







A New FIFA ranking?

Nick Powell

Seyla Ou























































Background

Current ranking system is flawed; points stack infinitely

18		Hungary
19		Romania
20		Bosnia-Herzegovina
21		France
22		Ukraine
23		Croatia



FIFA

1	 Brazil																							
2	 Czech Republic																							
3	 Netherlands																							
4	 USA																							
5	 Spain																							
6	 Mexico																							
7	 France																							
8	 Argentina	0 (0)	765	-4		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8	 Portugal	0 (0)	755	2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
10	 England	0 (0)	756	-1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
11	 Denmark	0 (0)	736	3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
12	 Nigeria	0 (0)	738	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
13	 Turkey	0 (0)	743	-2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
14	 Italy	0 (0)	738	-2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
15	 Cameroon	0 (0)	726	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
16	 Sweden	0 (0)	725	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
17	 Japan	0 (0)	712	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
18	 Egypt	0 (0)	714	-1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
19	 Germany	0 (0)	700	3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
19	 Greece	0 (0)	704	2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

RESEARCH QUESTION:

- Can we create a “better” ranking system than FIFA’s
- What makes one ranking system “better” than another?

3 Models

1. FIFA rankings

$$P = M \mathbf{X} \mathbf{I} \mathbf{X}^T \mathbf{X} \mathbf{C}$$

2. Normal Bradley-Terry model

$$\hat{\beta}_\lambda = \arg \min \{ \|\mathbf{y} - \mathbf{X}\beta\|^2 + \lambda \|\beta\|^2 \} = (\mathbf{X}^T \mathbf{X} + \lambda \mathbf{I})^{-1} \mathbf{X}^T \mathbf{y}$$

3. OUR custom model

????

How it works -

Scrape data for 10,000 most recently played matches

Train on first 9,000 matches; hold out last 1,000 to test on

Predict the results of the last 1,000 matches based on the **rankings** from the first 9,000

Our model

1 point to winning team, -1 point to losing team



If winning team had fewer points, >1 point gained and lost

If winning team had more points, <1 point gained and lost

Also factored in: confederation strength, margin of victory

FIFA

Rank	Team
1	 Argentina
2	 Belgium
3	 Chile
4	 Colombia
5	 Germany
6	 Spain
7	 Brazil
8	 Portugal
9	 Uruguay
10	 England
11	 Austria
12	 Ecuador
13	 Turkey
14	 Switzerland
15	 Italy
16	 Mexico
17	 Netherlands
18	 Hungary
19	 Romania
20	 Bosnia and Herzegovina

B-T

Rank	Team
1	 Brazil
2	 Argentina
3	 Mexico
4	 Spain
5	 Germany
6	 United States
7	 England
8	 Portugal
9	 Colombia
10	 France
11	 Honduras
12	 Uruguay
13	 Italy
14	 Costa Rica
15	 Paraguay
16	 Ecuador
17	 Chile
18	 Australia
19	 Iran
20	 Czech Republic

Our model

Rank	Team
1	 Germany
2	 Spain
3	 Brazil
4	 Netherlands
5	 United States
6	 Russia
7	 England
8	 Portugal
9	 Sweden
10	 Italy
11	 Ivory Coast
12	 Iran
13	 Bosnia and Herzegovina
14	 Ukraine
15	 Australia
16	 Croatia
17	 Greece
18	 Honduras
19	 Costa Rica
20	 France

BT results

- ~41% using betas
- ~52% using rankings

FIFA results

- ~53% using predictions

Custom model results

~49%



Limitations

- Home/Away
- Data set did not have match types
- Method of determining predicted draw was arbitrary
- Predicting match results are not a great metric

Conclusion

- Were we able to create a “better” ranking system than FIFA was able to?
- No, but...

