, Ocean)

# Thank You!



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