

STAT 6701

# Redefining Soccer Assists: A Multi-Dimensional Approach

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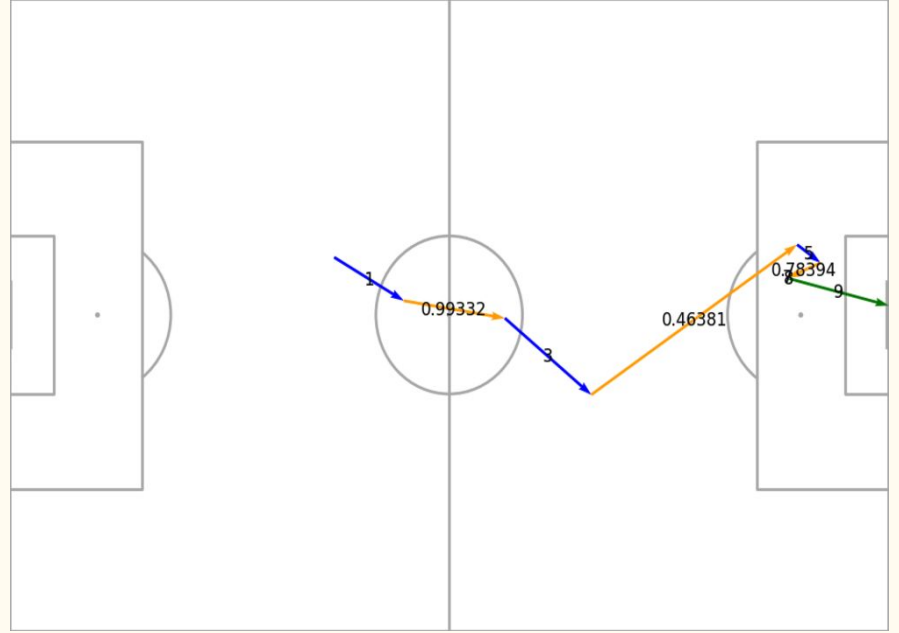
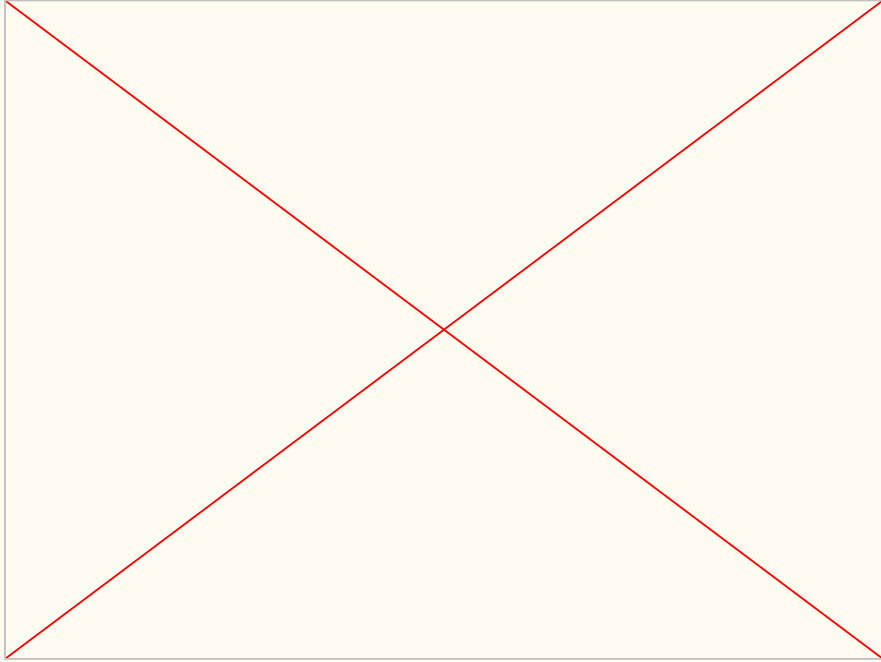
# Motivation

- Traditional assist metric only credits the final pass
- Crucial passes in build-up play go unrecognized
- Others like xA focus solely on goal probability
- Lack of a unifying metric that captures the full value of passes

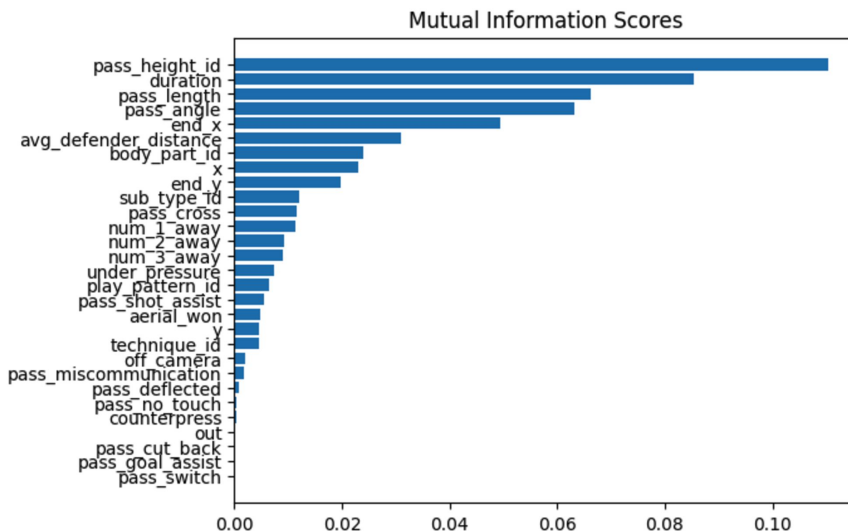
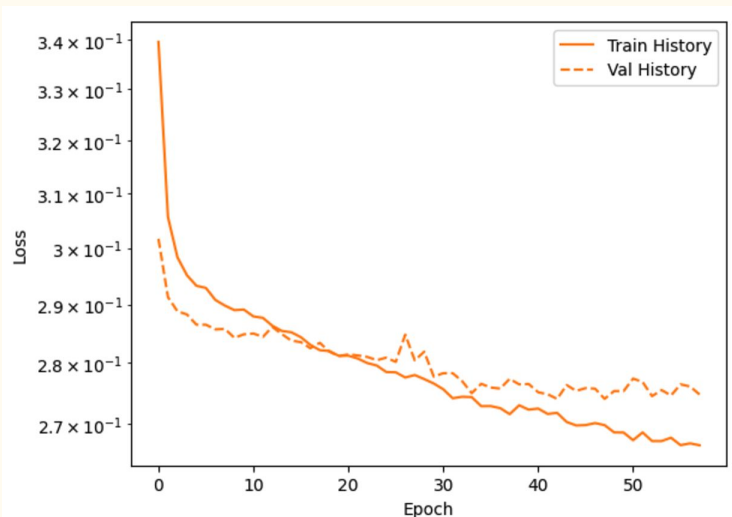
# Four Factors

- Pass Difficulty ( via completion probability )
- Pass Threat ( location-based )
- Space Creation ( space around the receiver )
- Sequence Timing ( timing during buildup )

# Pass Difficulty

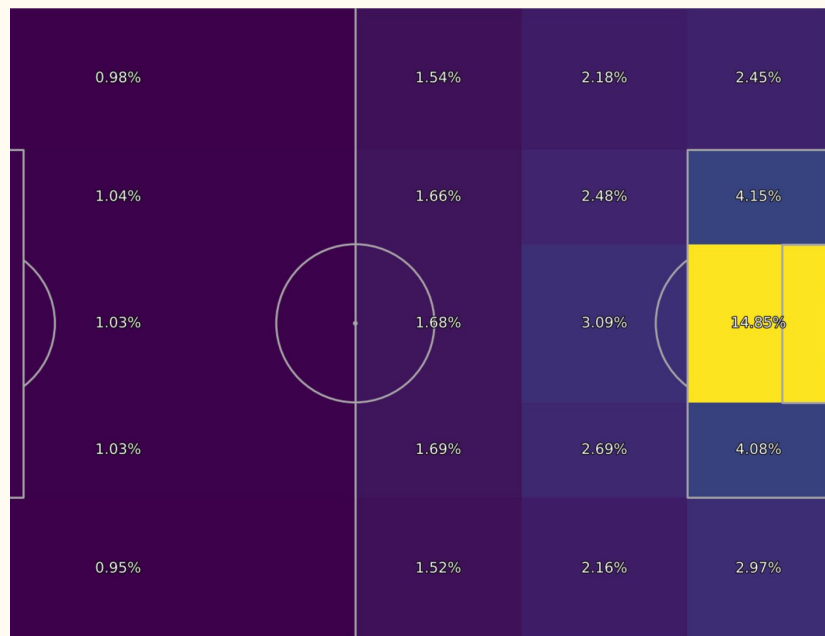


# Pass Difficulty

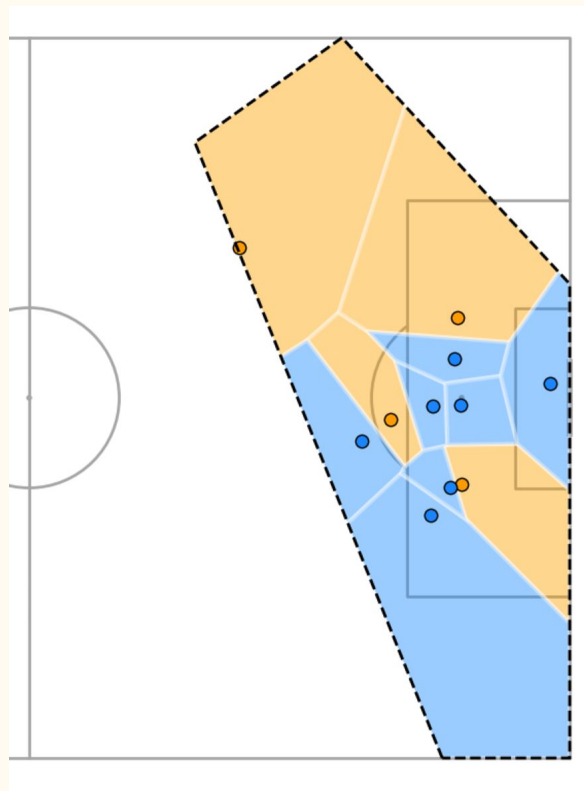


#####		Accuracy	#####
Model: DT	Basic	Accuracy: 0.8186493010512632	
Model: DT	Imp	Accuracy: 0.819587867982212	
Model: DT	All	Accuracy: 0.8267320716386035	
Model: XGB	Basic	Accuracy: 0.8524154171185829	
Model: XGB	Imp	Accuracy: 0.8421091636370672	
Model: XGB	All	Accuracy: 0.8714567593286812	
Model: NN	Basic	Accuracy: 0.8504200277669833	
Model: NN	Imp	Accuracy: 0.8549857396640175	
Model: NN	All	Accuracy: 0.8566543523011472	

# Pass Threat






# Space Creation



# Impact

## Assists

1		<b>Yamal</b> Spain	4
2		<b>Arda Güler</b> Türkiye	2
2		<b>Simons</b> Netherlands	2
2		<b>Fabián Ruiz</b> Spain	2
2		<b>Prass</b> Austria	2
2		<b>Man</b> Romania	2

15



**Gündoğan**

Germany - Midfielder

1

13



**Rodri**

Spain - Midfielder

0

Top 3 players with highest passing value:  
Lamine Yamal Nasraoui Ebana, 8.45  
İlkay Gündoğan, 6.21  
Rodrigo Hernández Cascante, 4.78

# Next Steps

- Evaluating the metric through expert feedback
  - Get experts to rank passes in order of importance and compare with models ranking
  - Mix spurious rankings with model rankings and ask to choose which is best
- Train difficulty models for carry's and defensive actions



Questions?