01_TwiBot_20_histograms

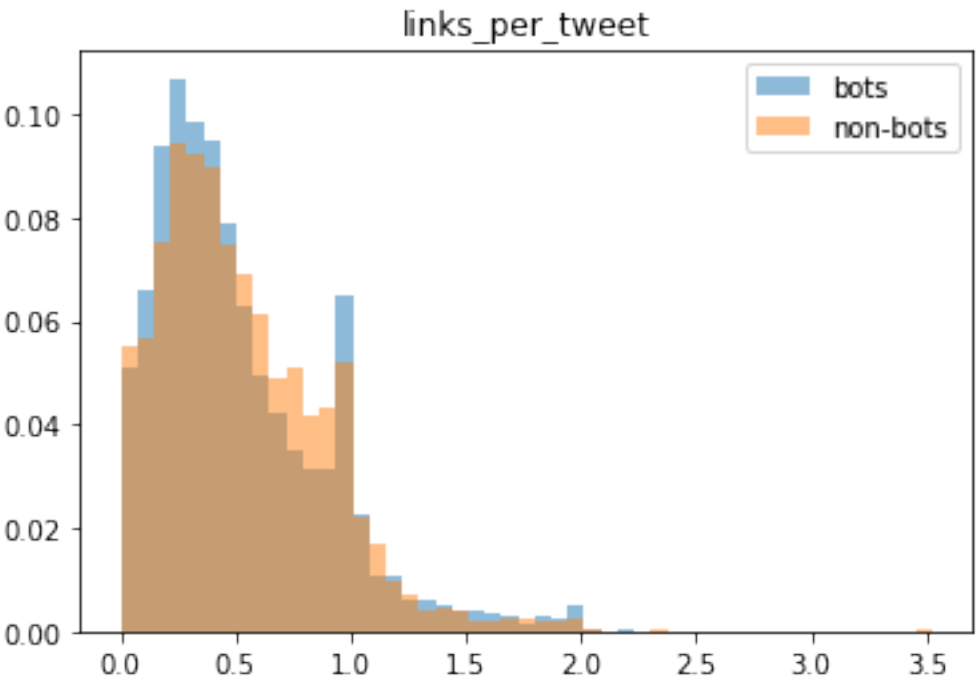
August 19, 2023

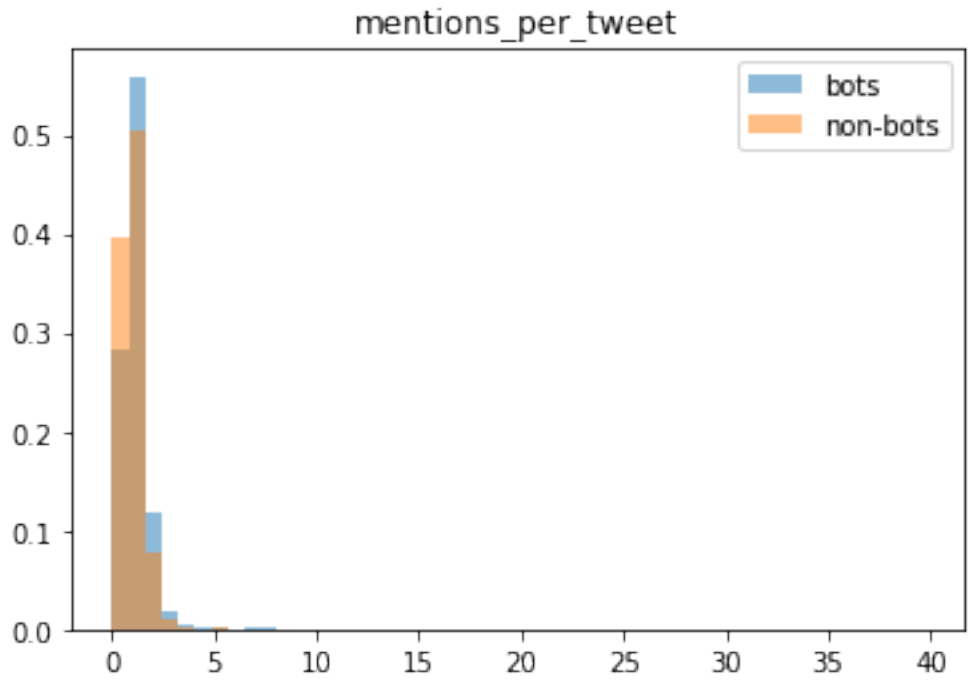
[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

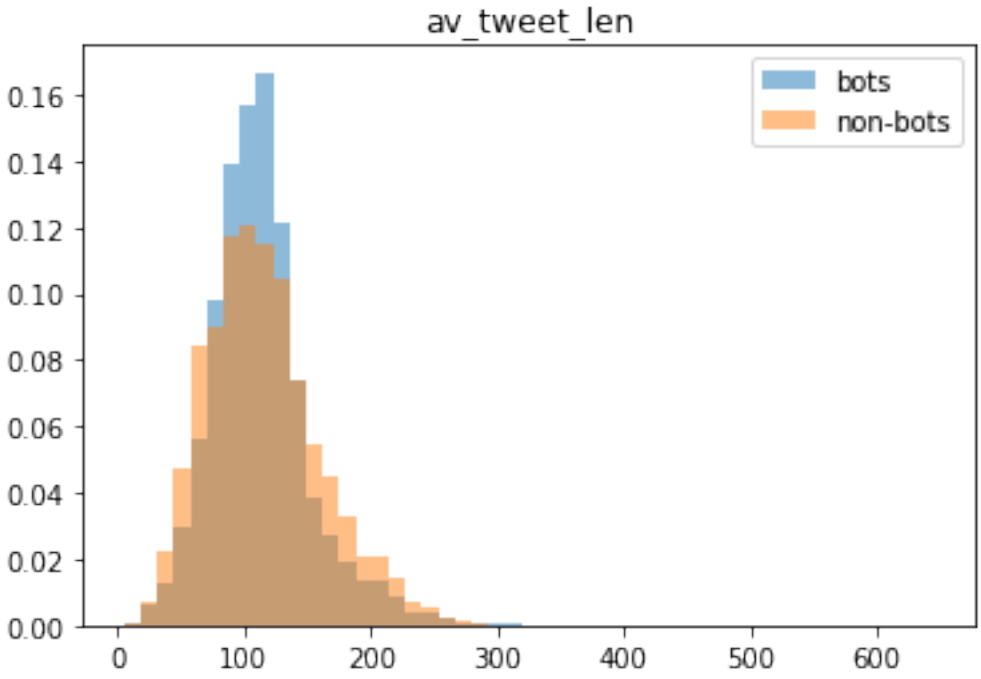
0.1 TwiBot-20

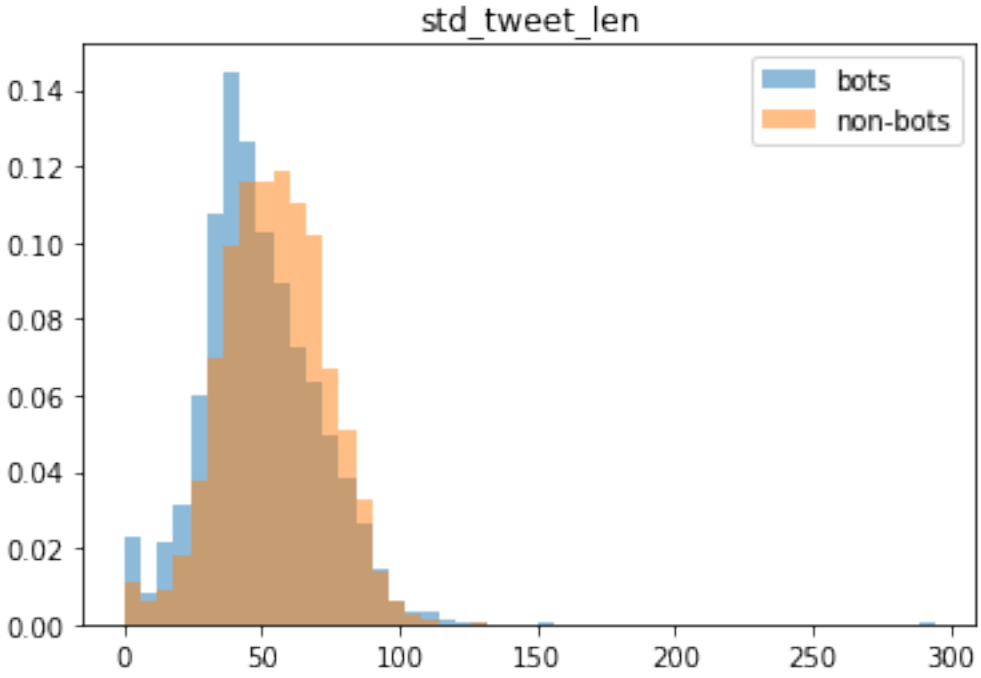
0.1.1 NLP data

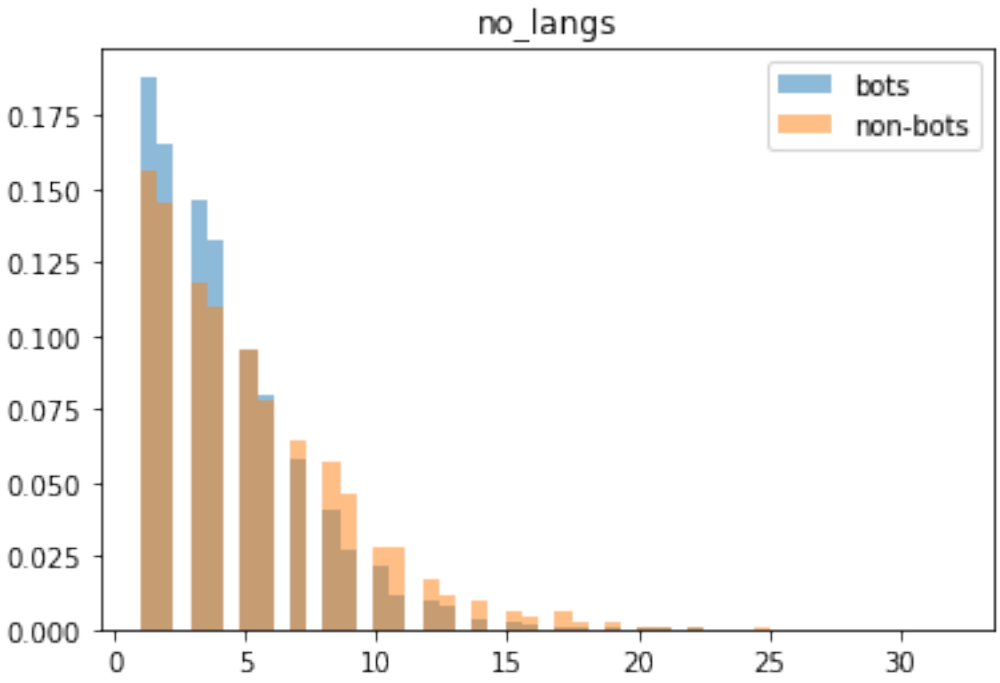
[2]:
```
nlp = pd.read_csv("twibot_20_nlp.csv")
for col in nlp.columns[1:-1]:
    x = nlp.loc[nlp["label"] == 1, col]
    y = nlp.loc[nlp["label"] == 0, col]

    bins = np.linspace(min(nlp[col]), max(nlp[col]), 50)

    plt.hist(round(x, 5), bins, alpha=0.5, label='bots', weights=np.
 ↪ones(len(x))/len(x))
    plt.hist(y, bins, alpha=0.5, label='non-bots', weights=np.ones(len(y))/
 ↪len(y))
    plt.legend(loc='upper right')
    plt.title(col)
    #plt.savefig(f'./charts/{col}.pdf')
    plt.show()
```

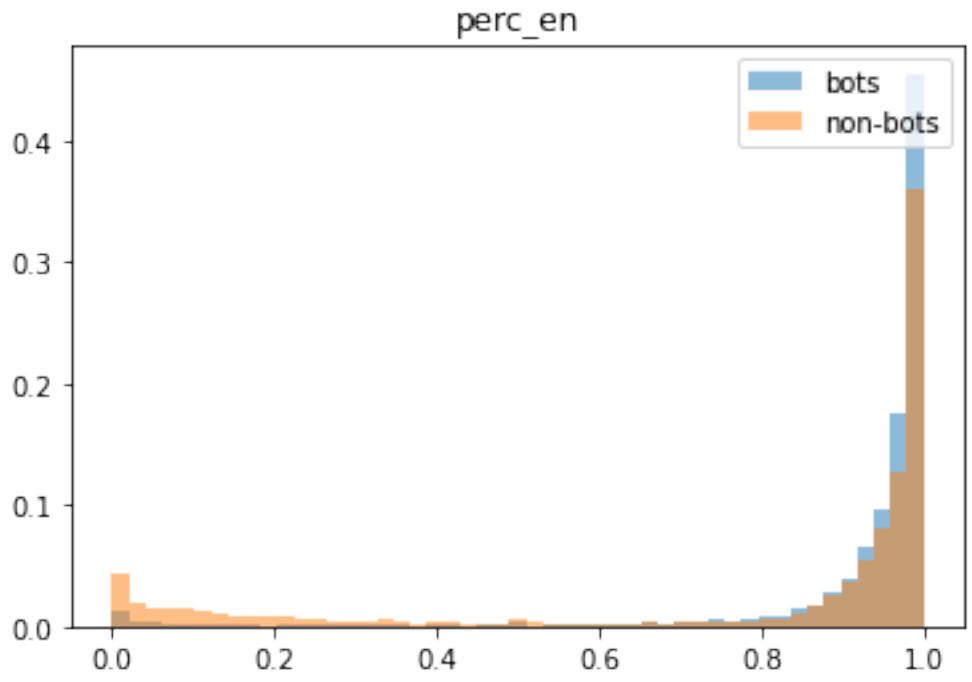

links_per_tweet
bots
non-bots
0.10
0.08
0.06
0.04
0.02
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

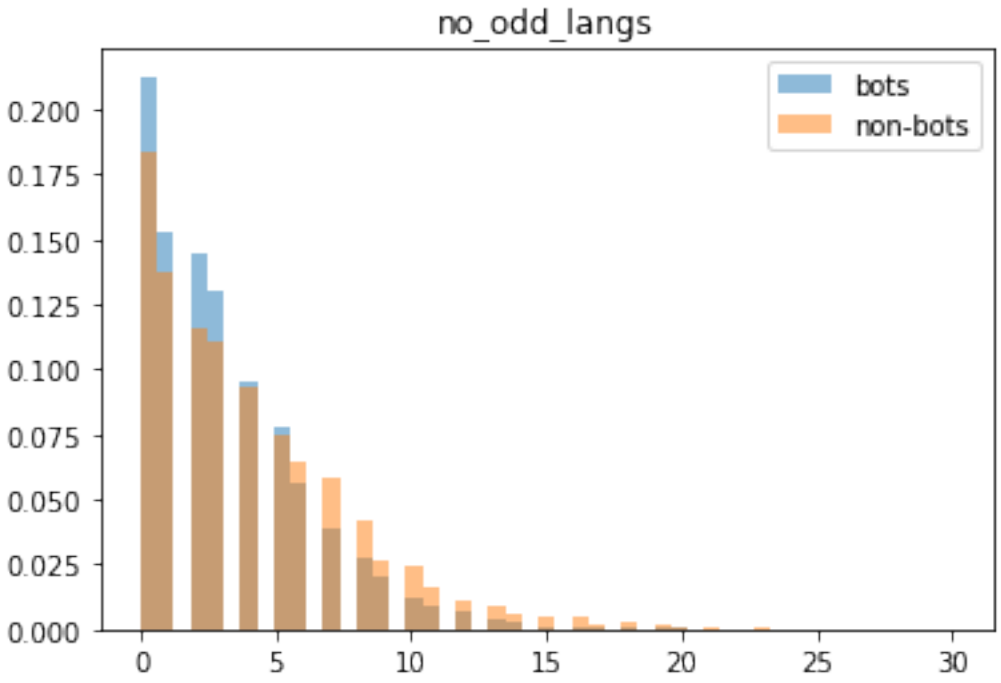

mentions_per_tweet
bots
non-bots
0.5
0.4
0.3
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40

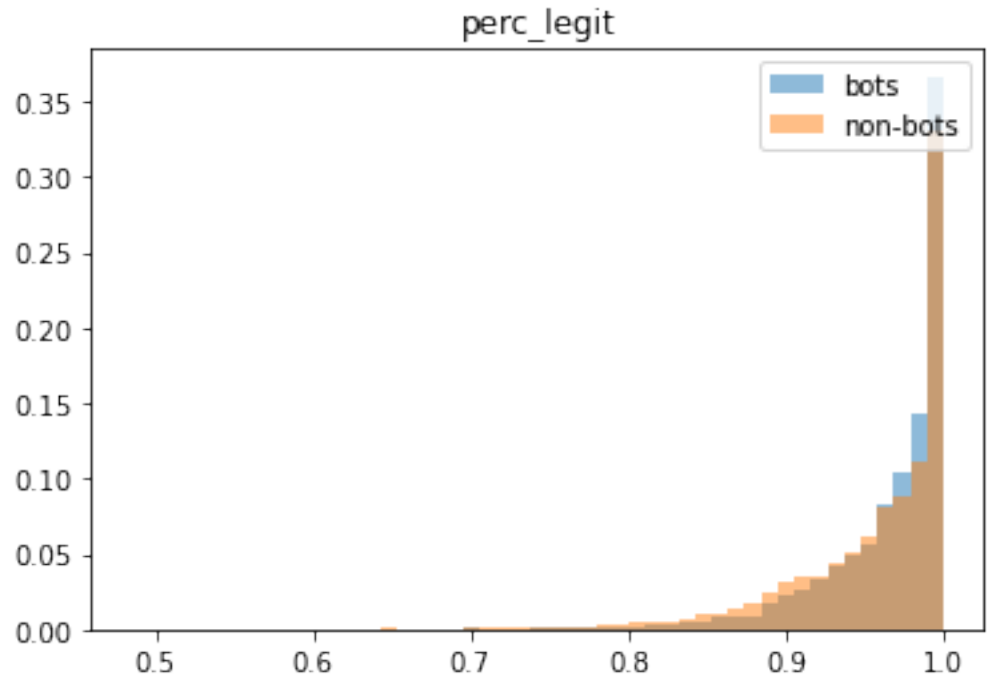

av_tweet_len
bots
non-bots
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
100
200
300
400
500
600

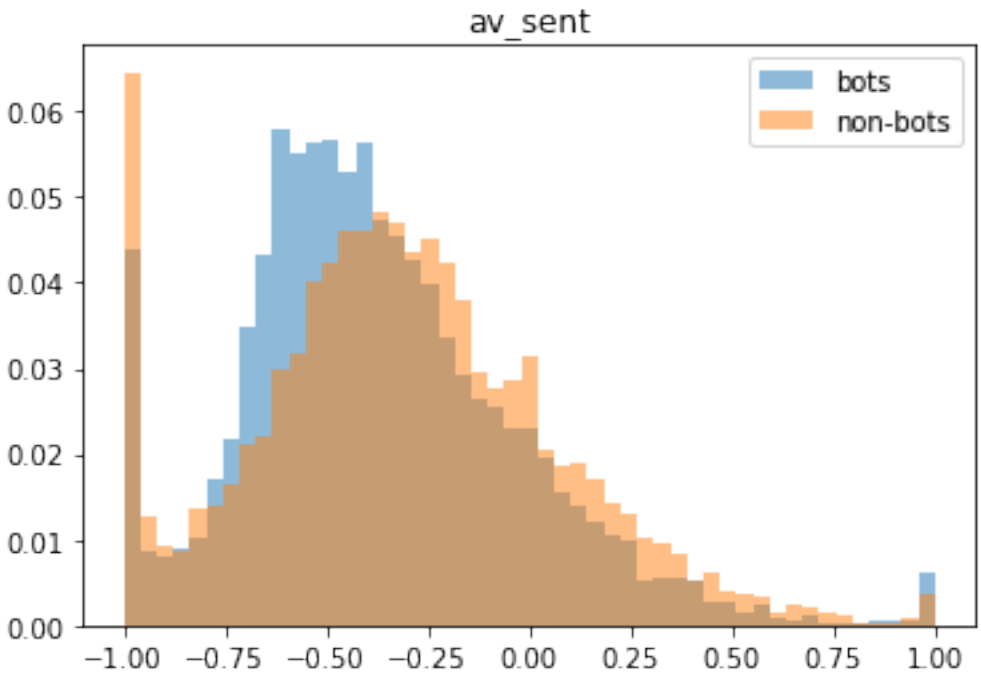

std_tweet_len
bots
non-bots
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
50
100
150
200
250
300

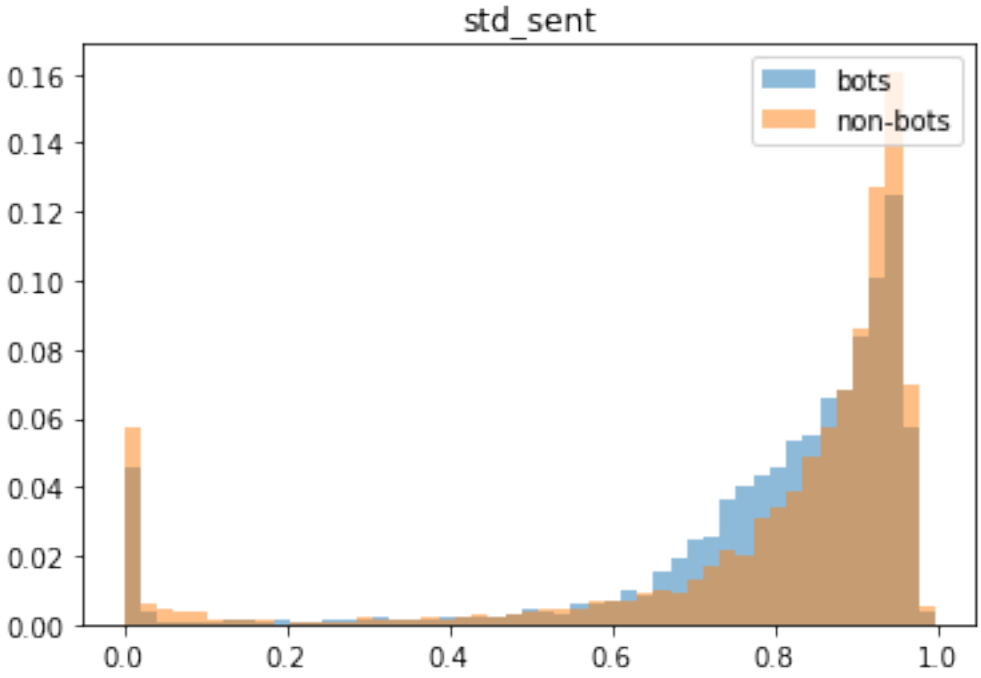

no_langs
bots
non-bots
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
5
10
15
20
25
30

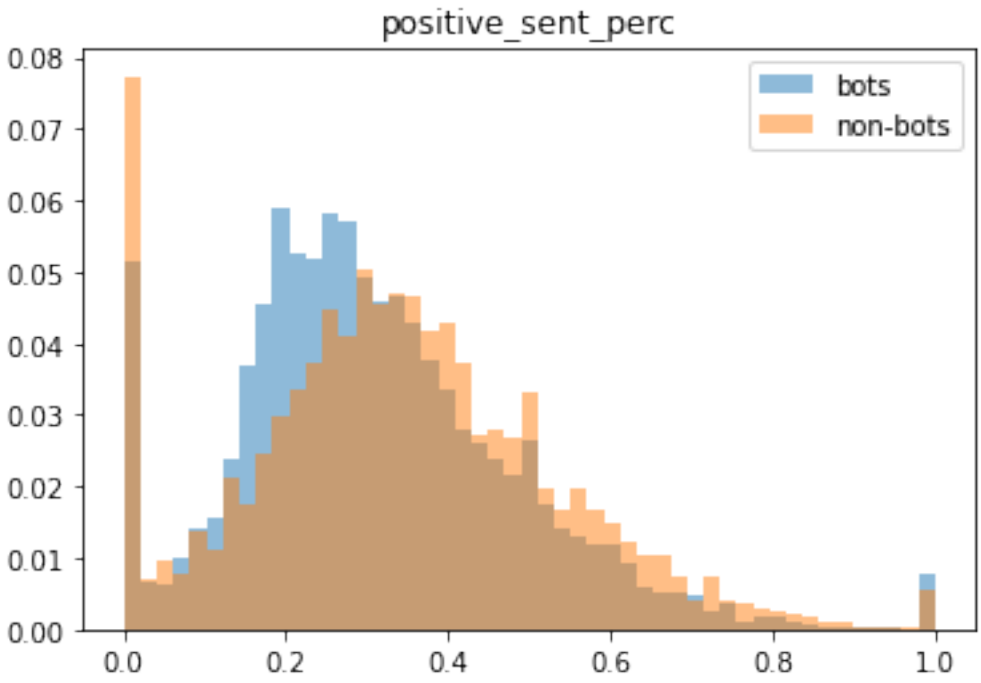

perc_en
bots
non-bots
0.4
0.3
0.2
0.1
0.0
0.0
0.2
0.4
0.6
0.8
1.0


no_odd_langs
bots
non-bots
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
5
10
15
20
25
30


perc_legit
bots
non-bots
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.5
0.6
0.7
0.8
0.9
1.0


av_sent
bots
non-bots
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−1.00
−0.75
−0.50
−0.25
0.00
0.25
0.50
0.75
1.00

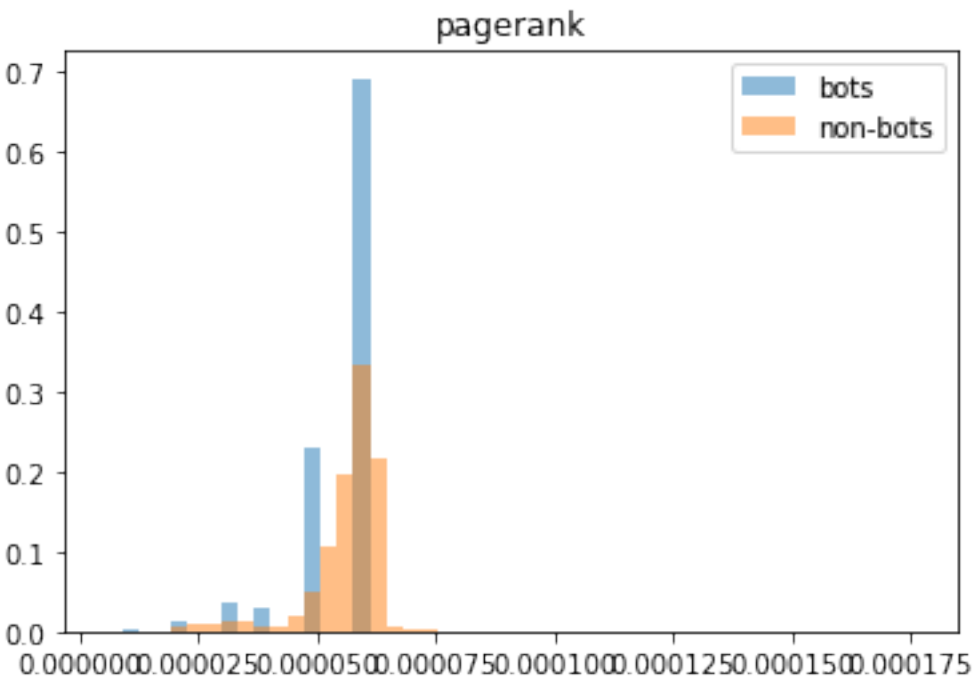

std_sent
bots
non-bots
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.0
0.2
0.4
0.6
0.8
1.0

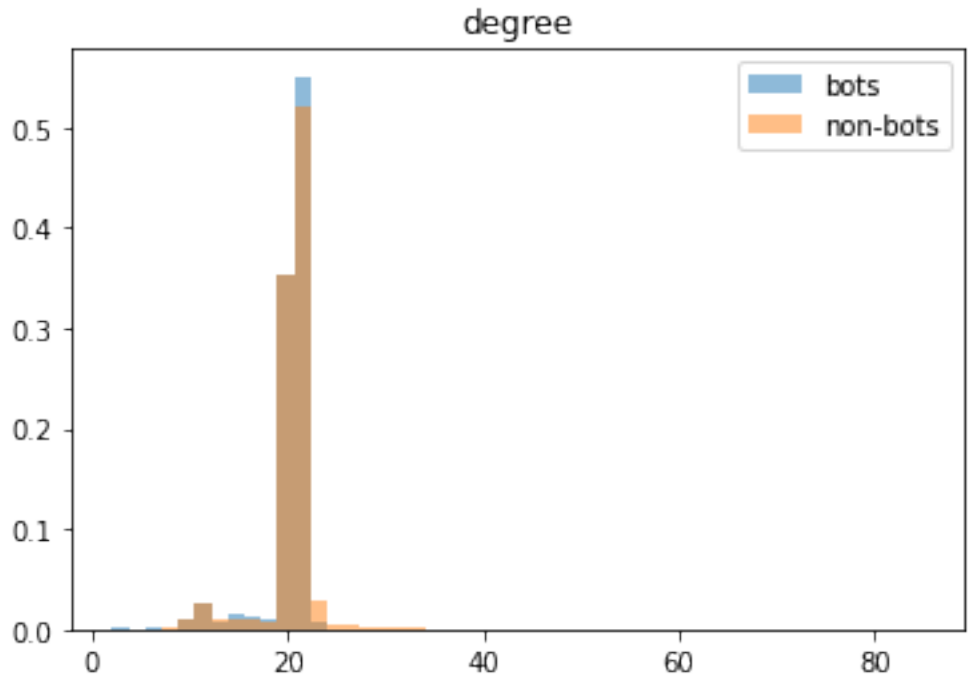


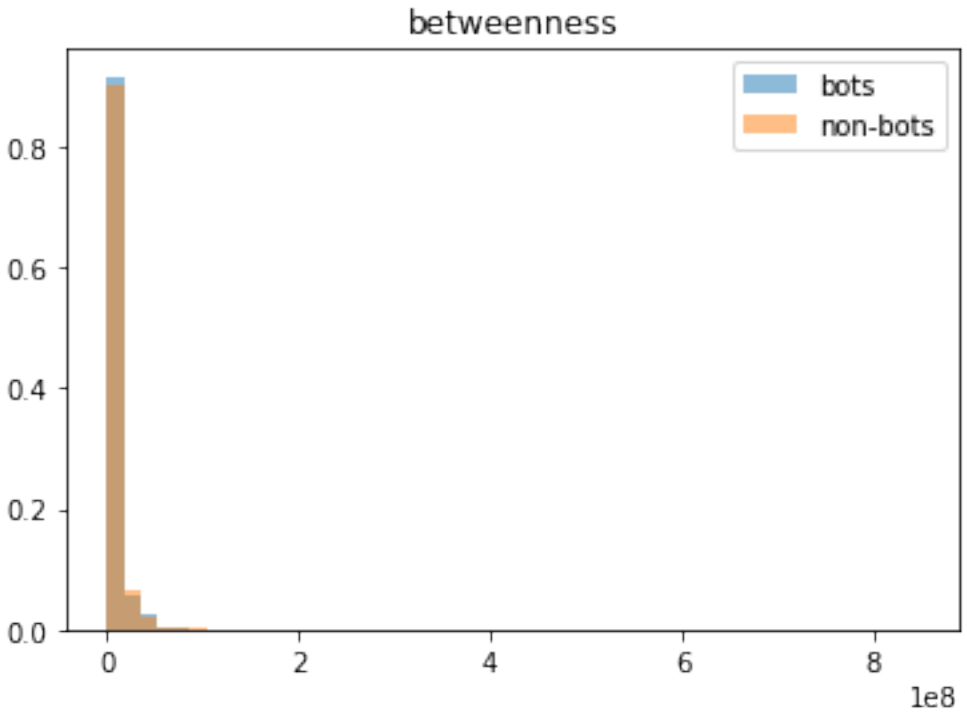
0.1.2 node statistics

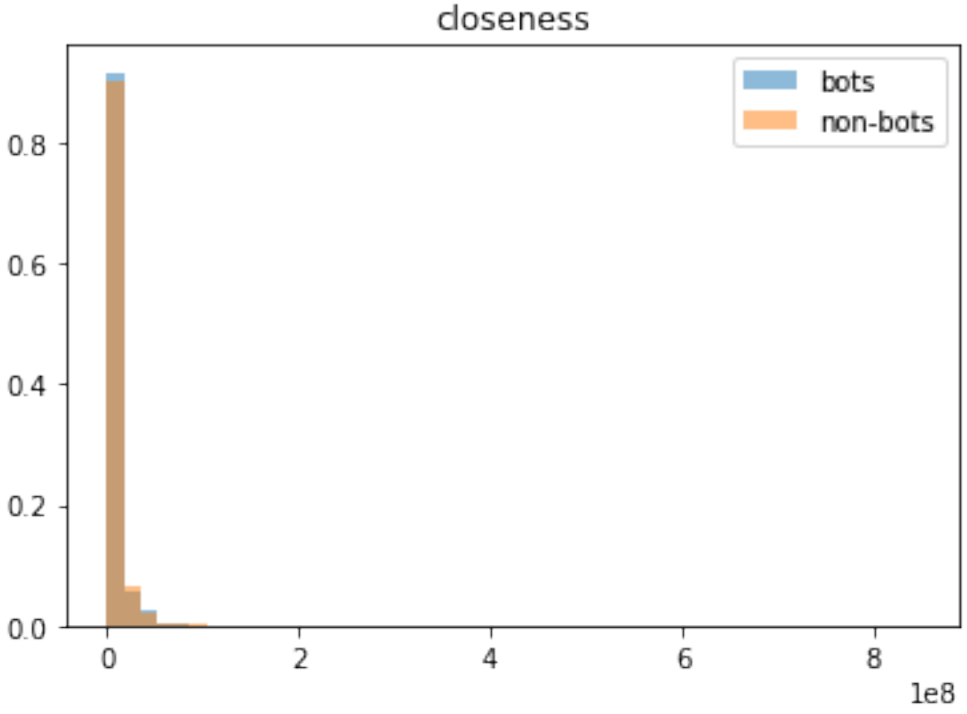
[3]:
```
twibot_gf = pd.read_csv("twibot_20_gf.csv")
```

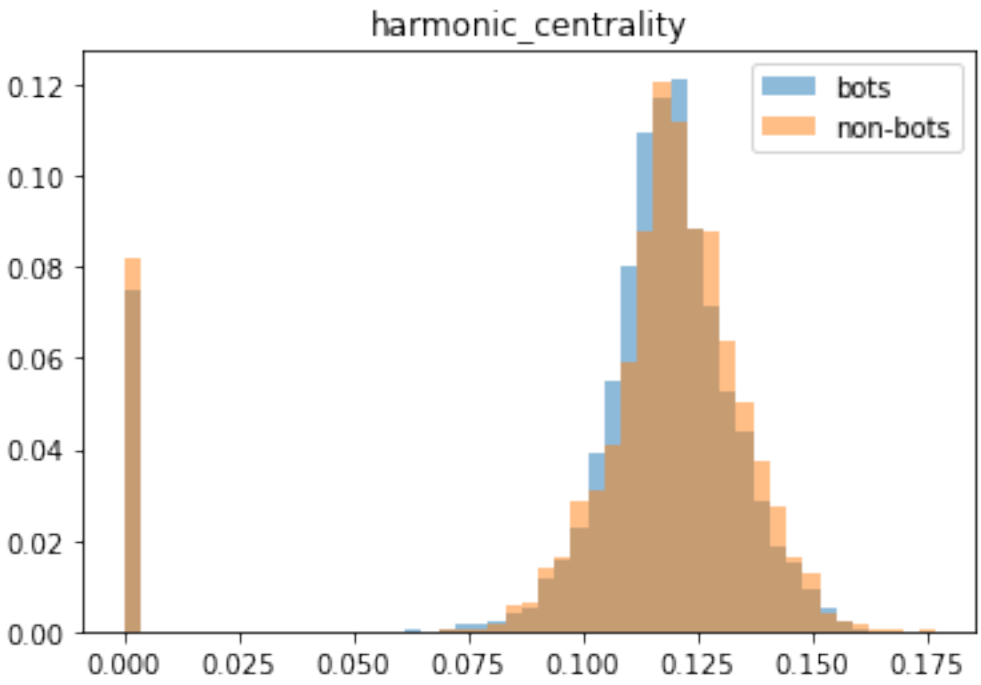
[4]:
```
twibot_gf = pd.read_csv("twibot_20_gf.csv")
for col in twibot_gf.columns[1:-1]:
    x = twibot_gf.loc[twibot_gf["label"] == 1, col]
    y = twibot_gf.loc[twibot_gf["label"] == 0, col]

    bins = np.linspace(min(twibot_gf[col]), max(twibot_gf[col]), 50)

    plt.hist(round(x, 5), bins, alpha=0.5, label='bots', weights=np.
 ↪ones(len(x))/len(x))
    plt.hist(y, bins, alpha=0.5, label='non-bots', weights=np.ones(len(y))/
 ↪len(y))
    plt.legend(loc='upper right')
    plt.title(col)
    #plt.savefig(f'./charts/{col}.pdf')
    plt.show()
```

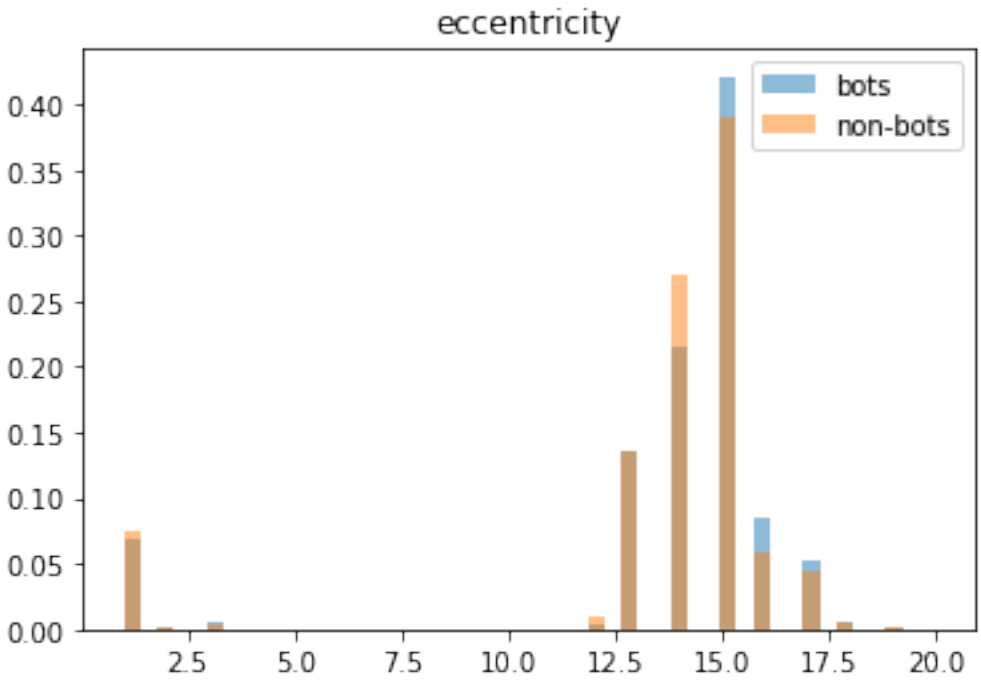

pagerank
bots
non-bots
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000000
0.000025
0.000050
0.000075
0.000100
0.000125
0.000150
0.000175

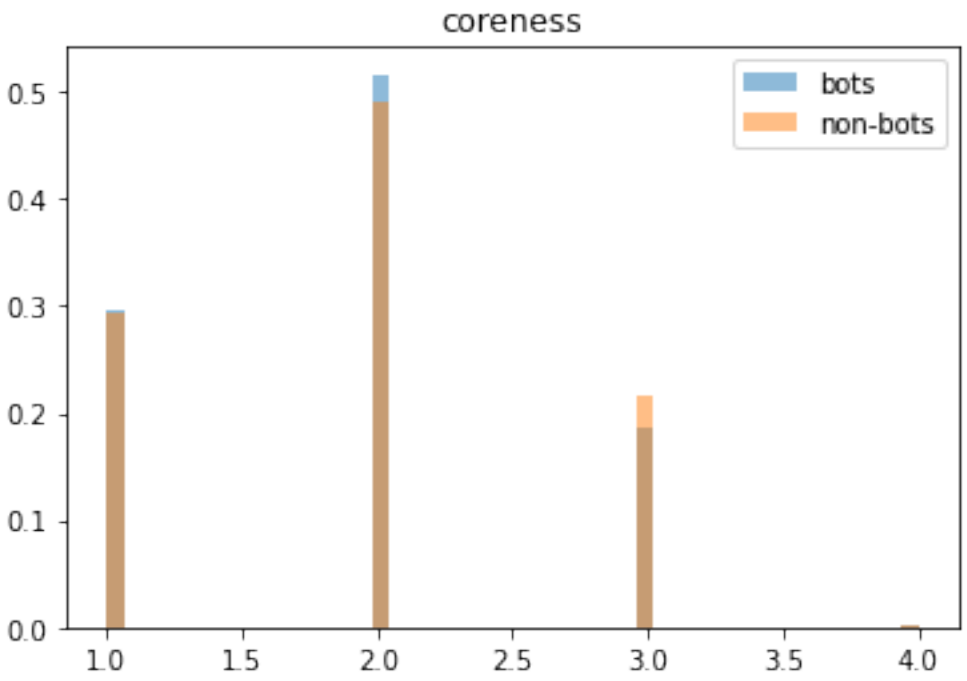

degree
bots
non-bots
0.5
0.4
0.3
0.2
0.1
0.0
0
20
40
60
80

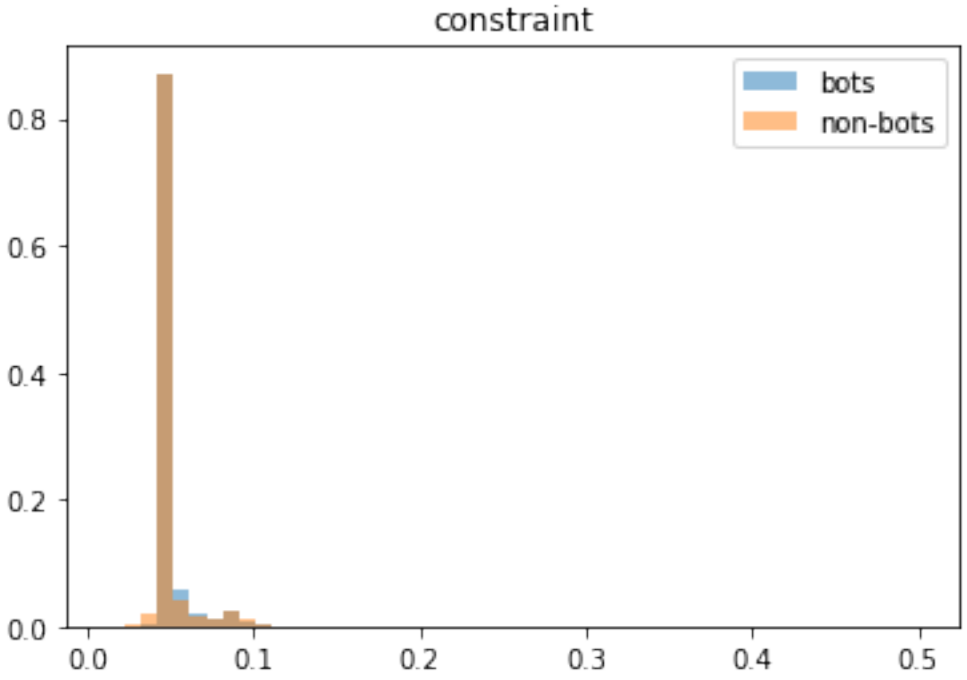

betweenness
bots
non-bots
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
1e8

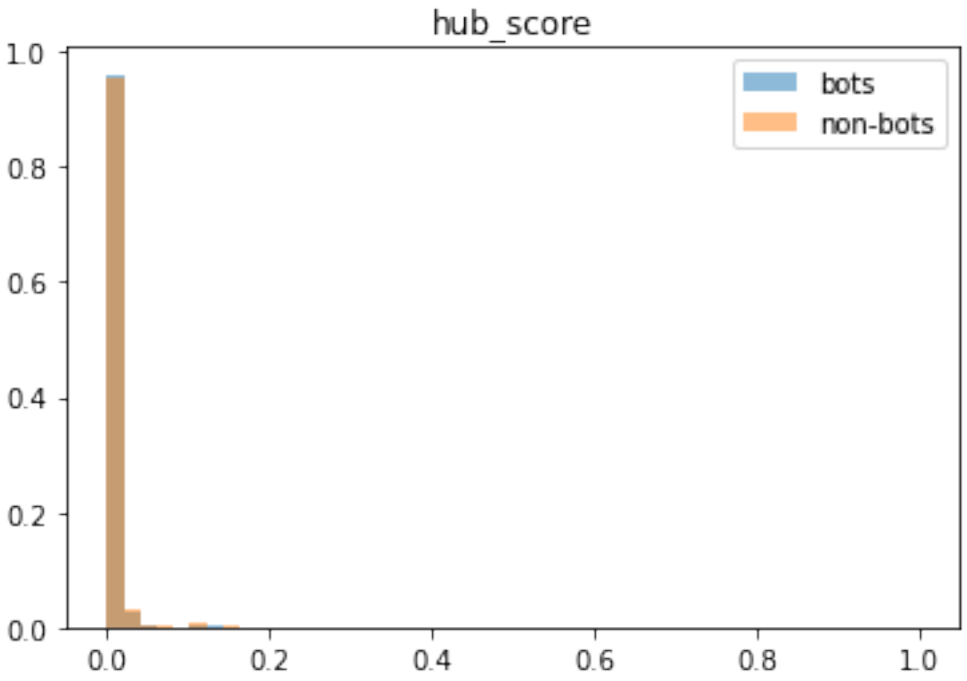

closeness
bots
non-bots
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
1e8

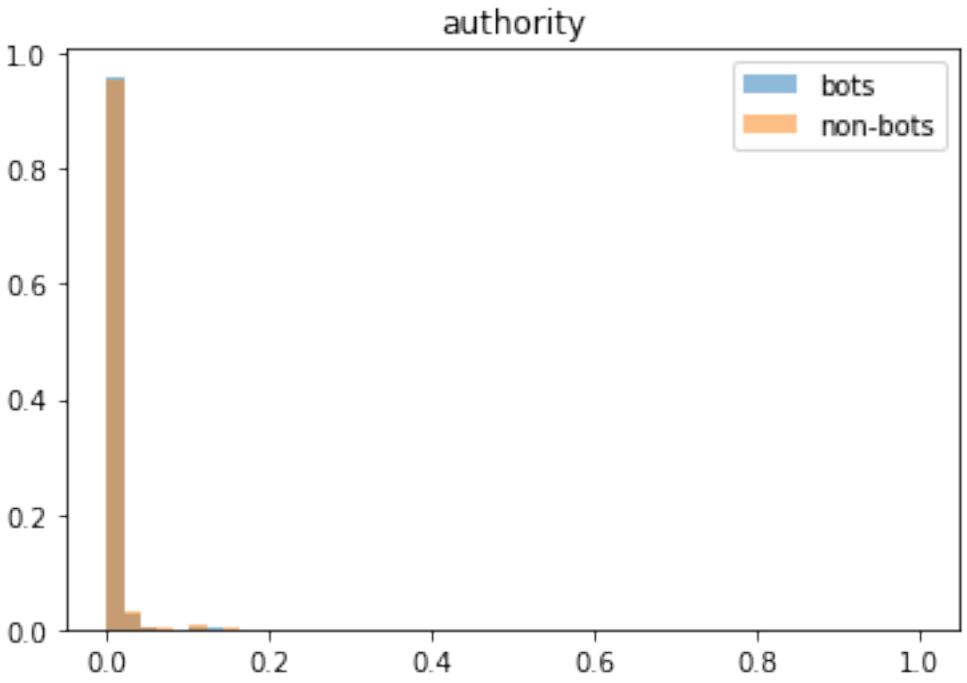

harmonic_centrality
bots
non-bots
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175

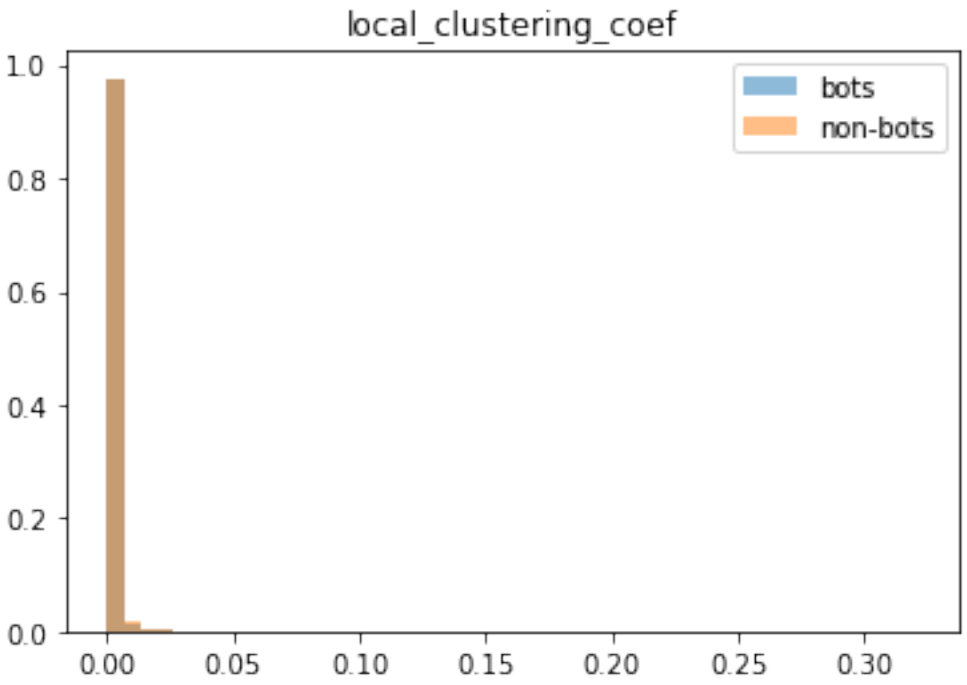

eccentricity
bots
non-bots
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

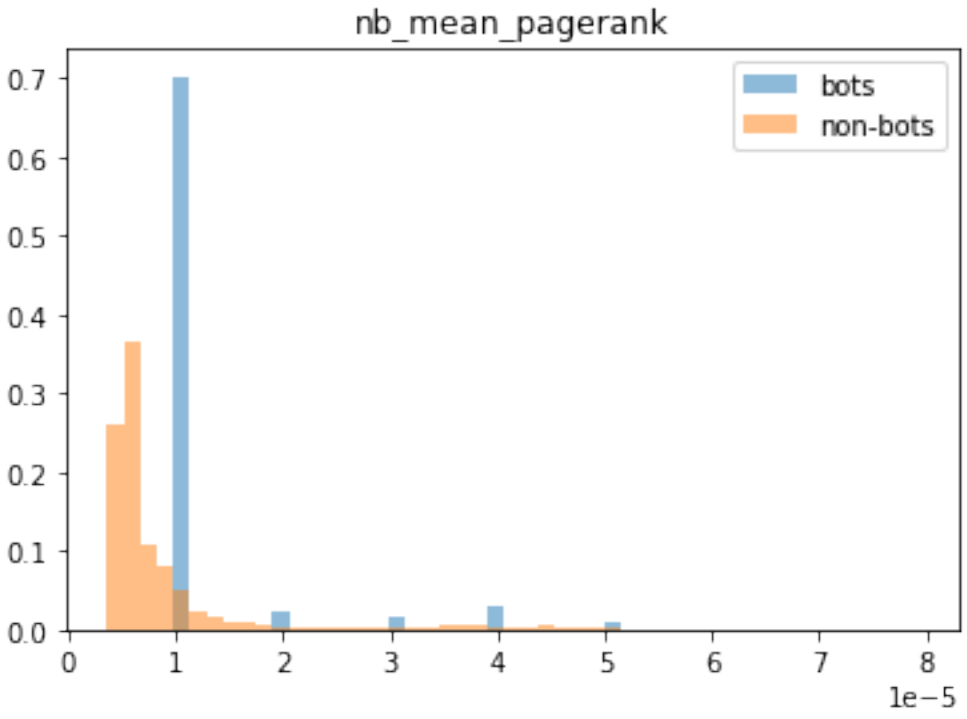

coreness
bots
non-bots
0.0
0.1
0.2
0.3
0.4
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

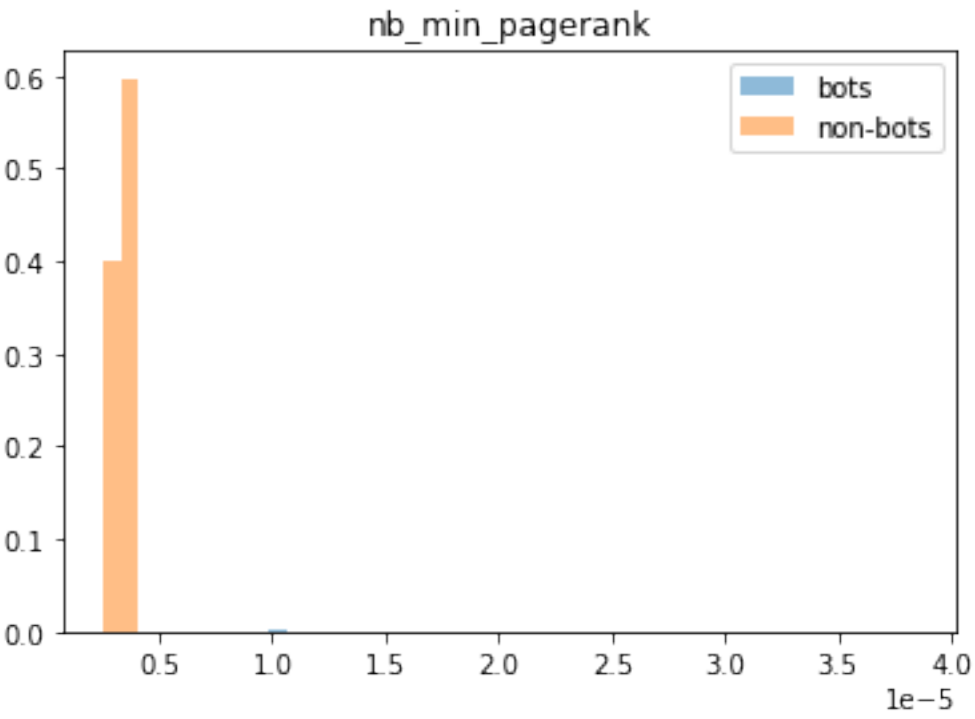

constraint
bots
non-bots
0.0
0.2
0.4
0.6
0.8
0.0
0.1
0.2
0.3
0.4
0.5

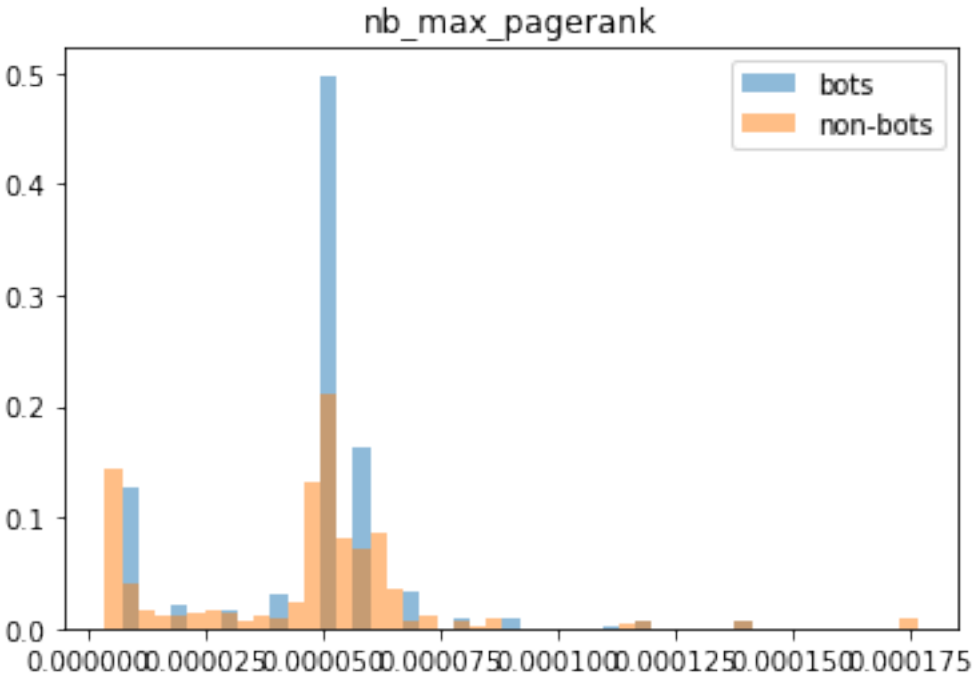

hub_score
bots
non-bots
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

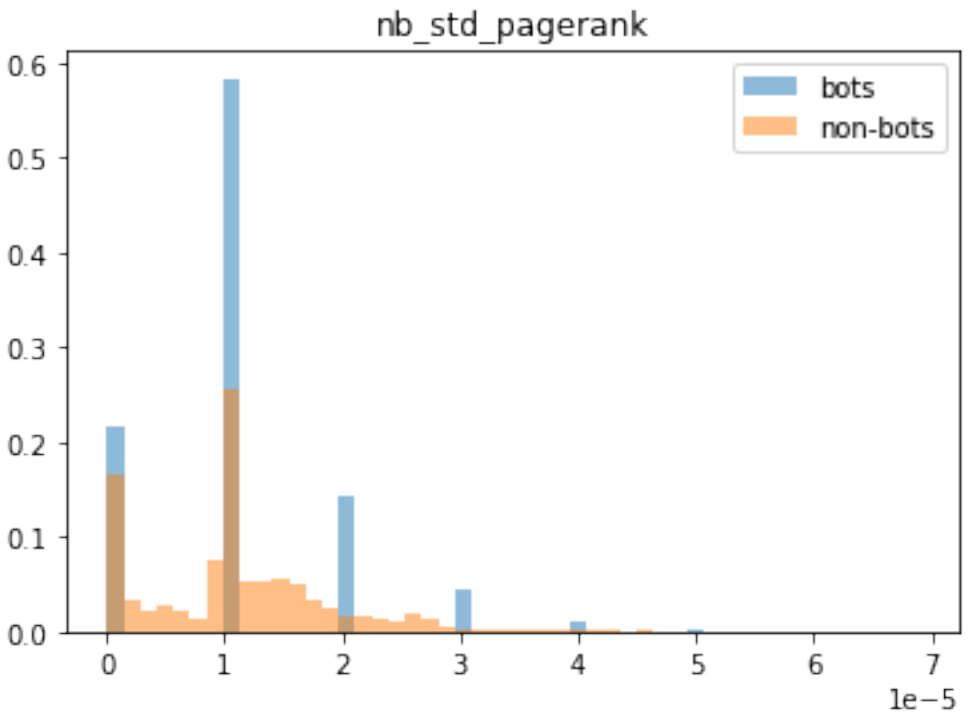

authority
bots
non-bots
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

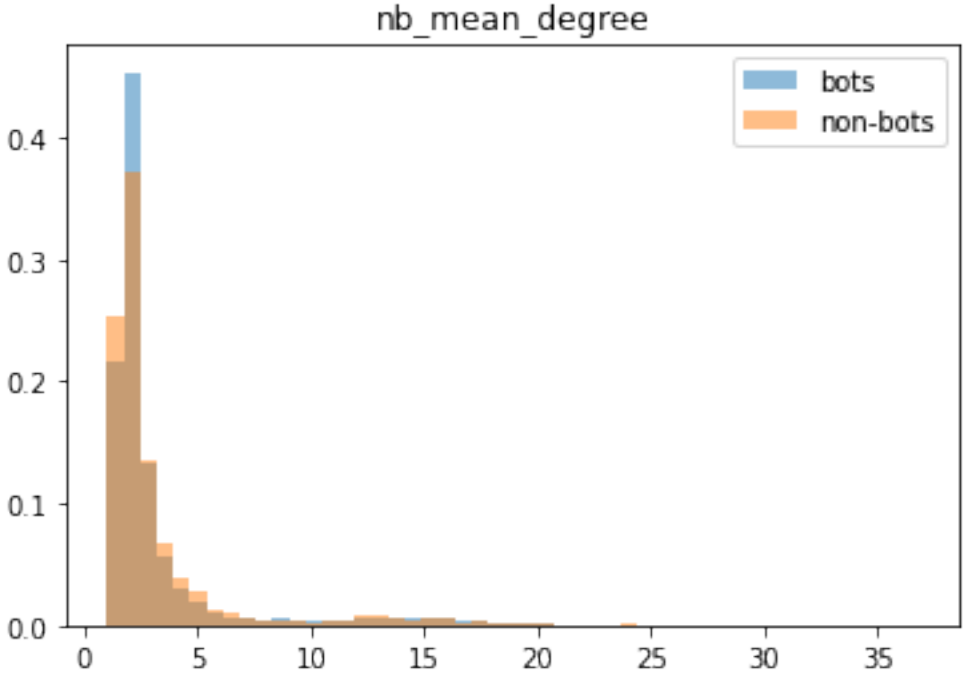

local_clustering_coef
bots
non-bots
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30

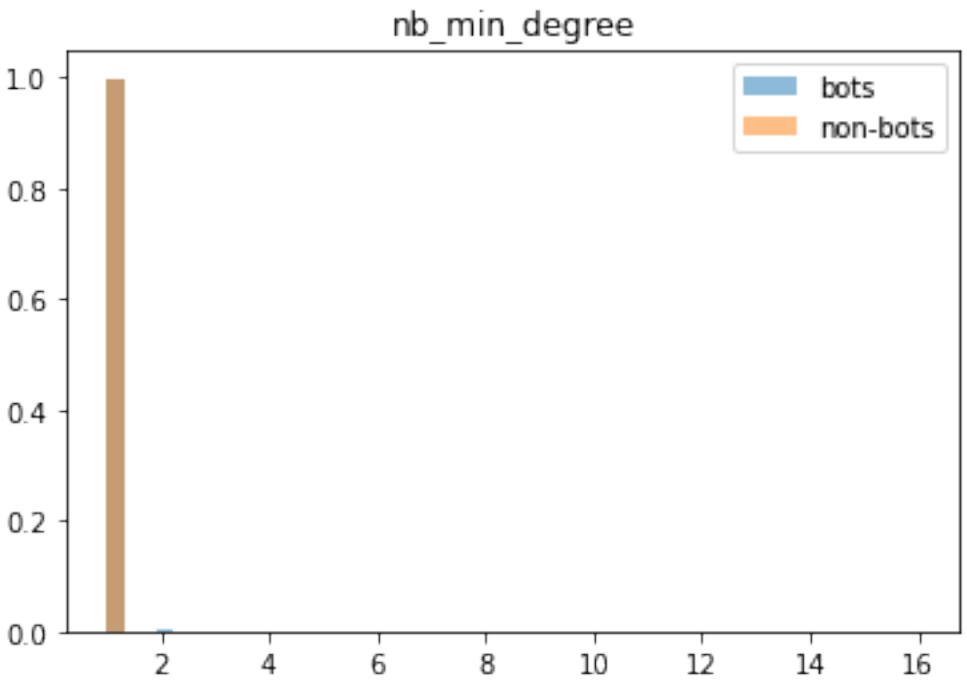

nb_mean_pagerank
bots
non-bots
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
1
2
3
4
5
6
7
8
1e−5

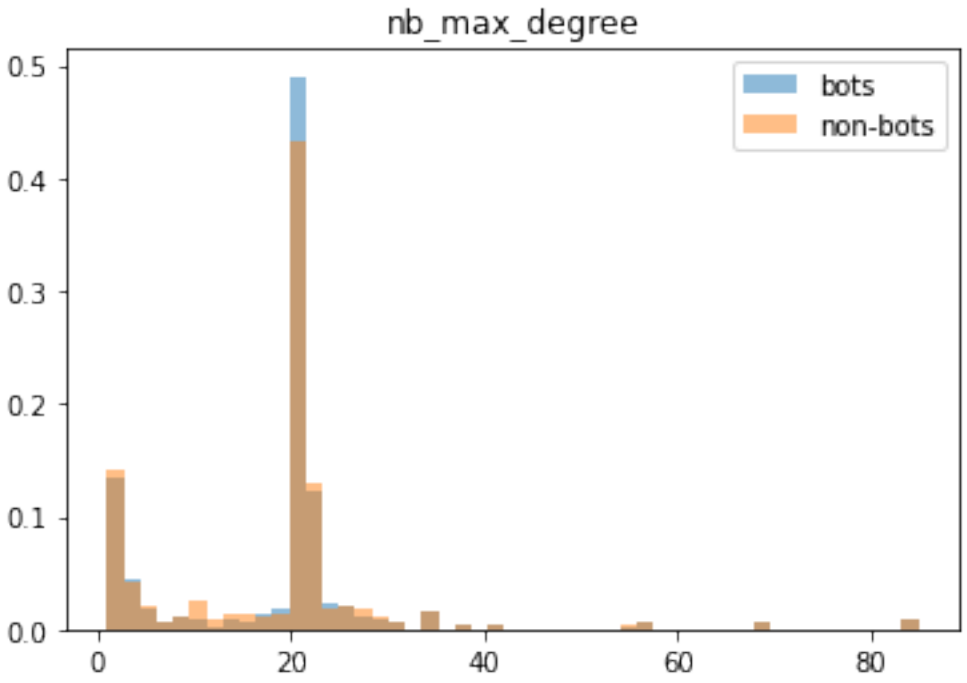

nb_min_pagerank
bots
non-bots
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
1e−5

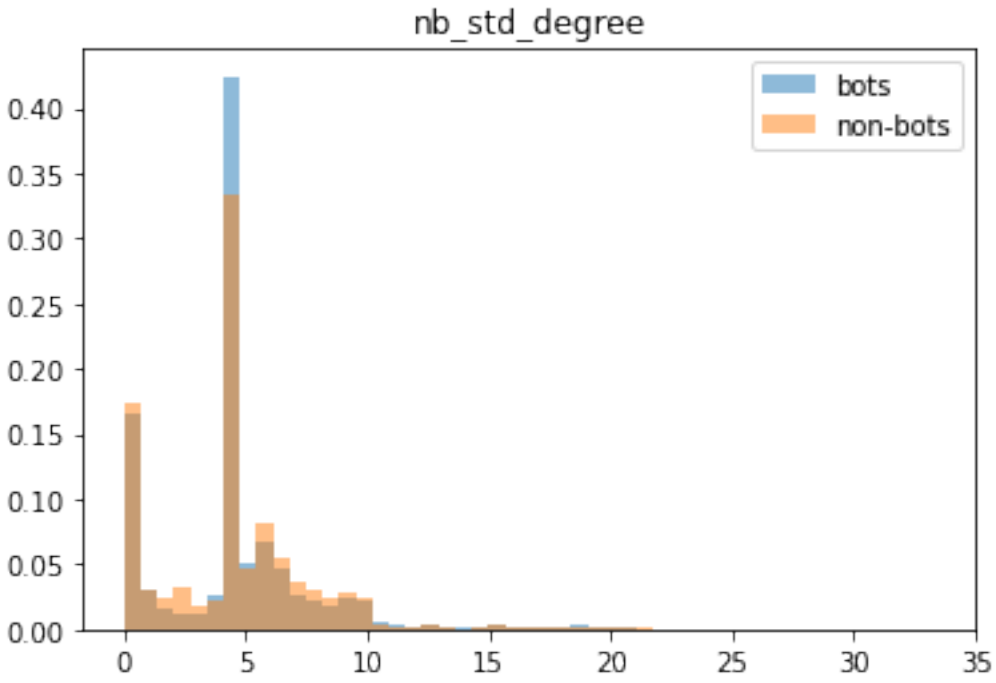

nb_max_pagerank
bots
non-bots
0.0
0.1
0.2
0.3
0.4
0.5
0.000000
0.000025
0.000050
0.000075
0.000100
0.000125
0.000150
0.000175

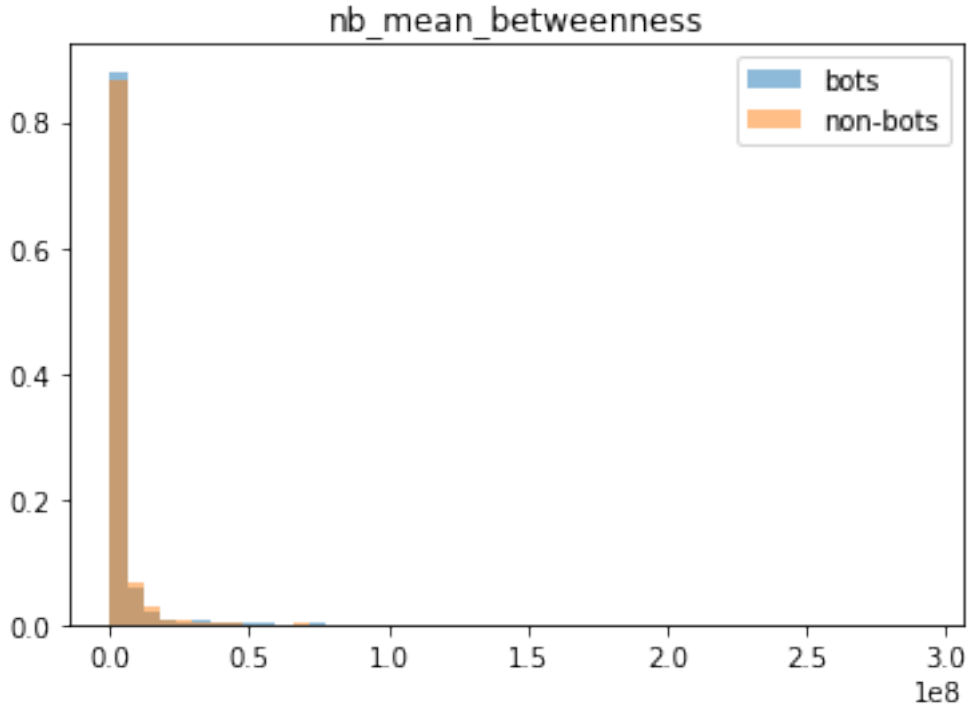

nb_std_pagerank
bots
non-bots
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
1
2
3
4
5
6
7
1e−5

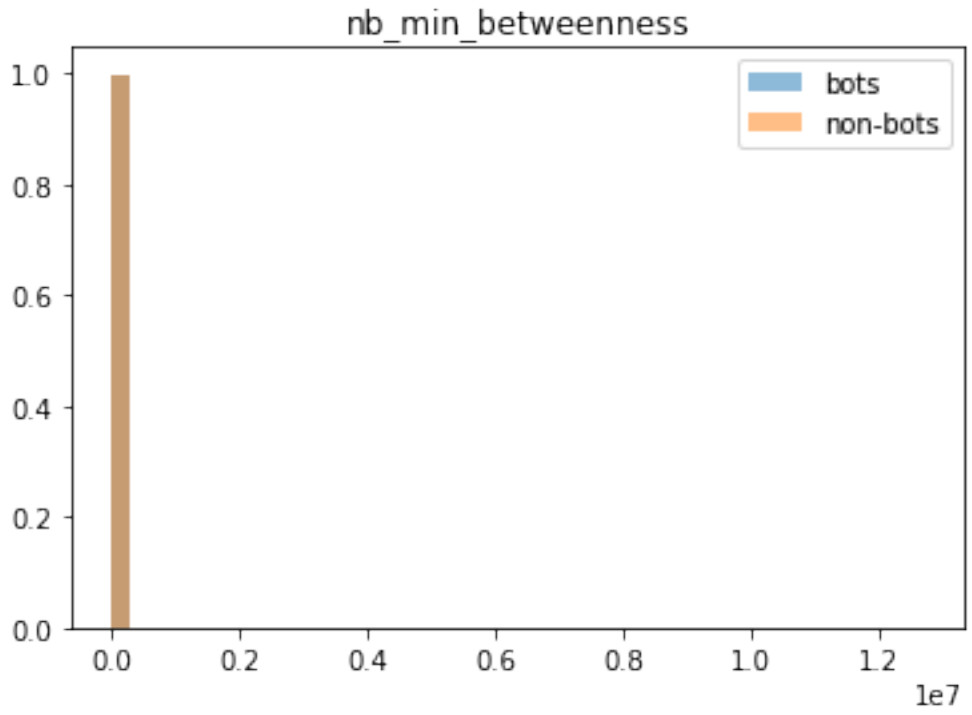

nb_mean_degree
bots
non-bots
0.4
0.3
0.2
0.1
0.0
0
5
10
15
20
25
30
35

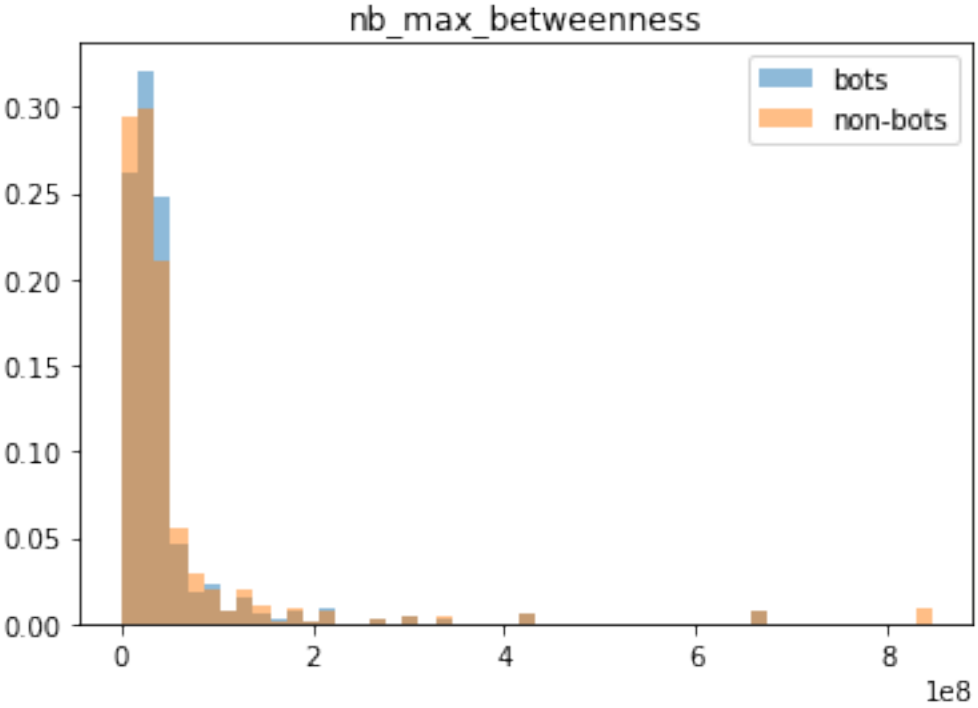

nb_min_degree
bots
non-bots
1.0
0.8
0.6
0.4
0.2
0.0
2
4
6
8
10
12
14
16


nb_max_degree
bots
non-bots
0.5
0.4
0.3
0.2
0.1
0.0
0
20
40
60
80


nb_std_degree
bots
non-bots
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35


nb_mean_betweenness
bots
non-bots
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
1e8


nb_min_betweenness
bots
non-bots
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1e7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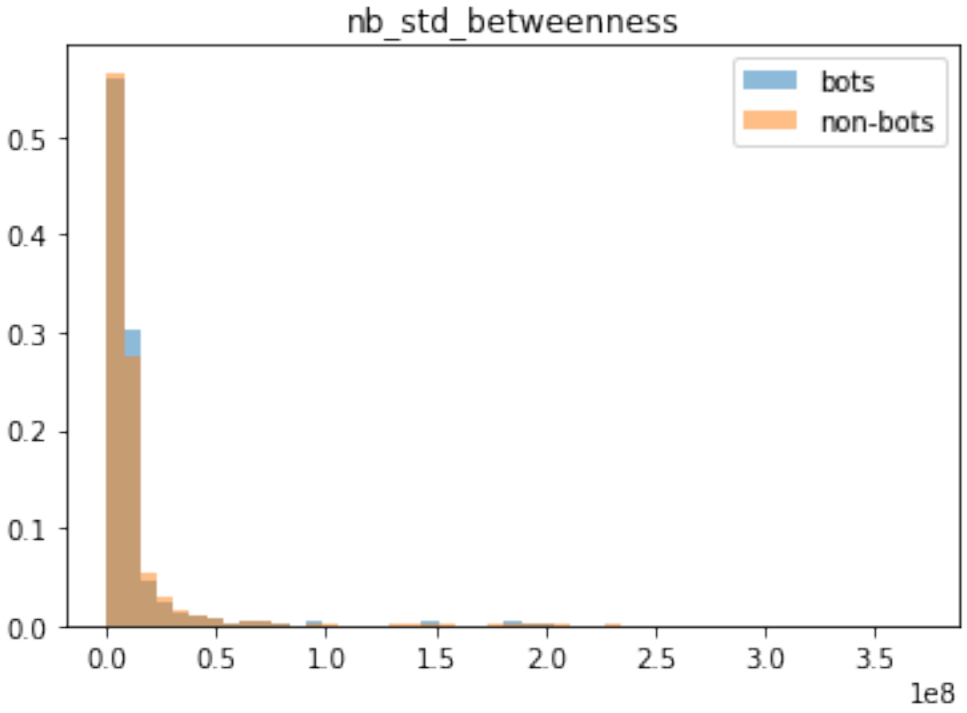
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non-bots
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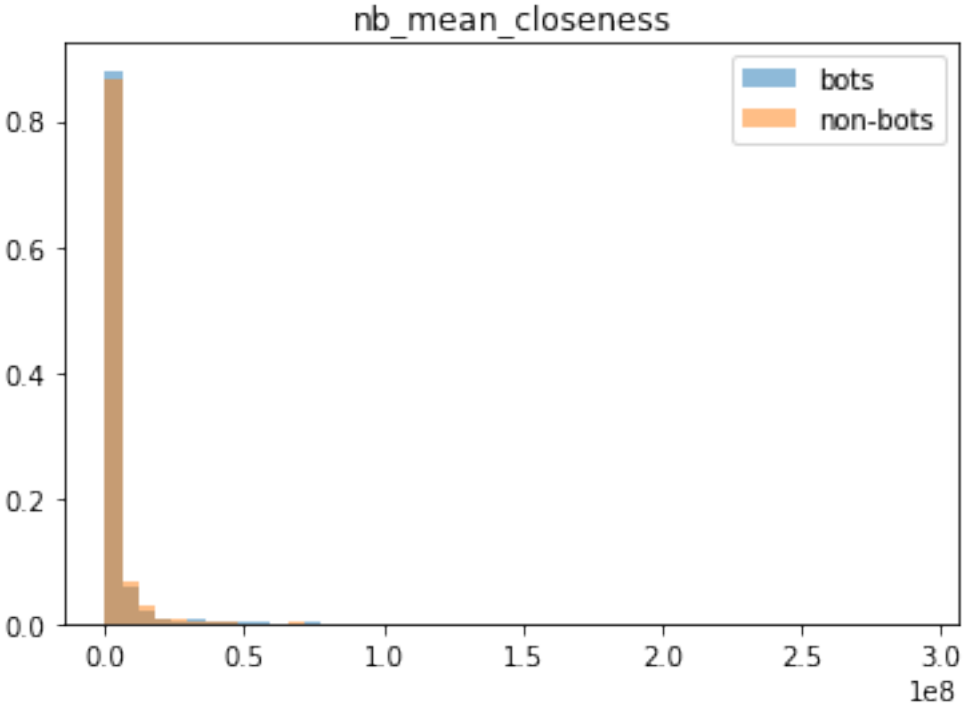
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non-bots
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1.5
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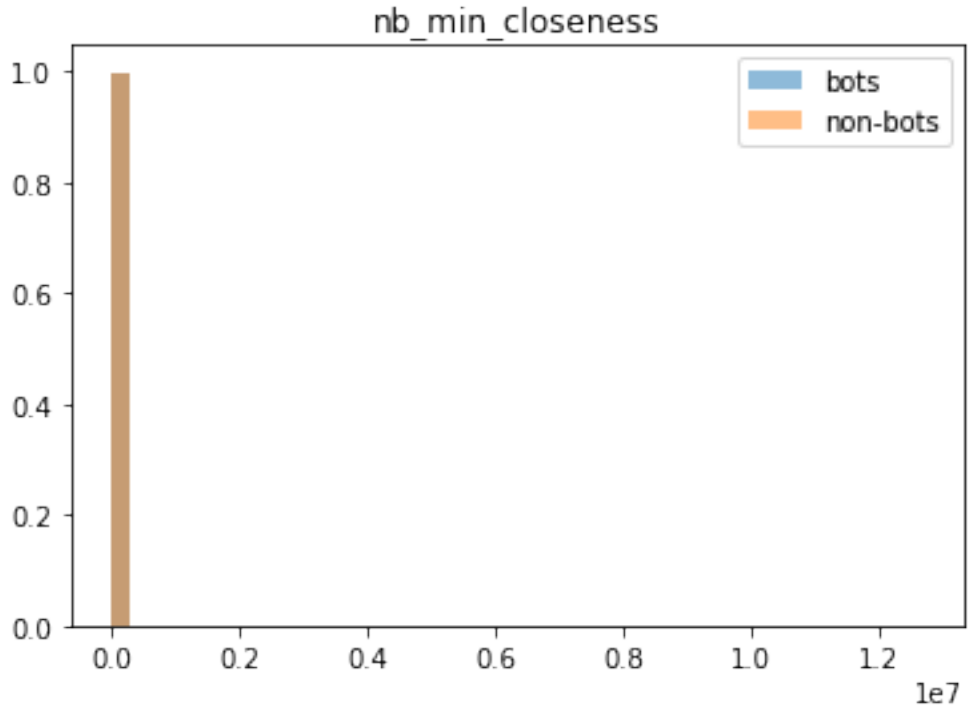
2.5
3.0
1e8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non-bots
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0.2
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0.6
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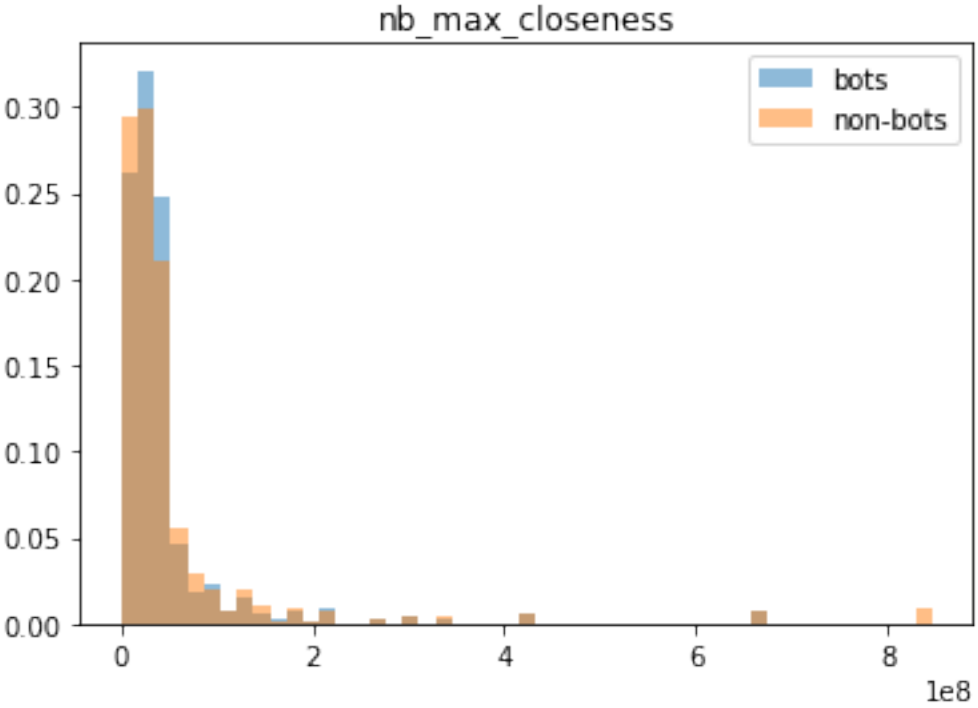
1.2
1e7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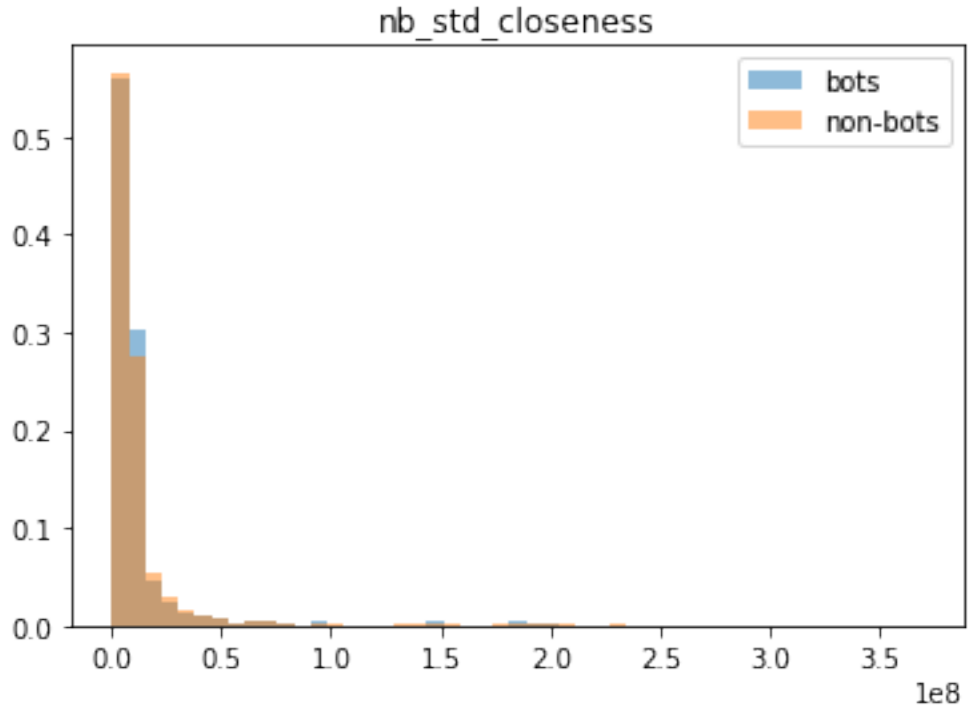
8
1e8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non-bots
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1.0
1.5
2.0
2.5
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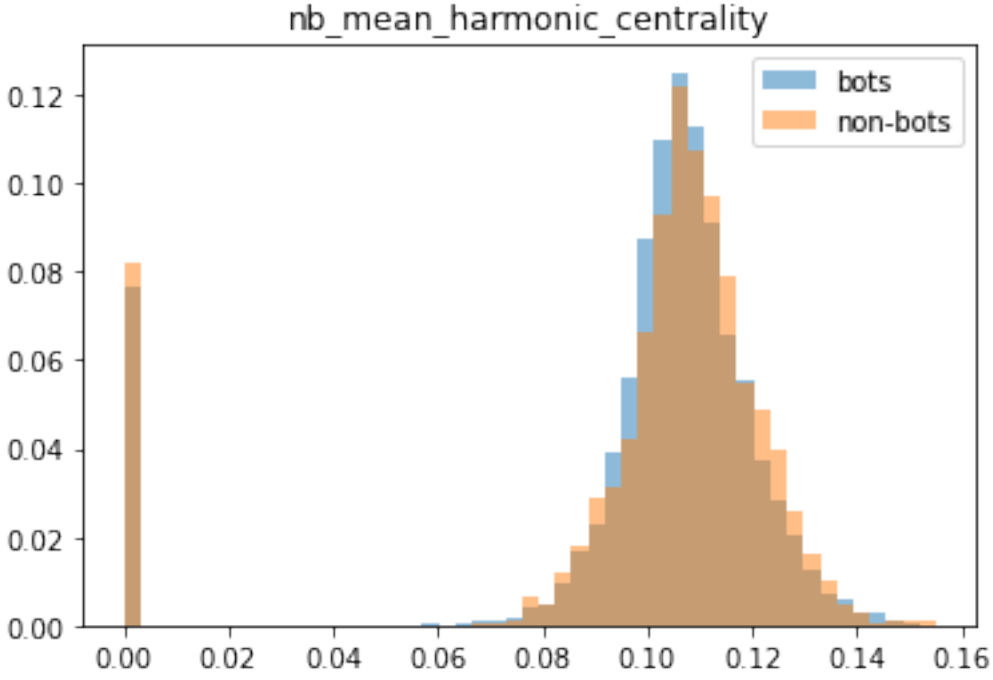
3.5
1e8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0.06
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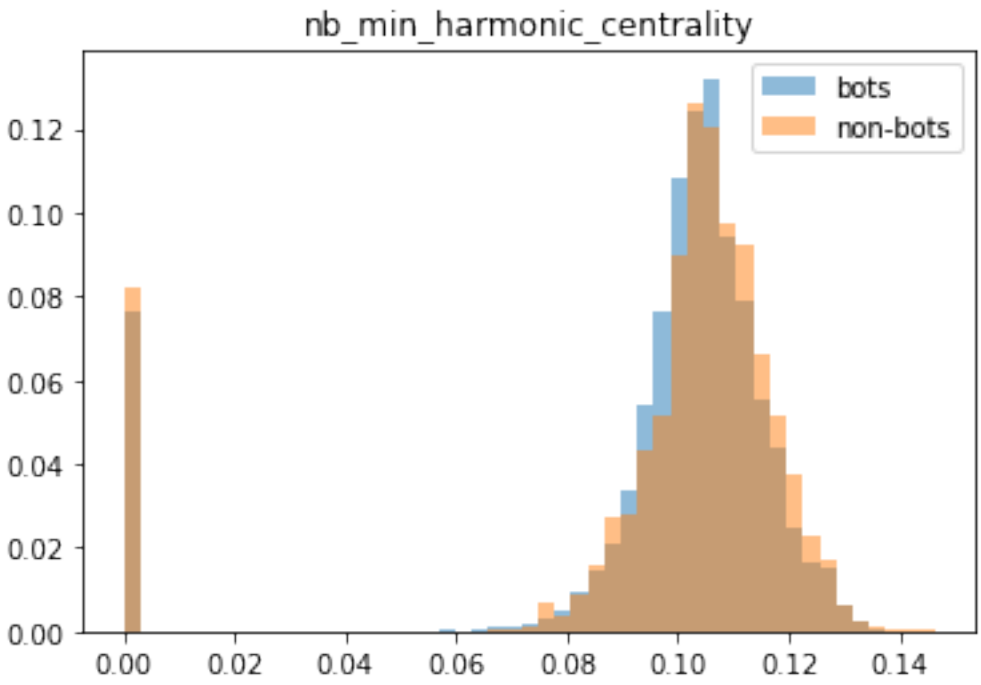
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16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non-bots
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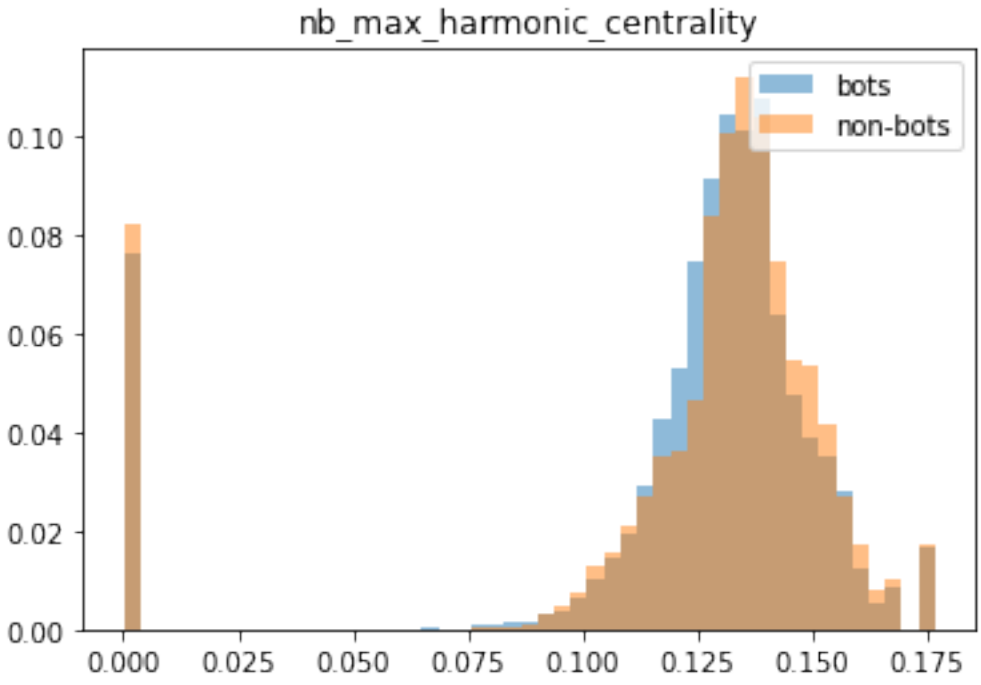
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14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bots
non-bots
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0.02
0.00
0.000
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0.050
0.075
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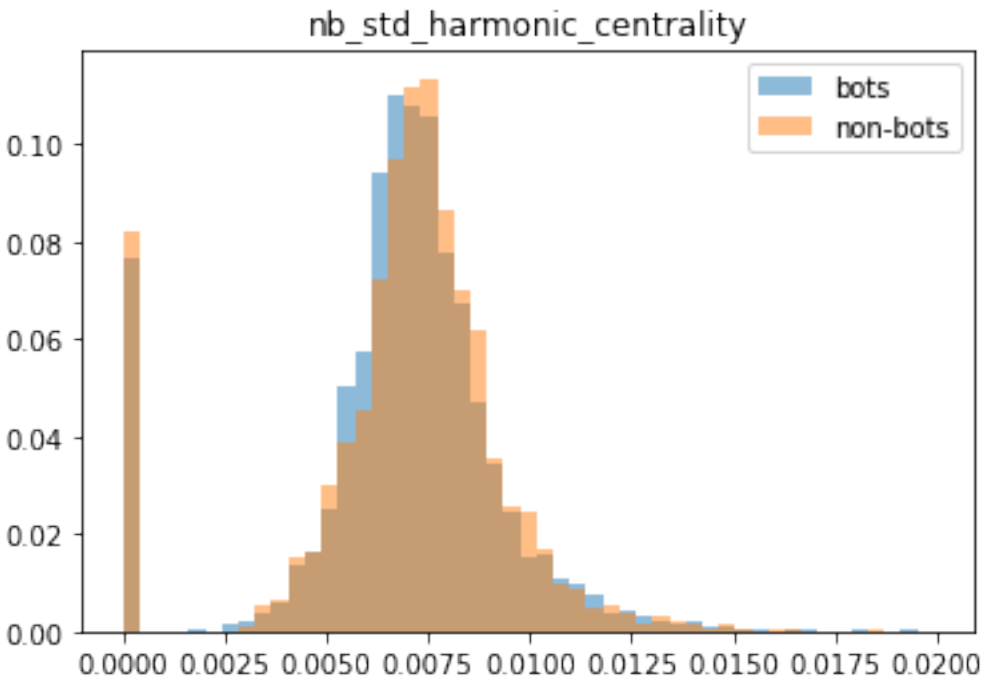
0.125
0.150
0.175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non-bots
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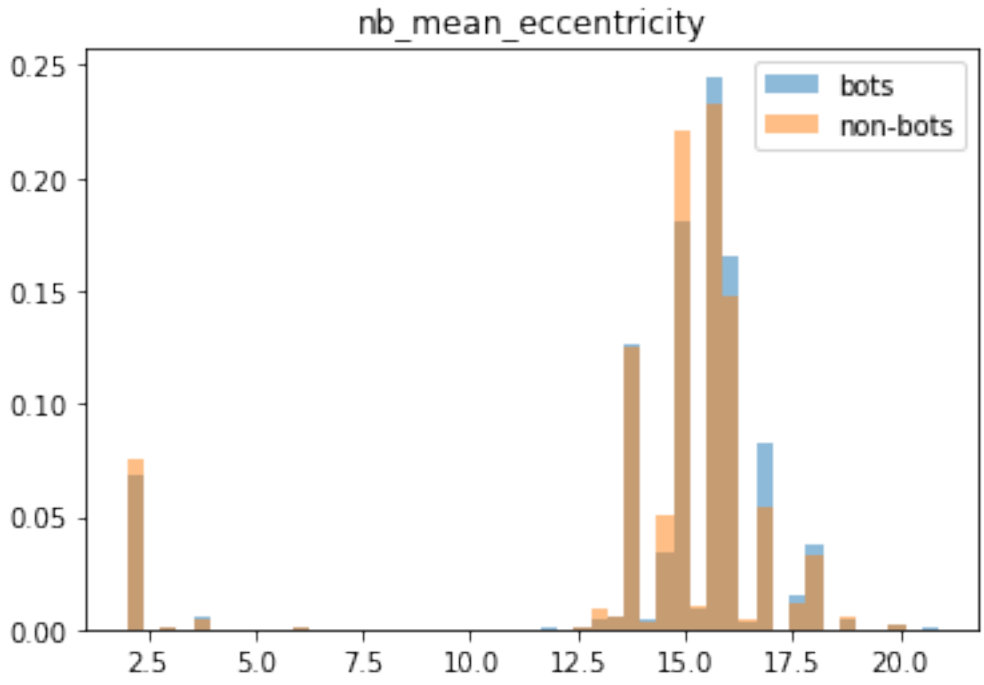
0.04
0.02
0.00
0.0000 0.0025 0.0050 0.0075 0.0100 0.0125 0.0150 0.0175 0.0200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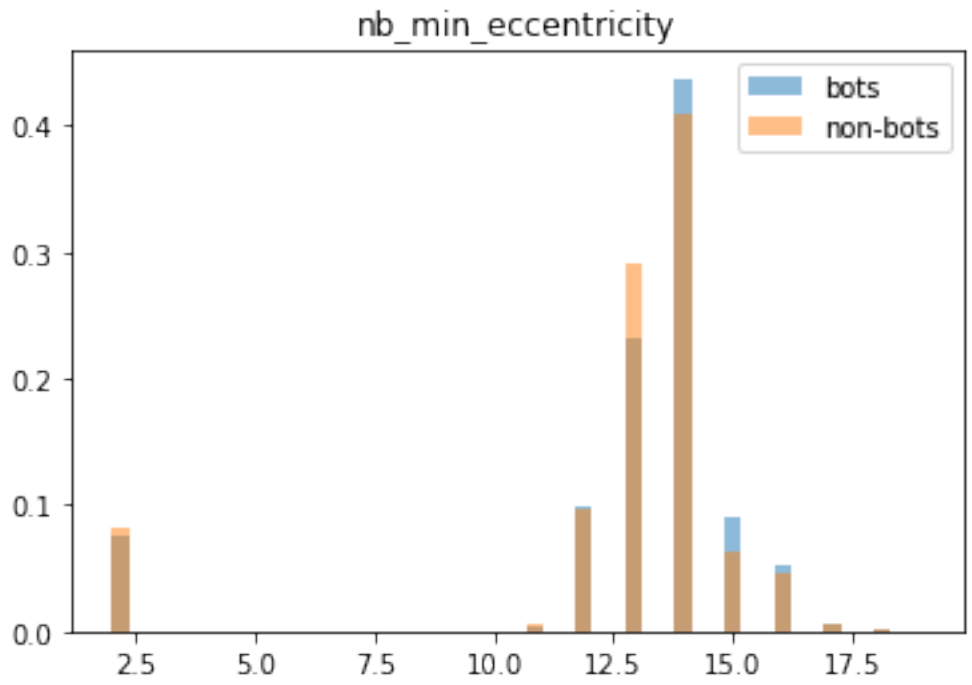
0.10
0.05
0.00
2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0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bots
non-bots
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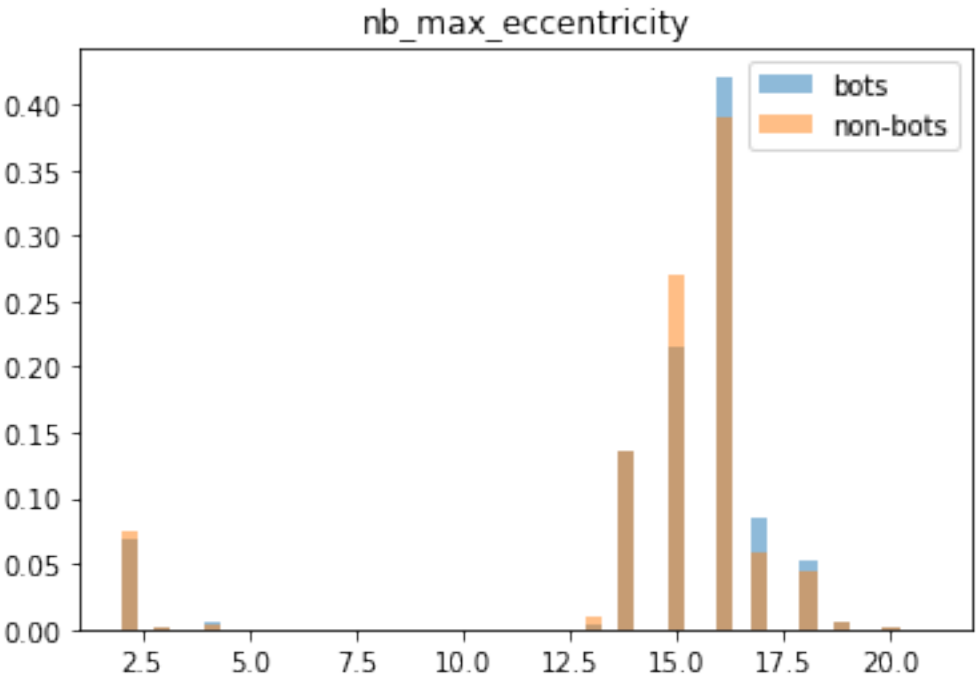
2.5
5.0
7.5
10.0
12.5
15.0
17.5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non-bots
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0.05
0.00
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5.0
7.5
10.0
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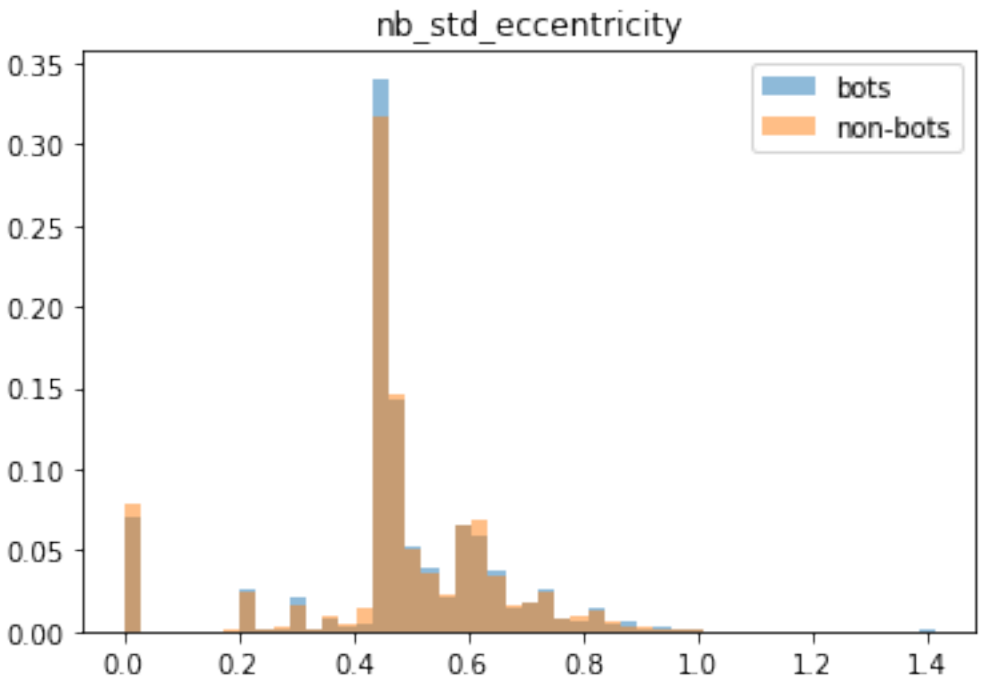
15.0
17.5
20.0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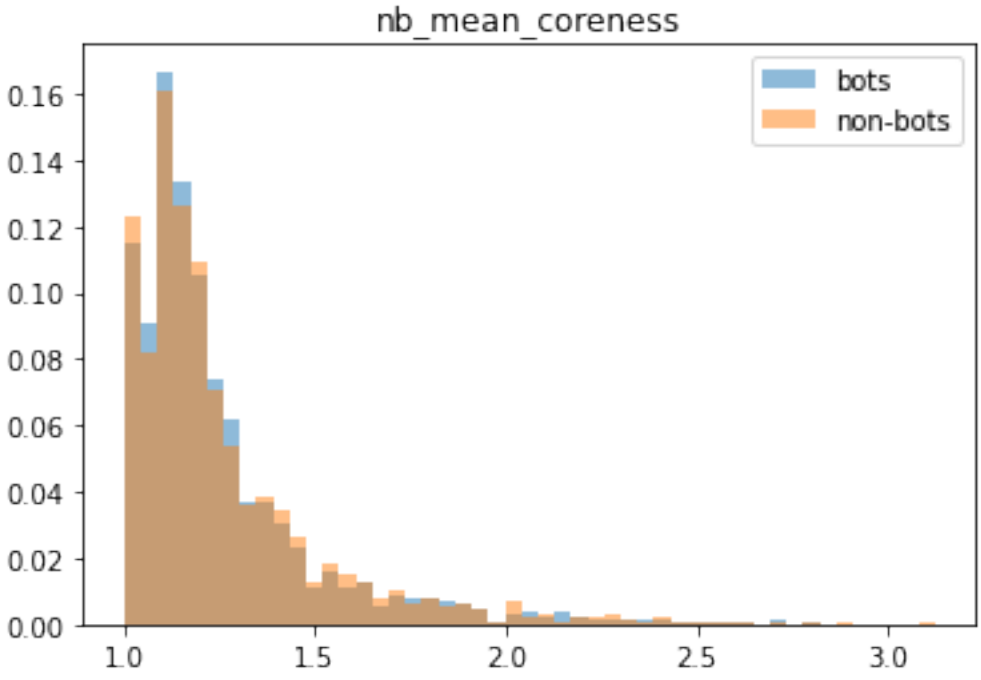
0.4
0.6
0.8
1.0
1.2
1.4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non-bots
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0.08
0.06
0.04
0.02
0.00
1.0
1.5
2.0
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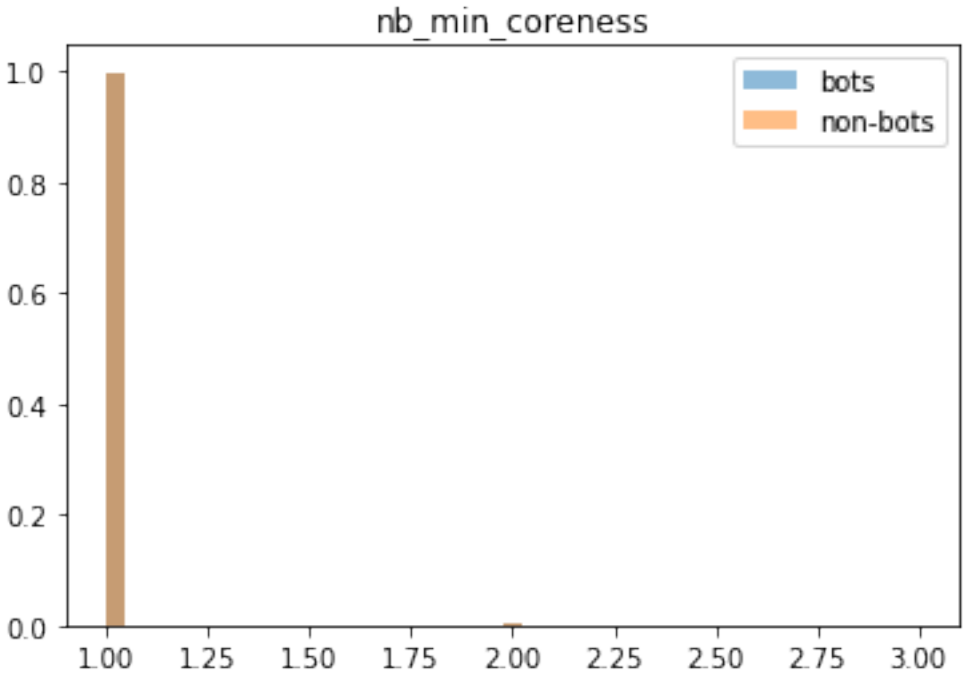
3.0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non-bots
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2.00
2.25
2.50
2.75
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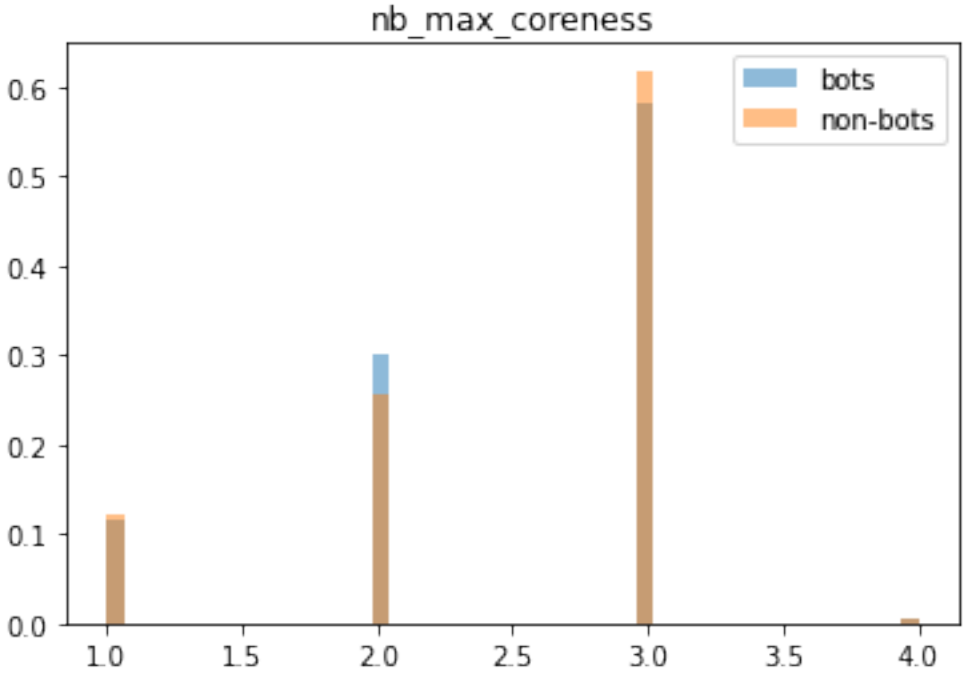
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2.0
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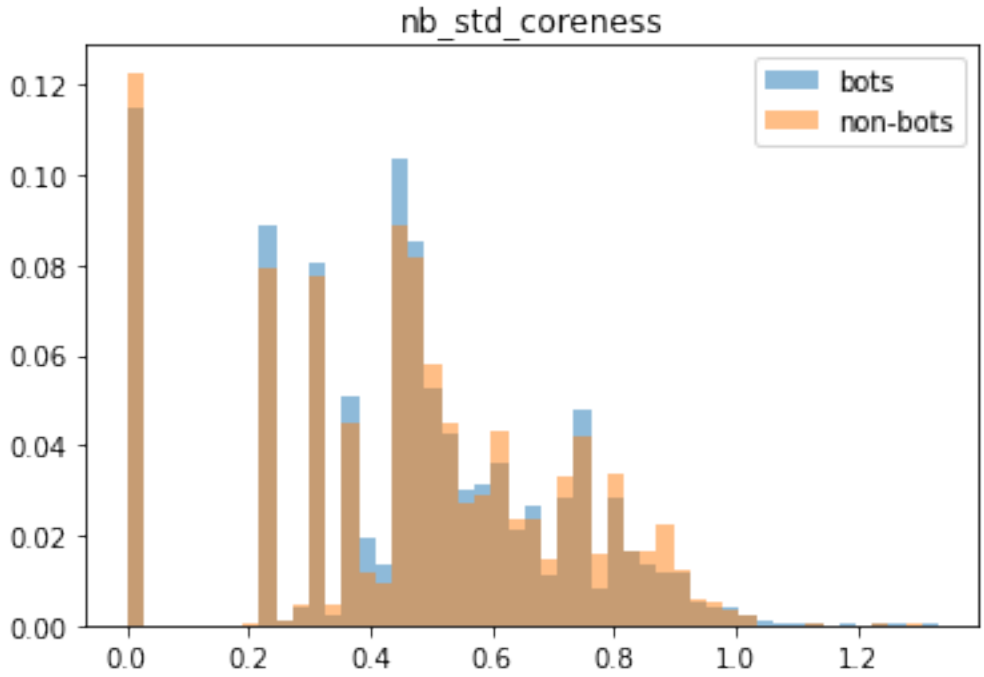
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non-bots
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0.4
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0.8
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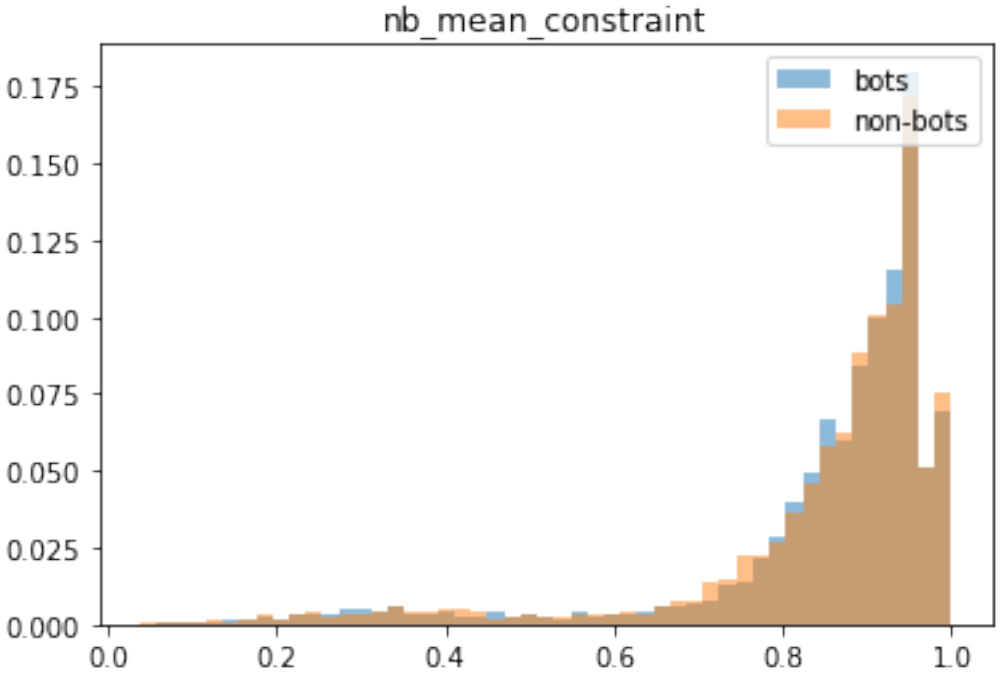
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non-bots
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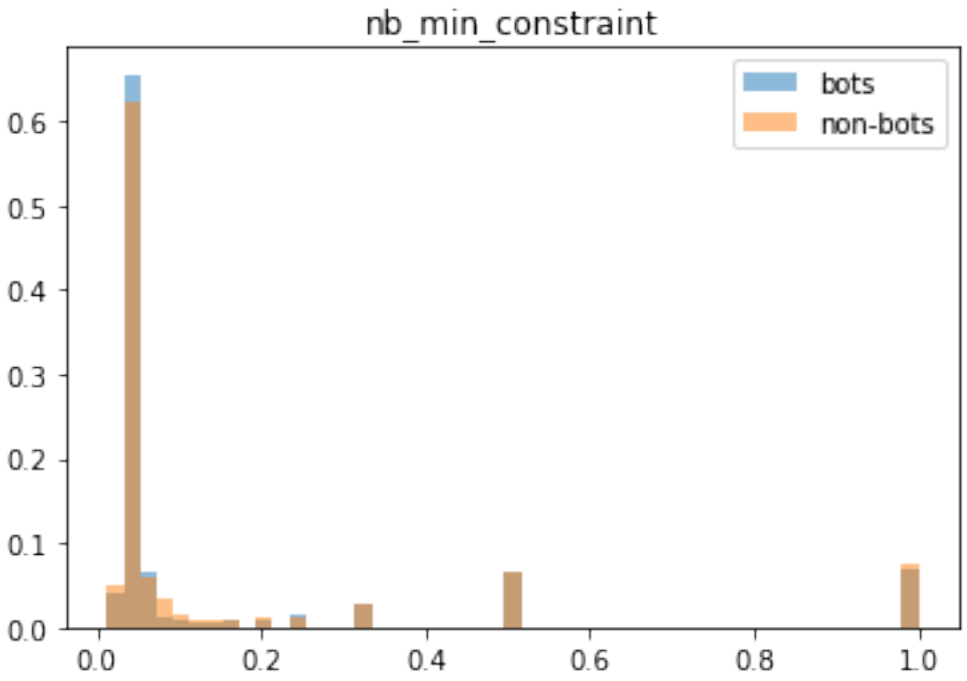
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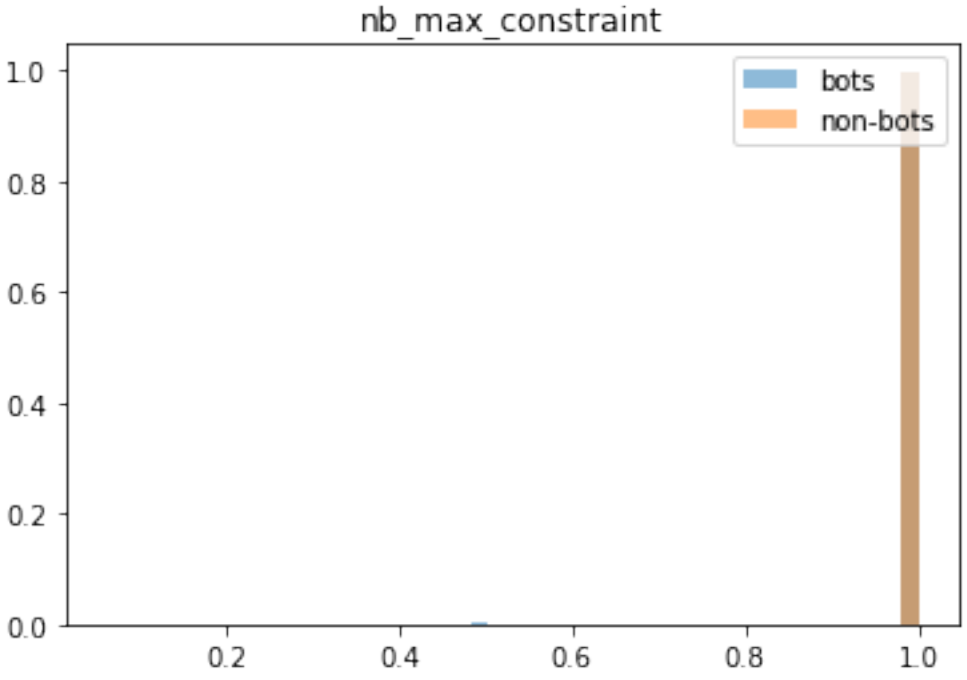
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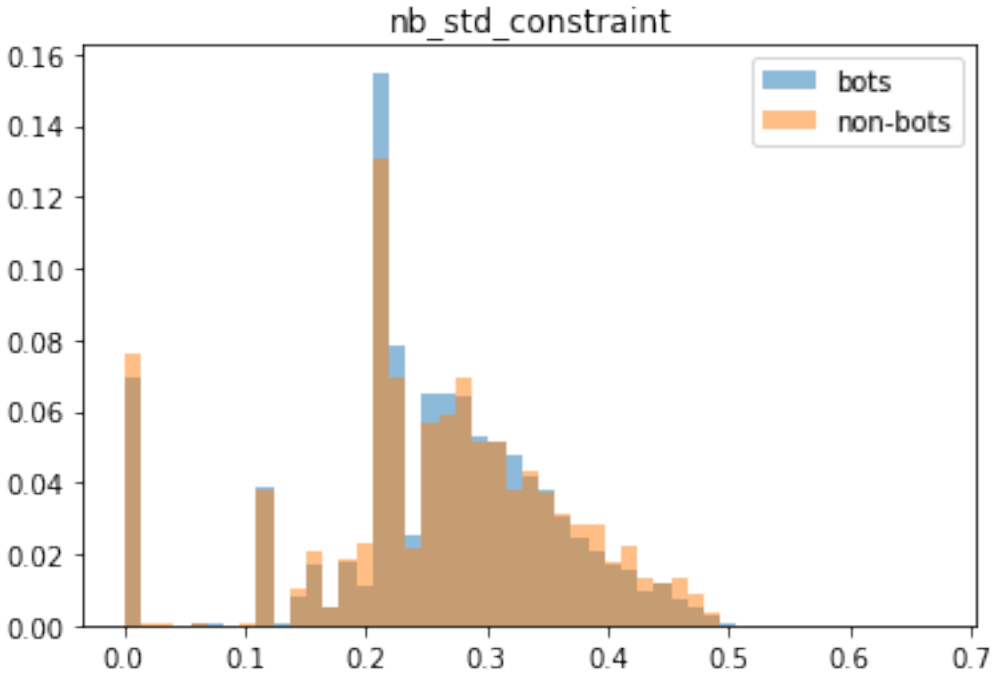
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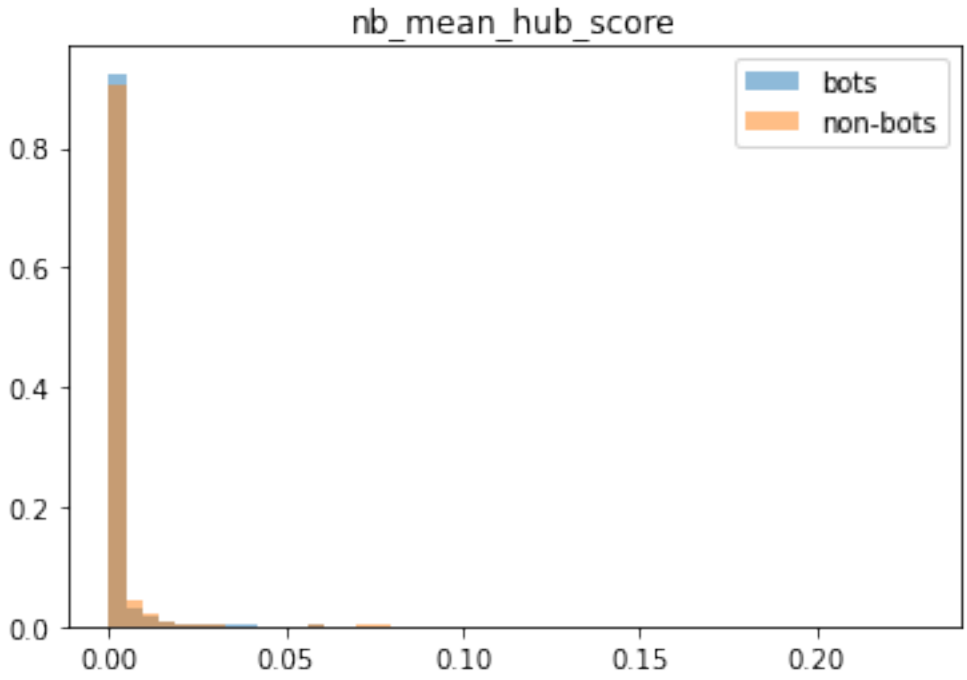
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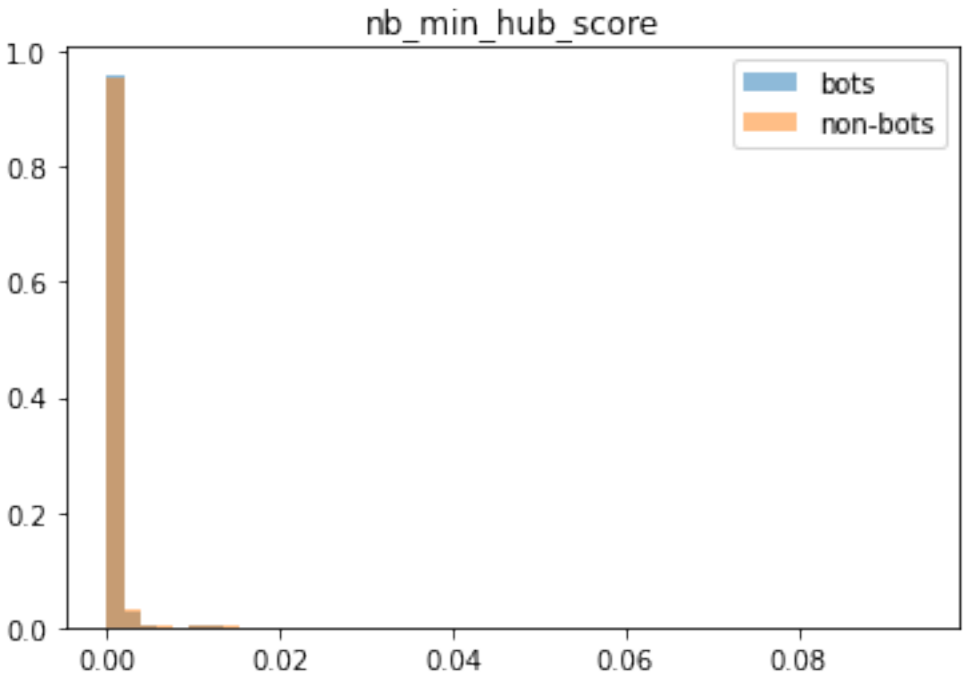
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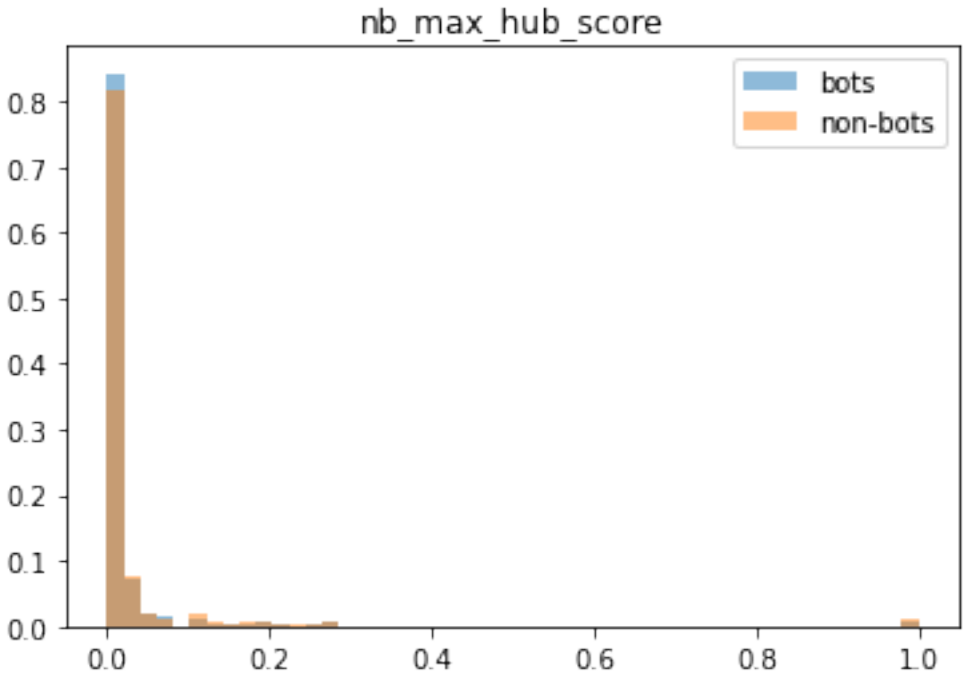
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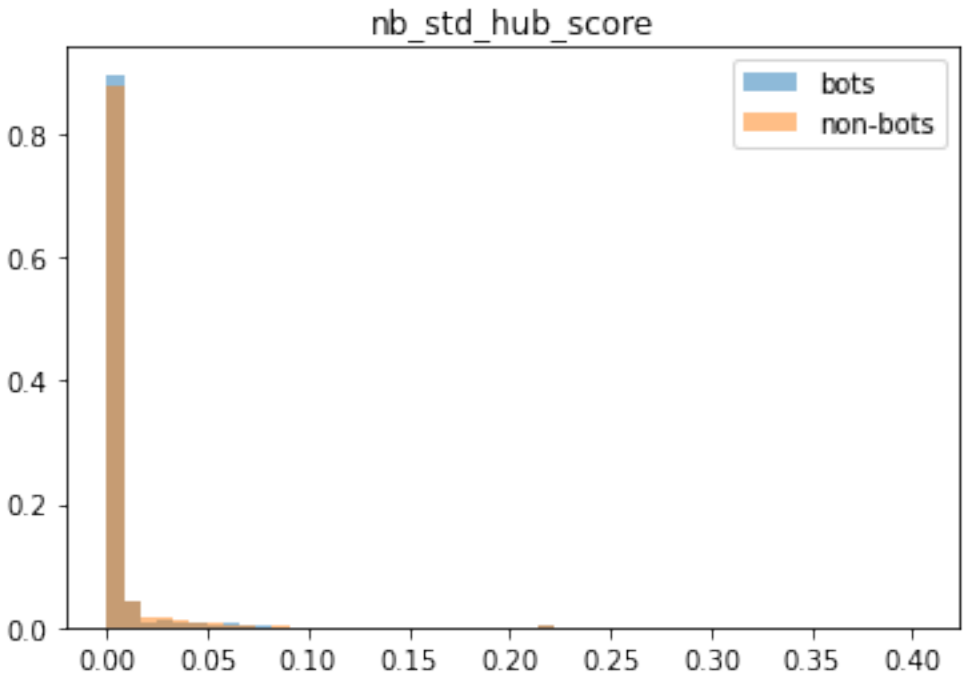
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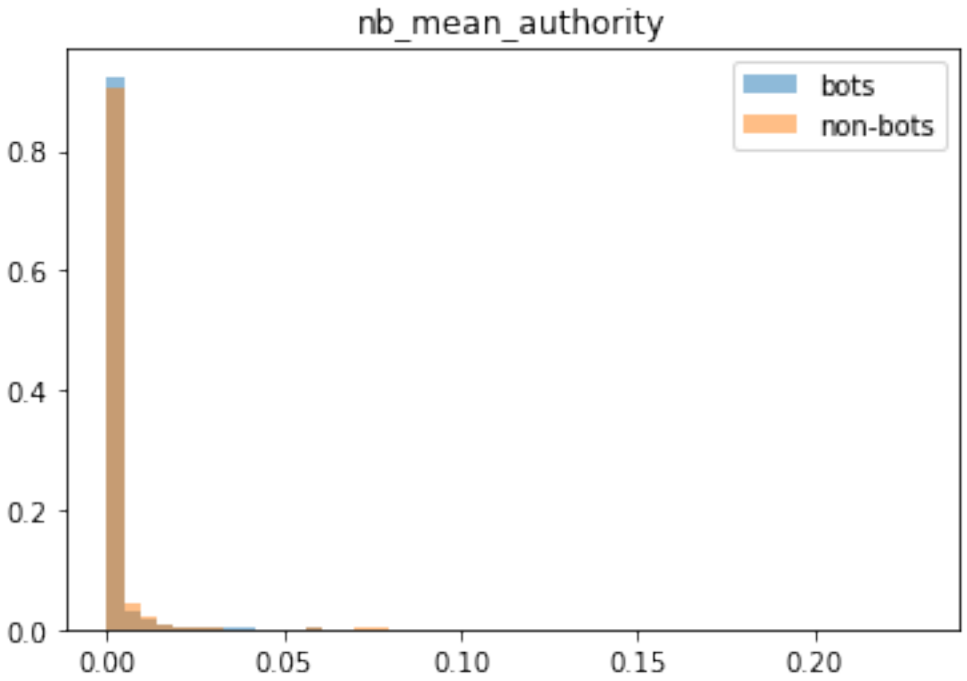
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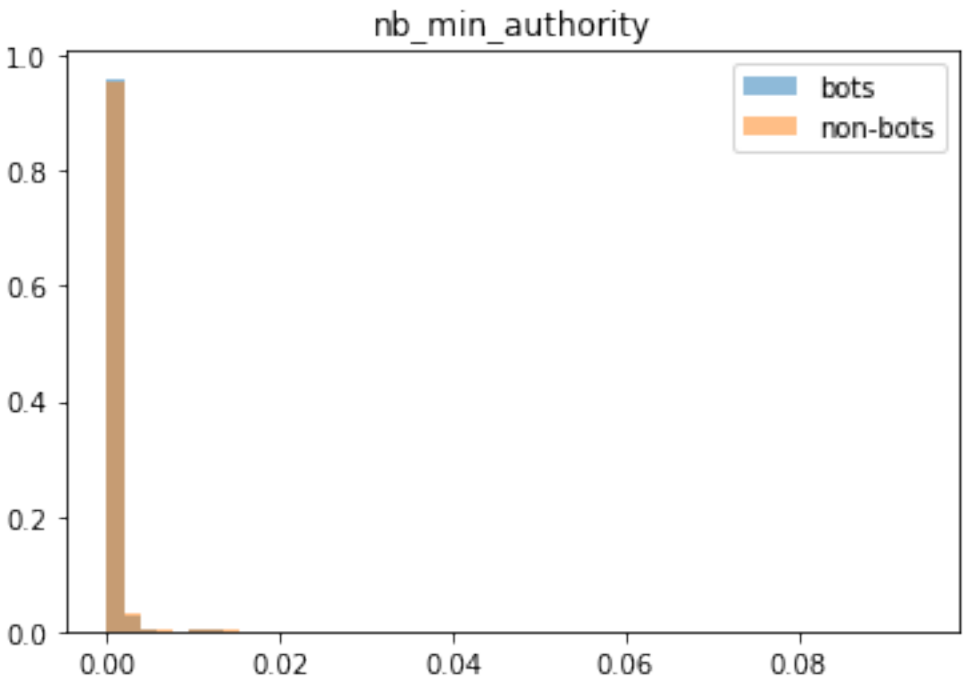
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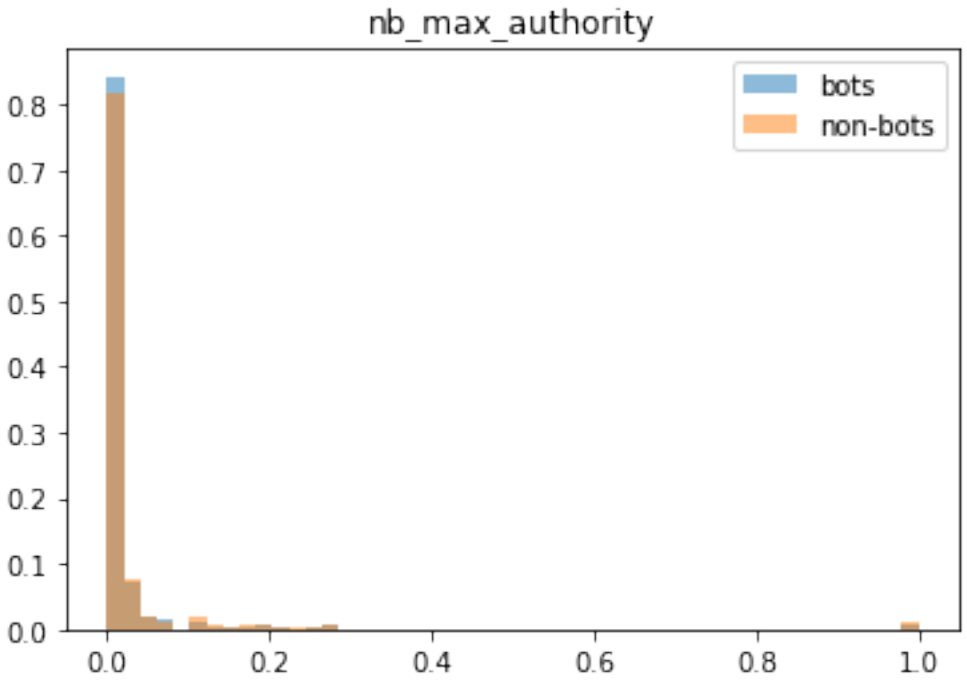
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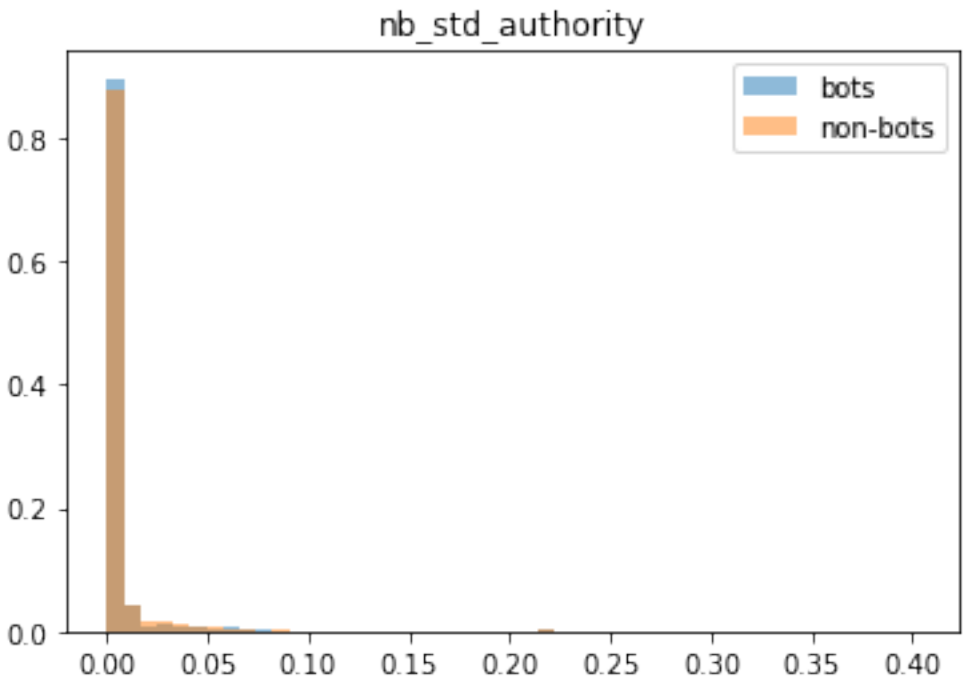
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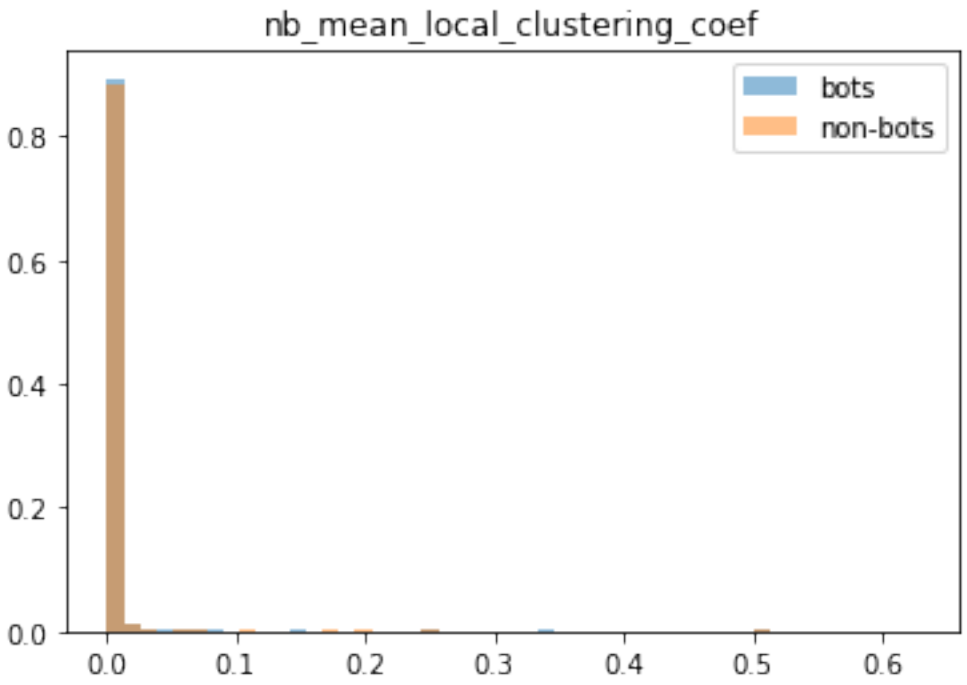
nb_mean_local_clustering_coef
bots
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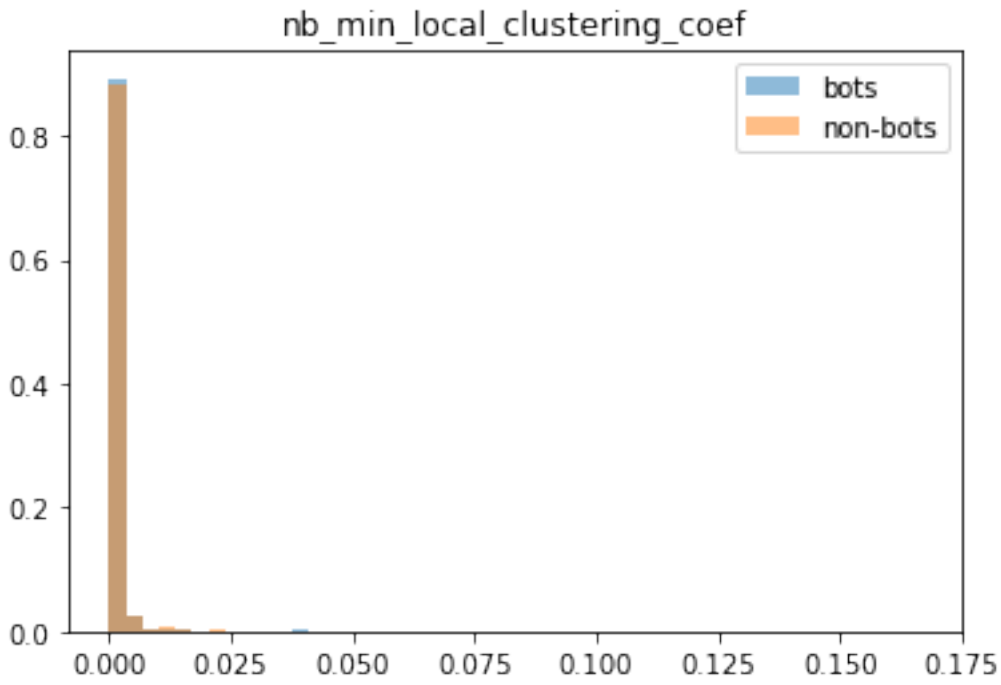
0.6


nb_min_local_clustering_coef
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non-bots
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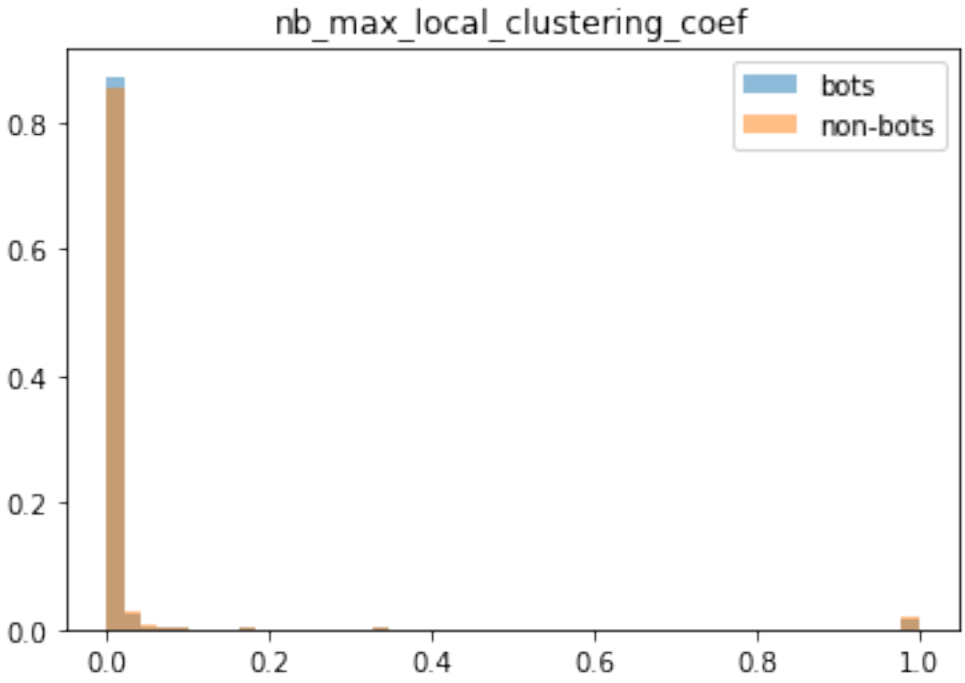
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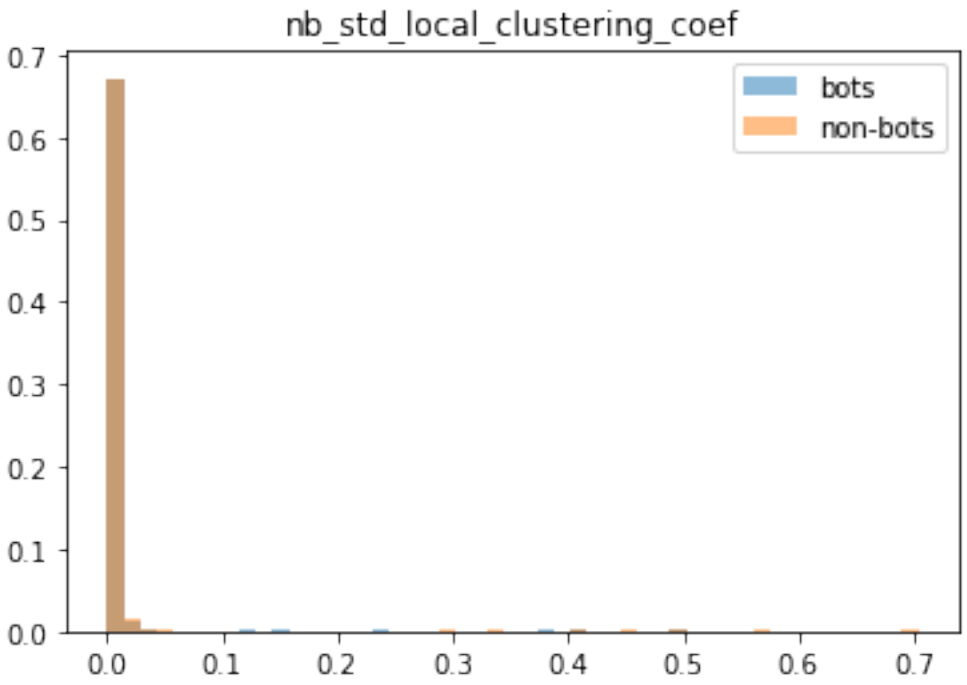
nb_std_local_clustering_coef
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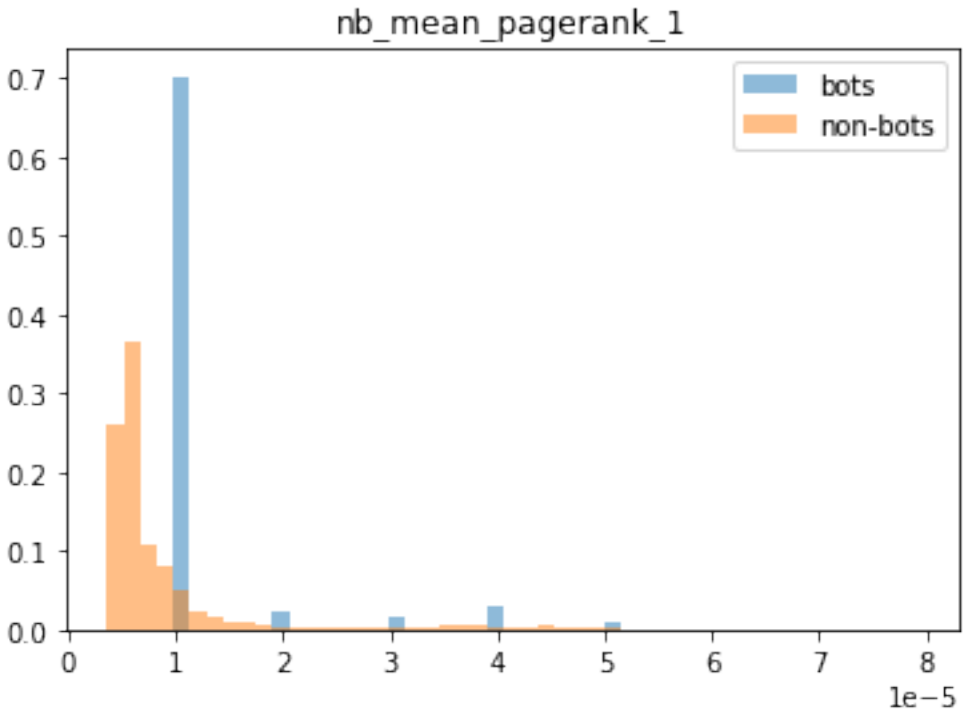
0.1
0.2
0.3
0.4
0.5
0.6
0.7


nb_mean_pagerank_1
bots
non-bots
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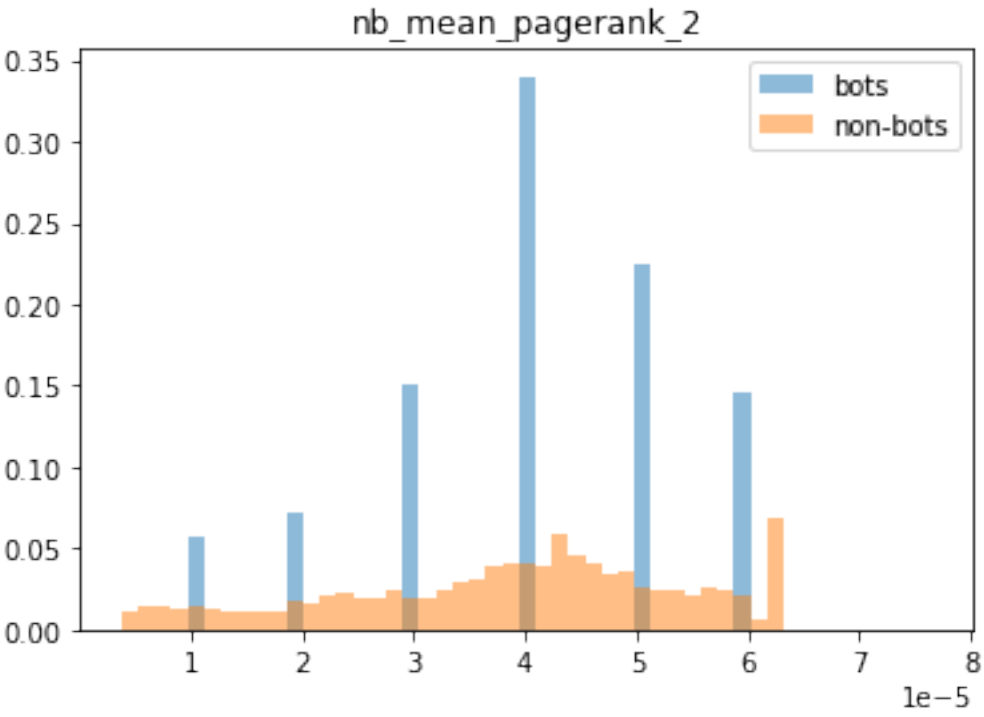
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
1
2
3
4
5
6
7
8
1e−5


nb_mean_pagerank_2
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non-bots
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0.30
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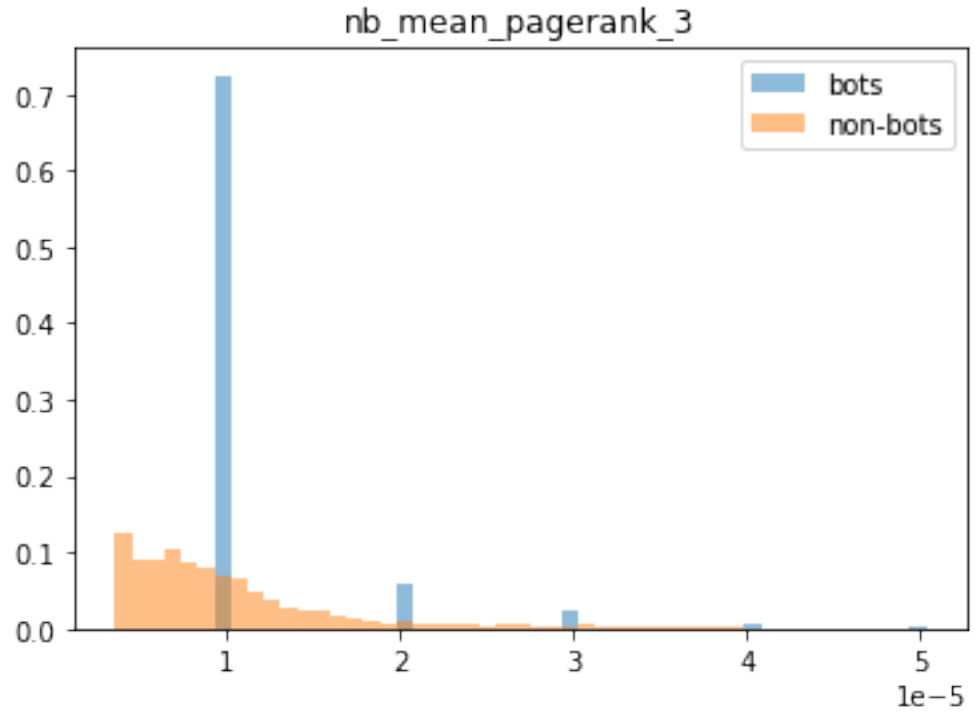
0.20
0.15
0.10
0.05
0.00
1
2
3
4
5
6
7
8
1e−5


nb_mean_pagerank_3
bots
non-bots
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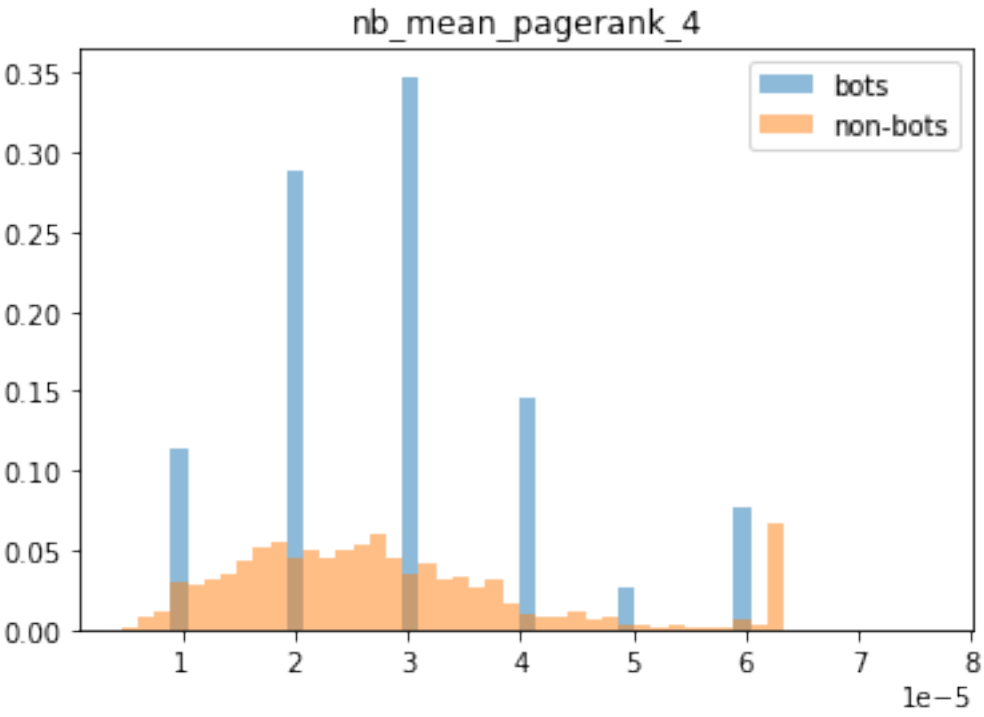
0.5
0.4
0.3
0.2
0.1
0.0
1
2
3
4
5
1e−5


nb_mean_pagerank_4
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non-bots
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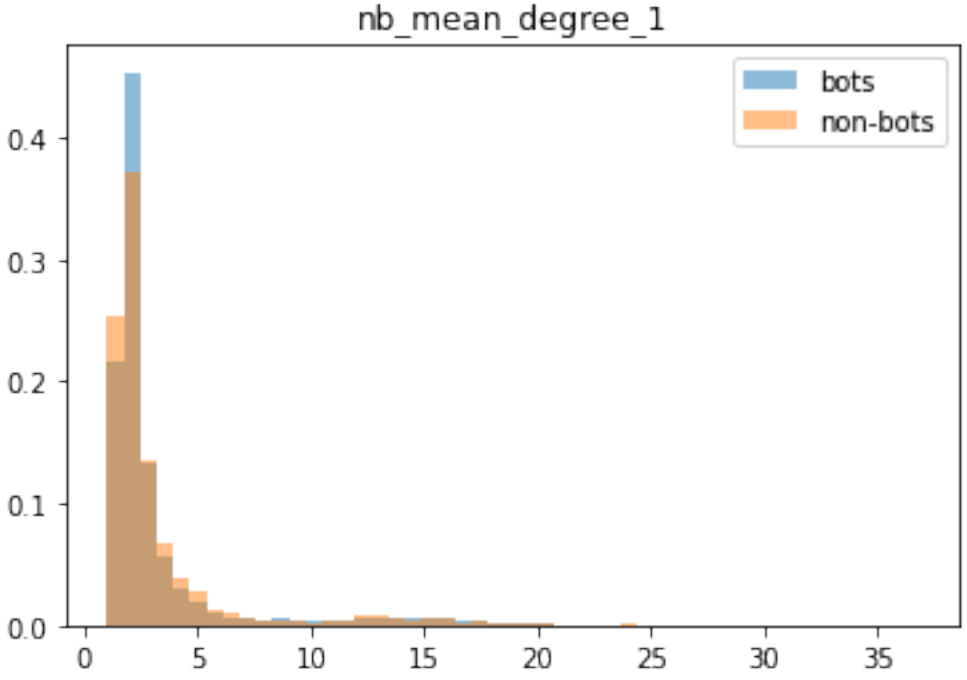
0.20
0.15
0.10
0.05
0.00
1
2
3
4
5
6
7
8
1e−5


nb_mean_degree_1
bots
non-bots
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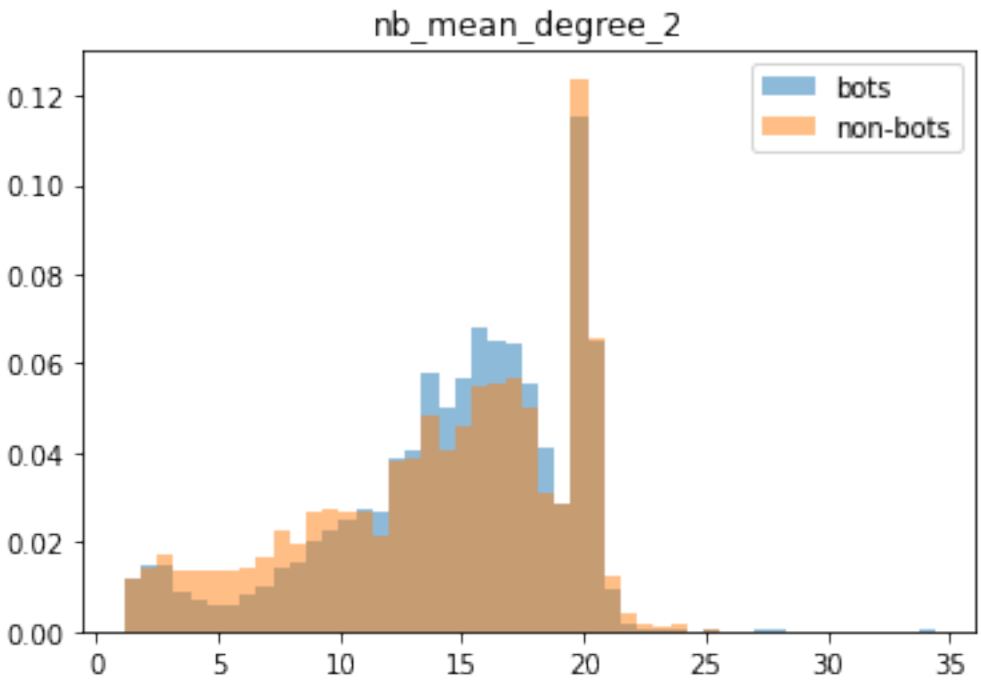
0.3
0.2
0.1
0.0
0
5
10
15
20
25
30
35


nb_mean_degree_2
bots
non-bots
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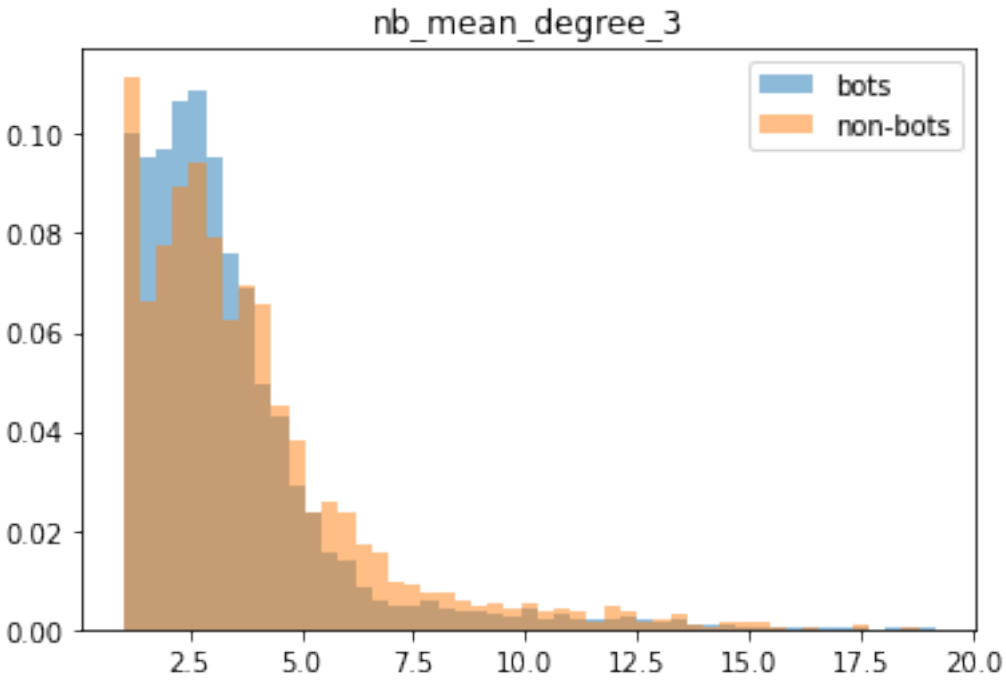
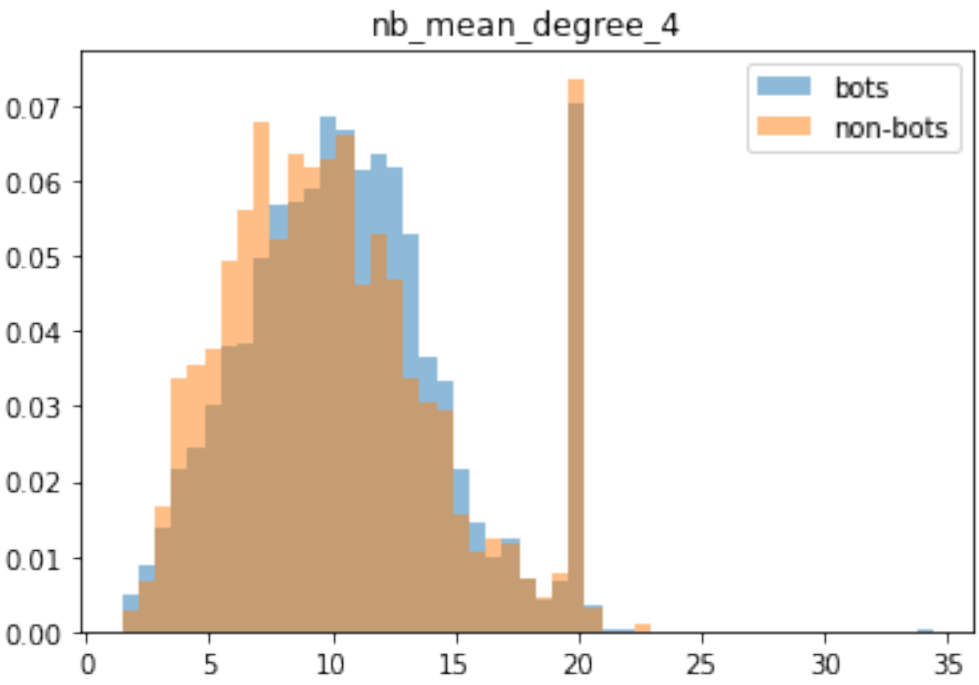
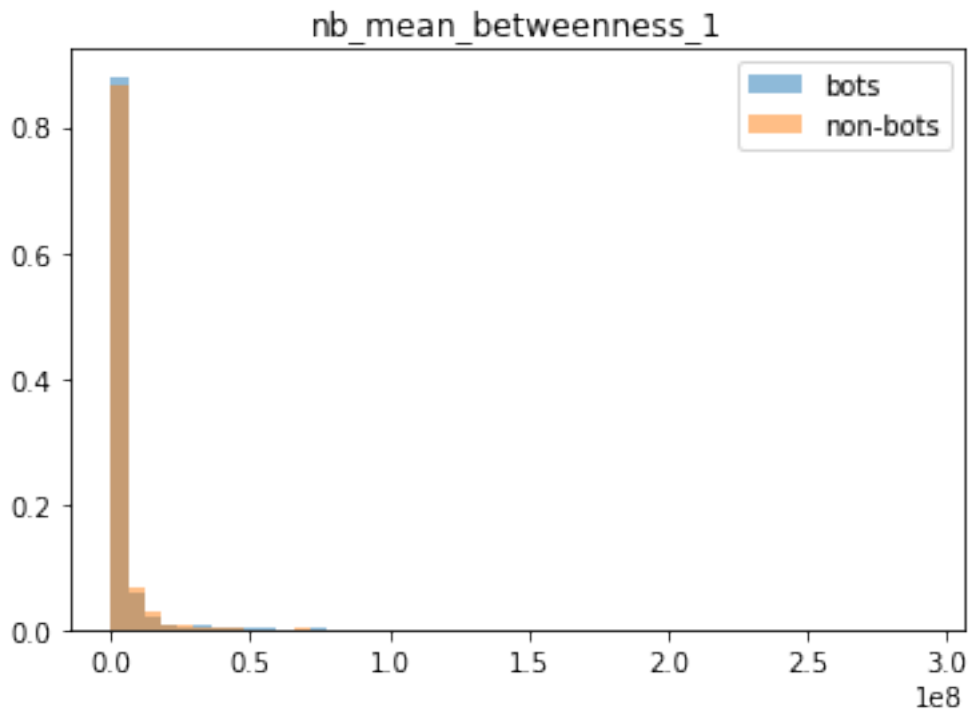
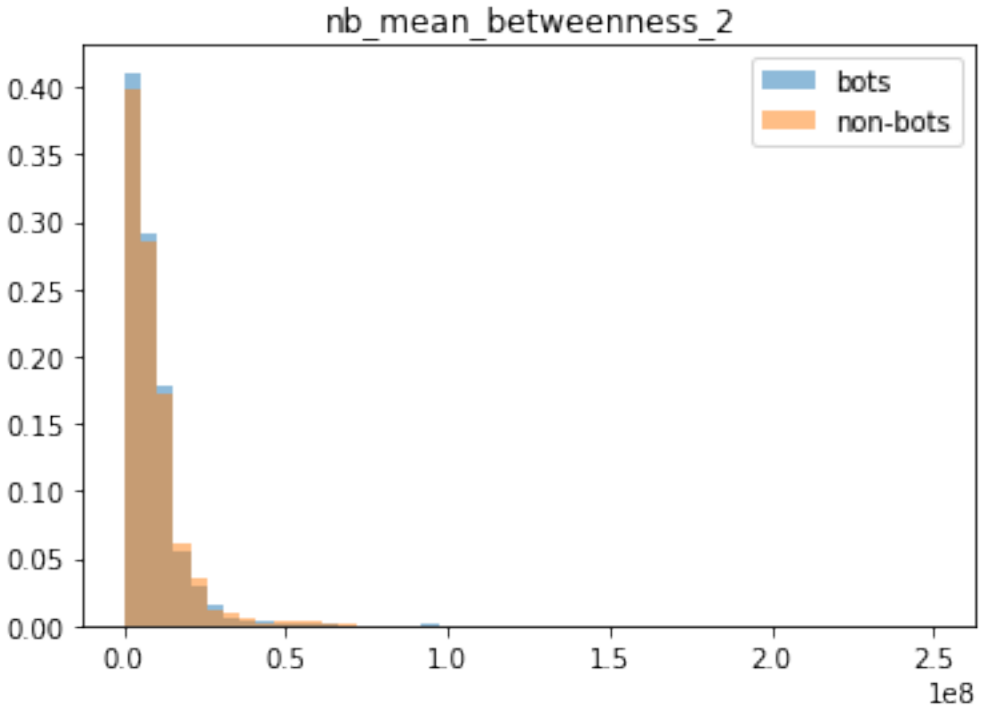
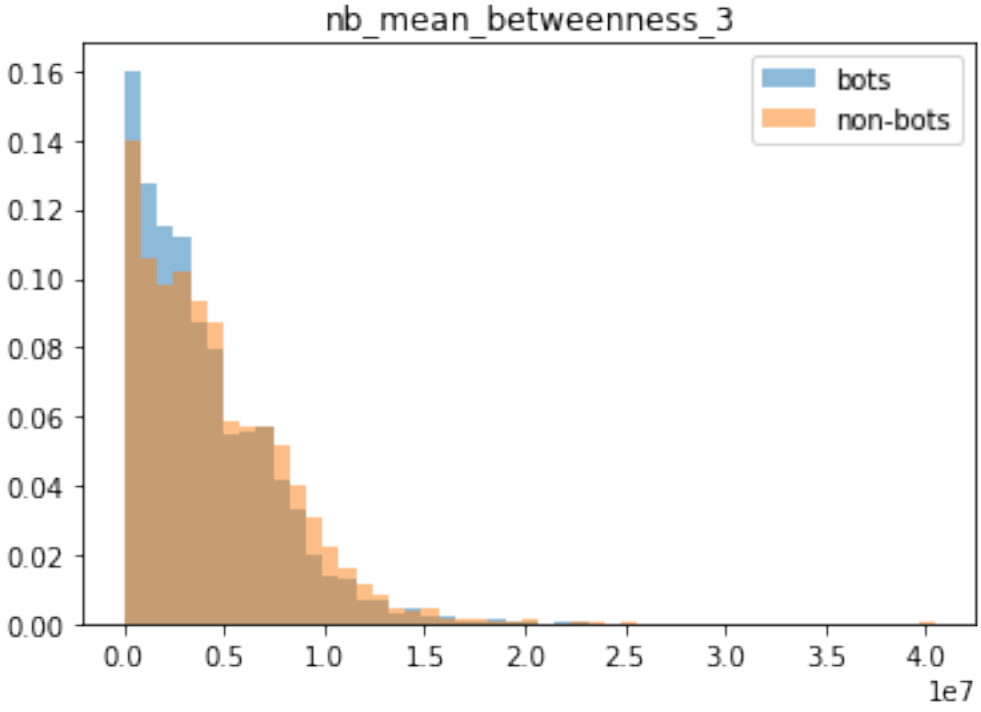
0.08
0.06
0.04
0.02
0.00
0
5
10
15
20
25
30
35

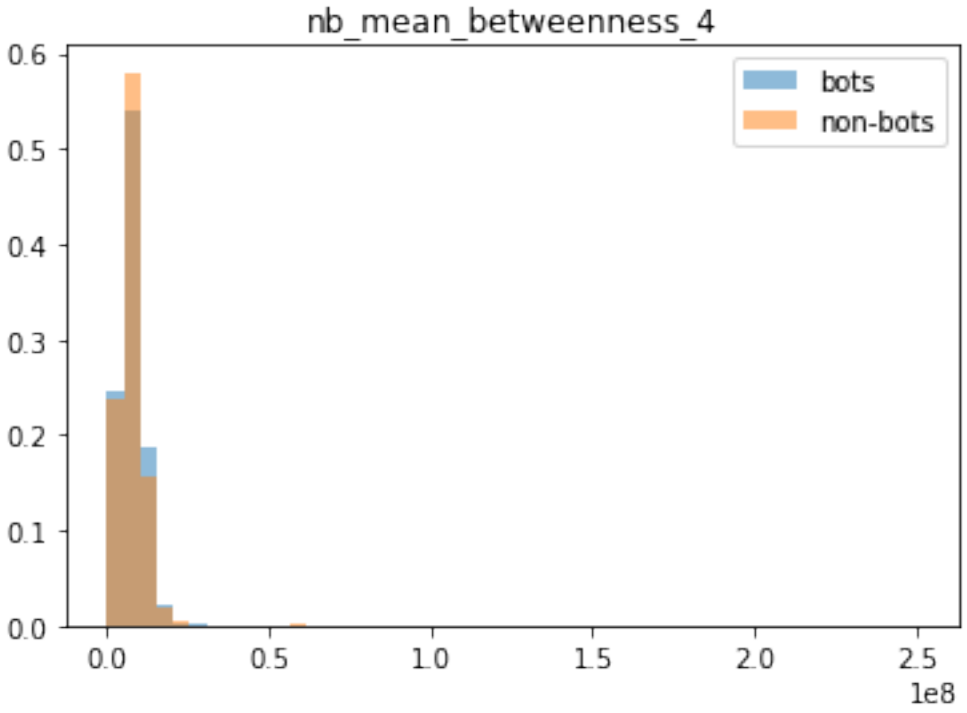

nb_mean_degree_3
bots
non-bots
0.10
0.08
0.06
0.04
0.02
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


nb_mean_degree_4
bots
non-bots
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
5
10
15
20
25
30
35


nb_mean_betweenness_1
bots
non-bots
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
1e8


nb_mean_betweenness_2
bots
non-bots
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
2.5
1e8


nb_mean_betweenness_3
bots
non-bots
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
1e7


nb_mean_betweenness_4
bots
non-bots
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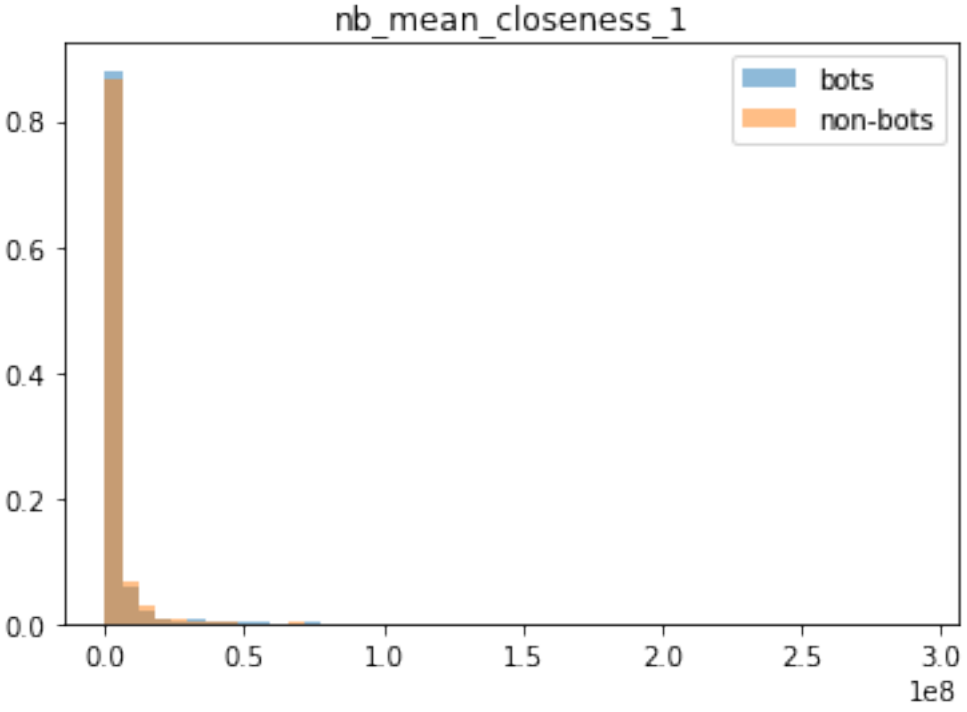
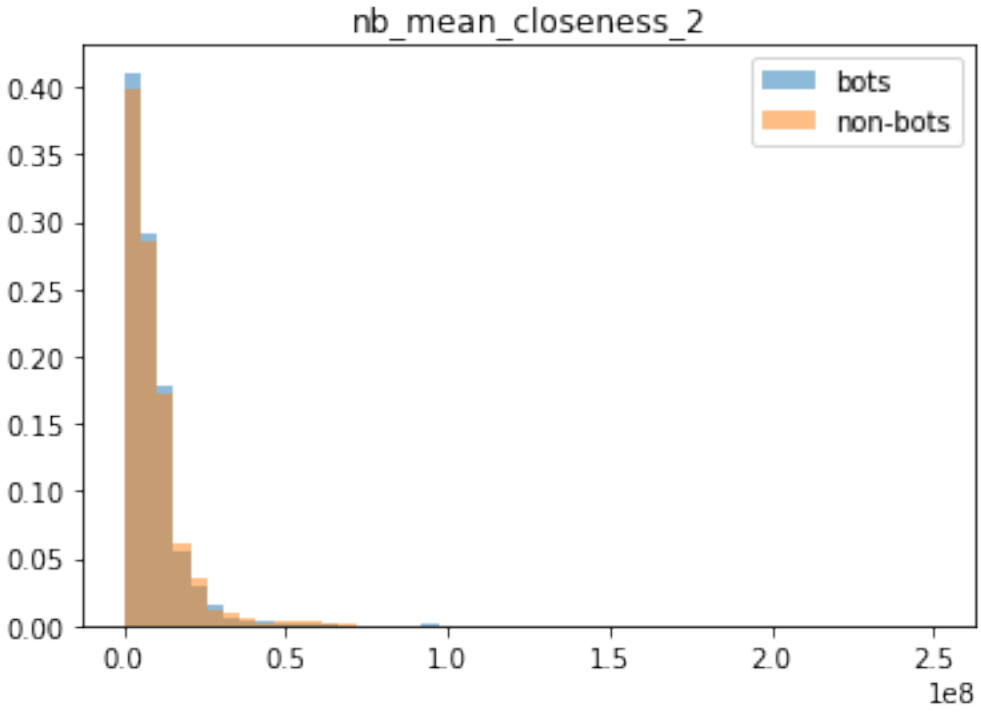
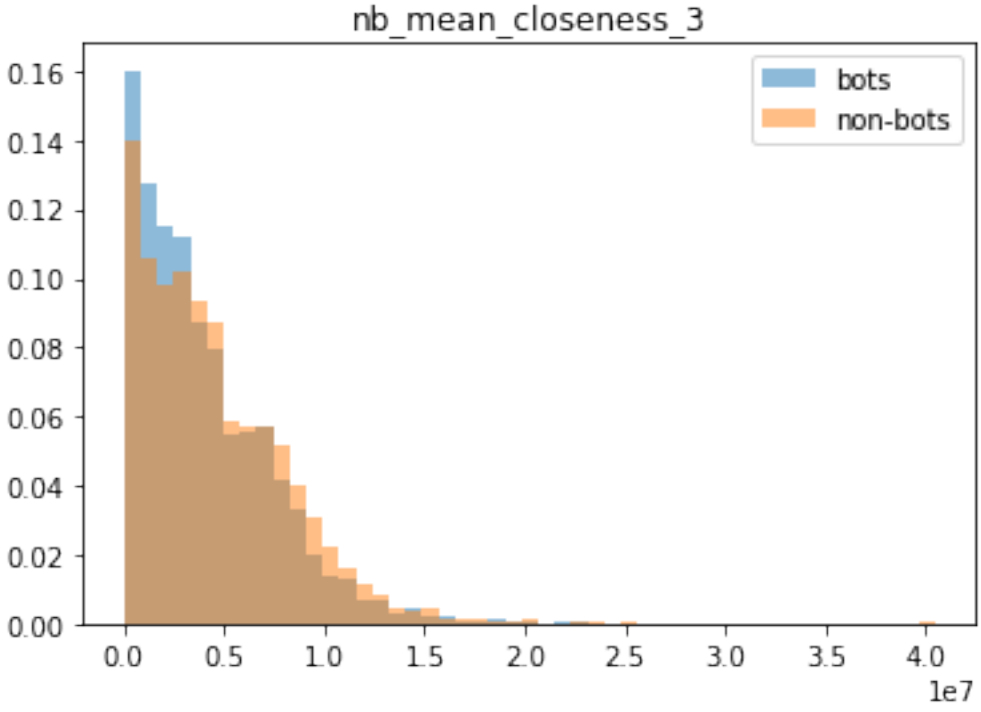
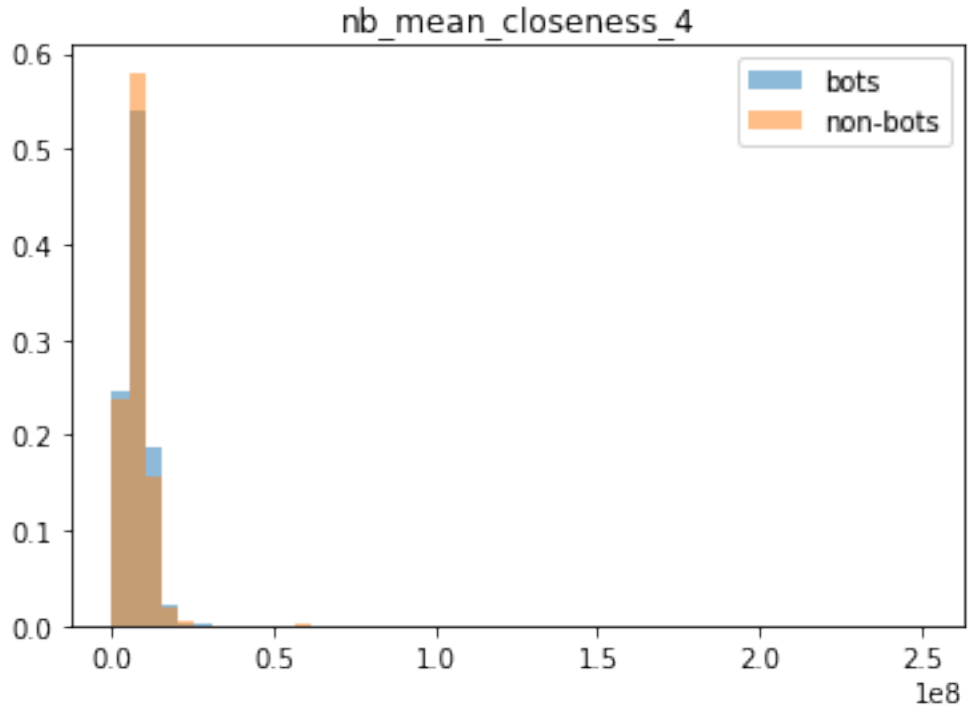
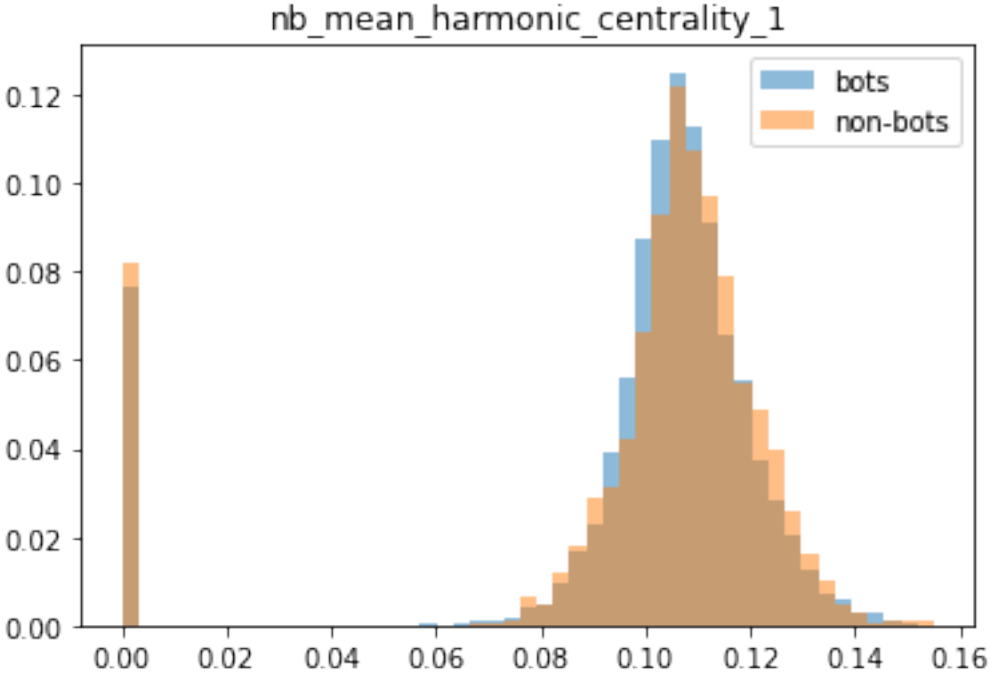
0.5
0.4
0.3
0.2
0.1
0.0
0.0
0.5
1.0
1.5
2.0
2.5
1e8

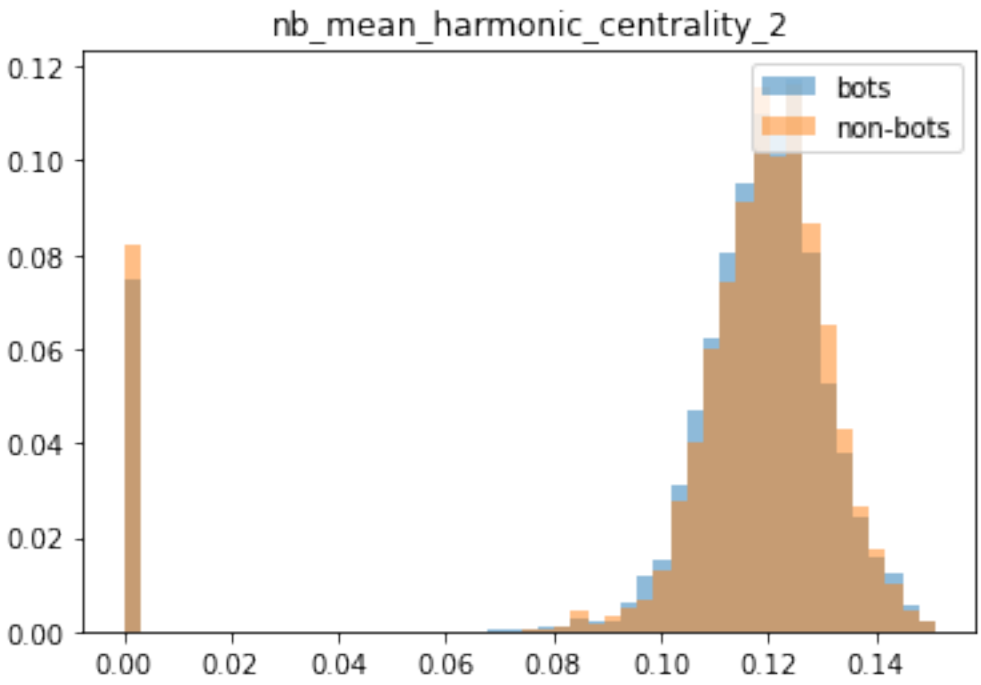

nb_mean_closeness_1
bots
non-bots
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
1e8

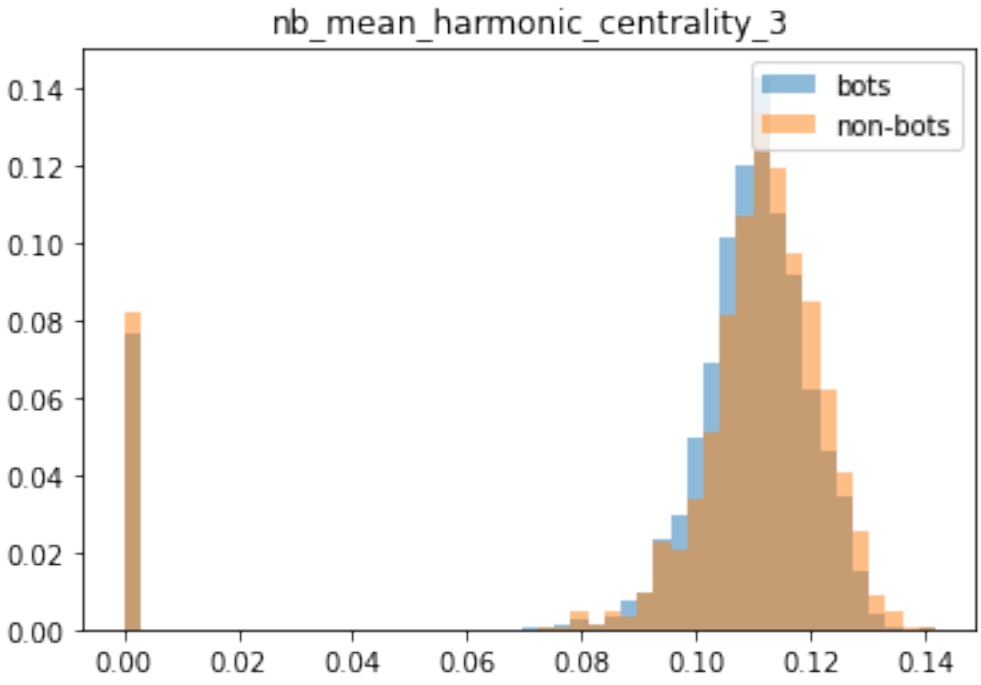

nb_mean_closeness_2
bots
non-bots
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
2.5
1e8


nb_mean_closeness_3
bots
non-bots
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
1e7


nb_mean_closeness_4
bots
non-bots
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0
0.5
1.0
1.5
2.0
2.5
1e8


nb_mean_harmonic_centrality_1
bots
non-bots
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16


nb_mean_harmonic_centrality_2
bots
non-bots
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_harmonic_centrality_3
bots
non-bots
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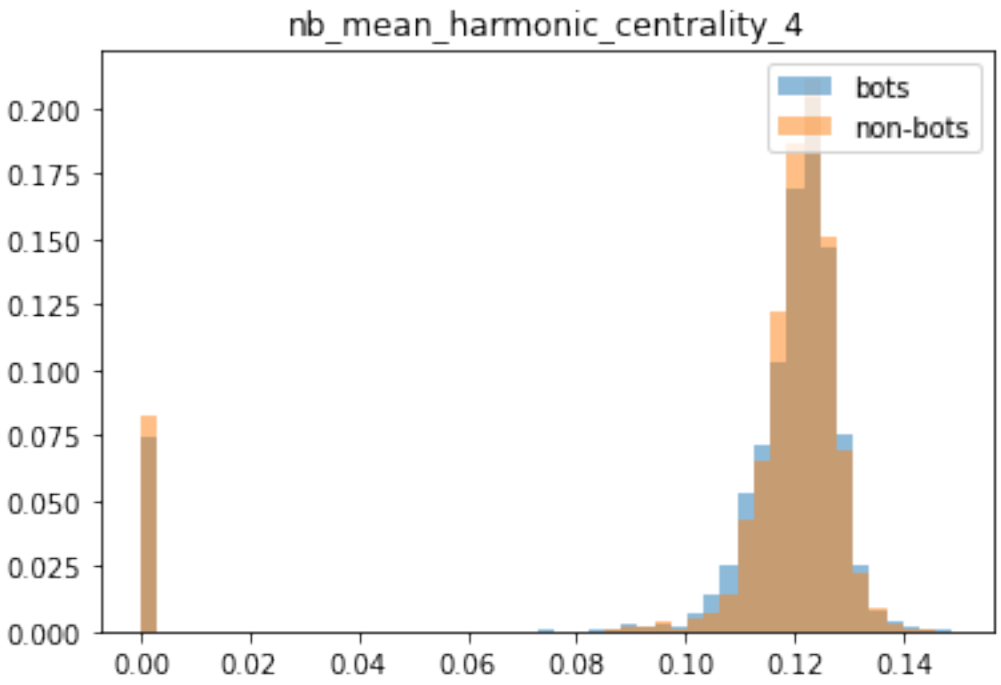
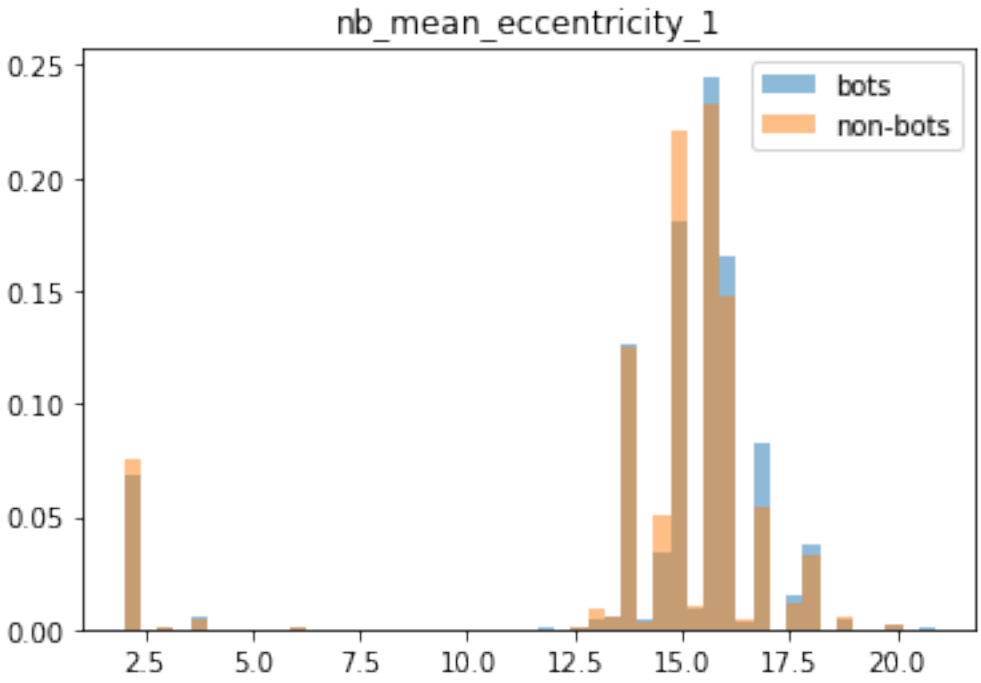
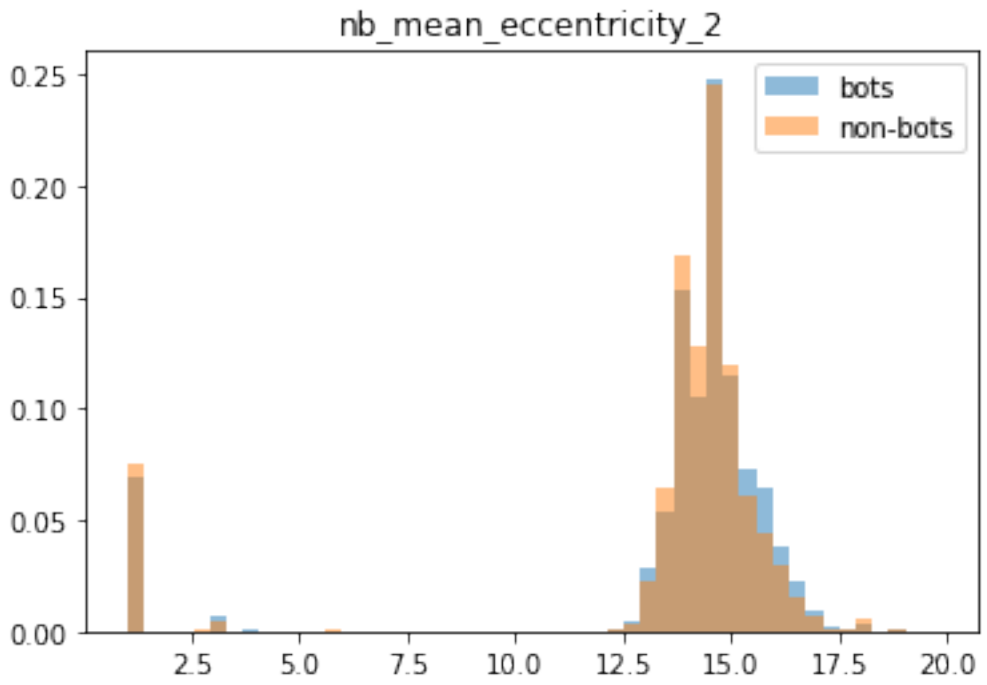
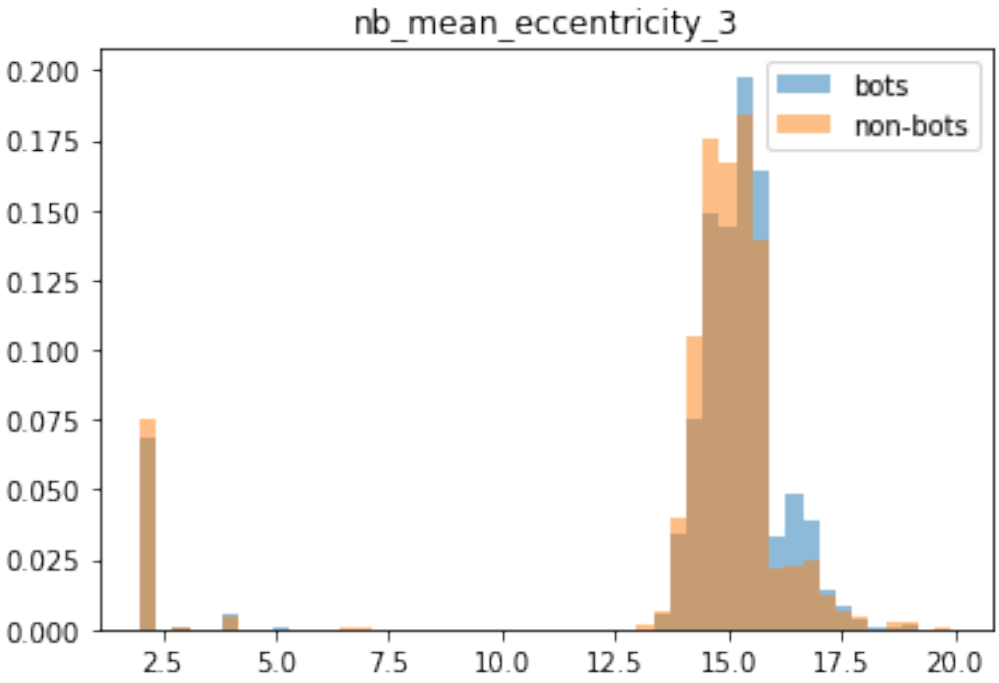
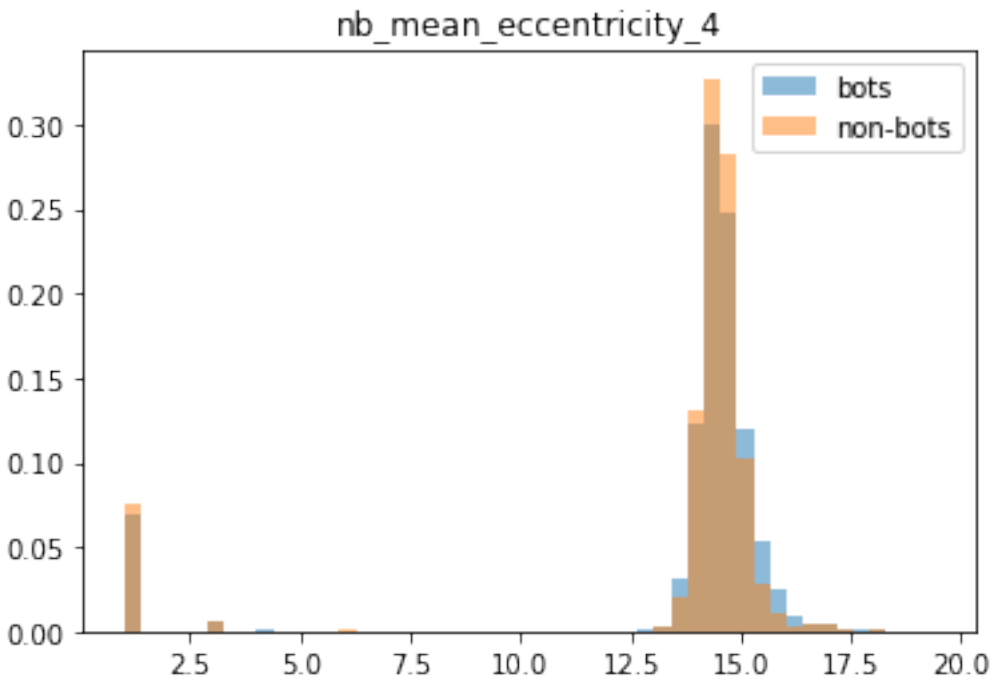
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14

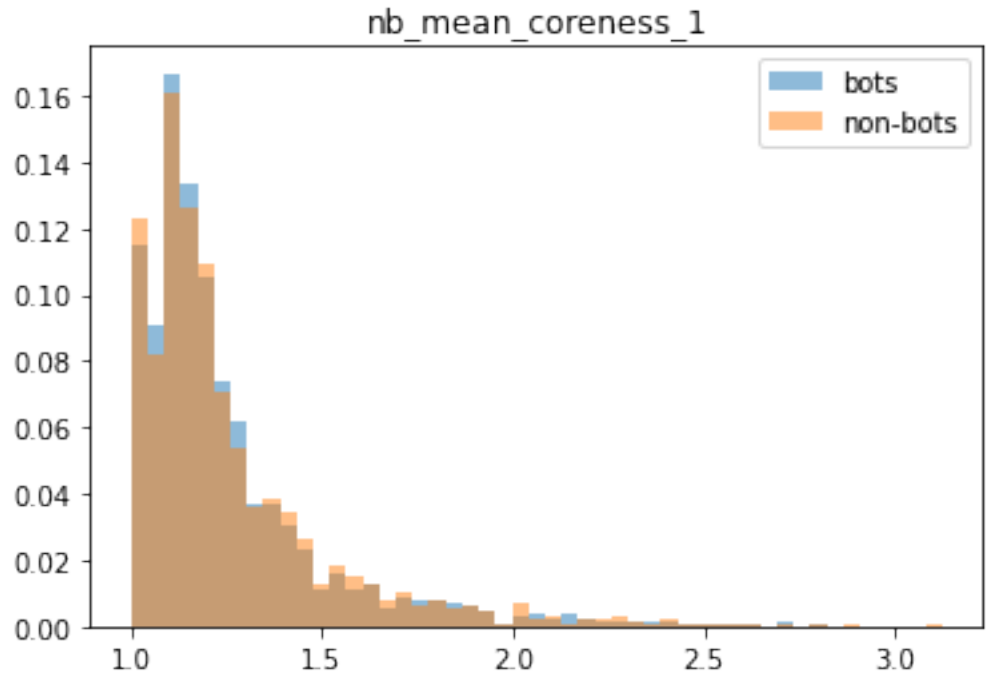

nb_mean_harmonic_centrality_4
bots
non-bots
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14

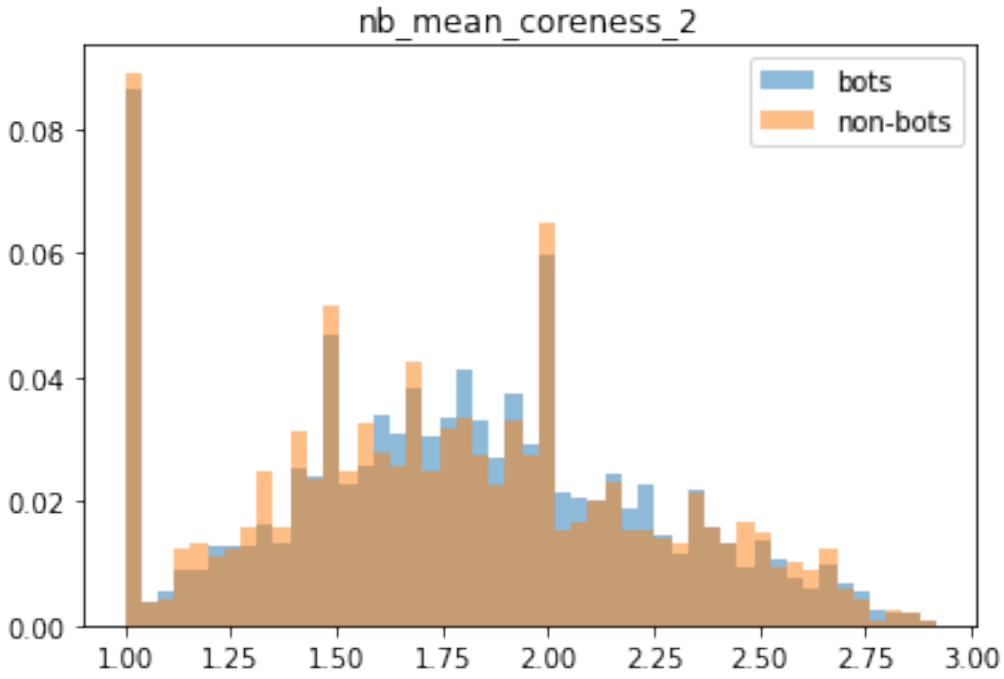

nb_mean_eccentricity_1
bots
non-bots
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

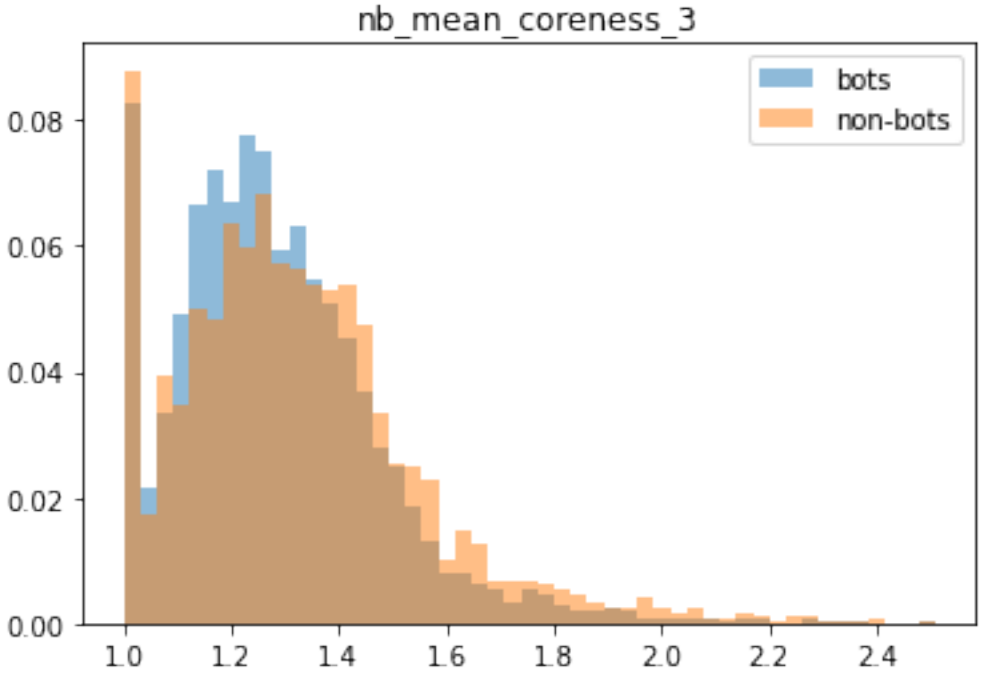

nb_mean_eccentricity_2
bots
non-bots
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

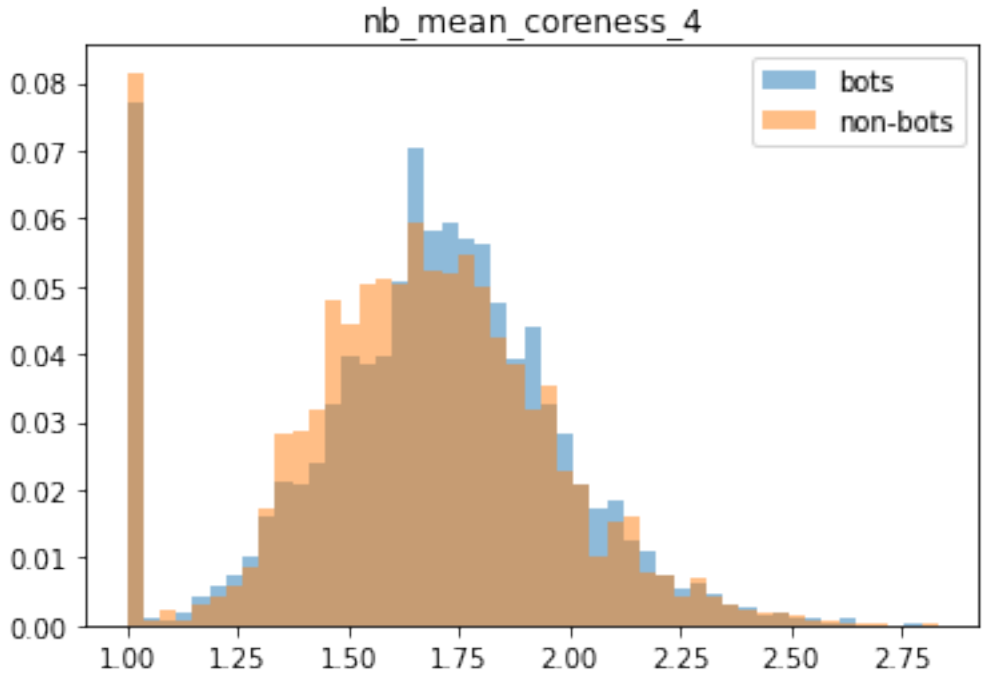

nb_mean_eccentricity_3
bots
non-bots
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

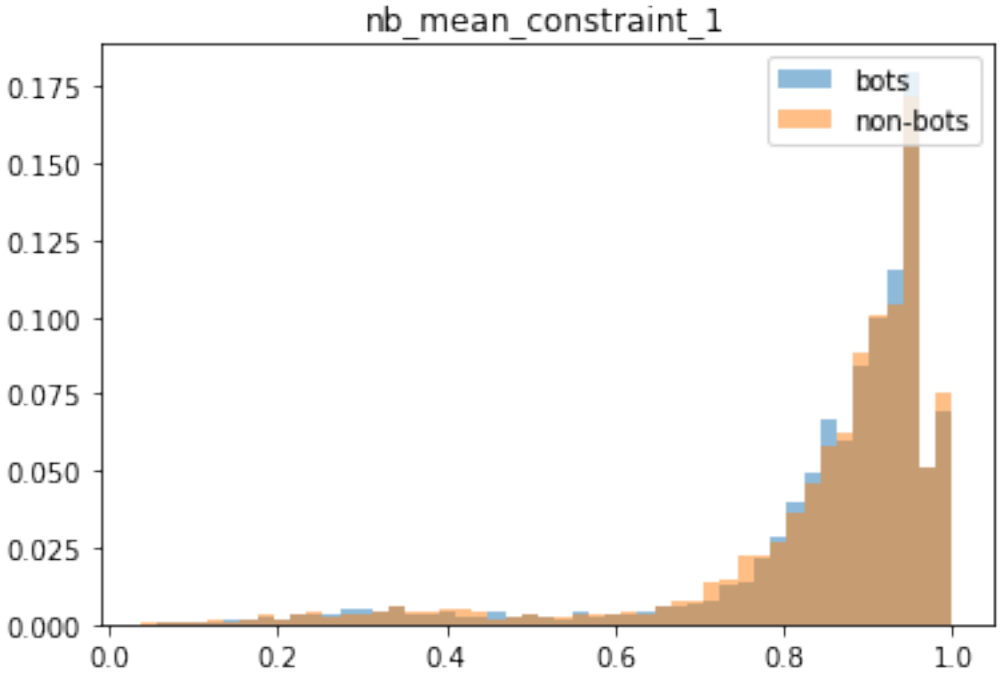

nb_mean_eccentricity_4
bots
non-bots
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

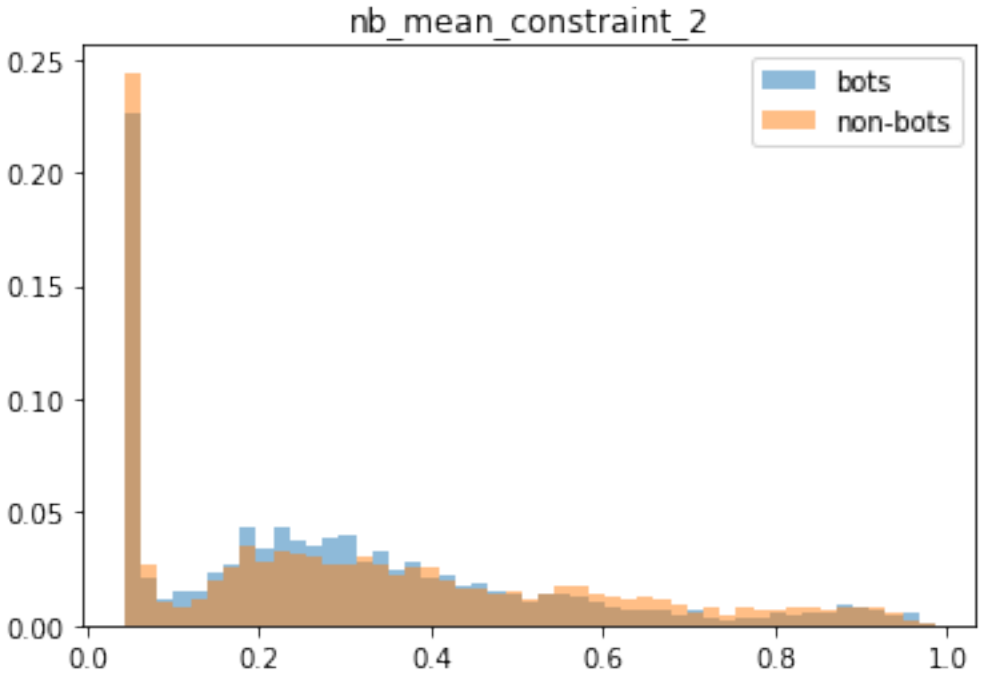

nb_mean_coreness_1
bots
non-bots
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1.0
1.5
2.0
2.5
3.0

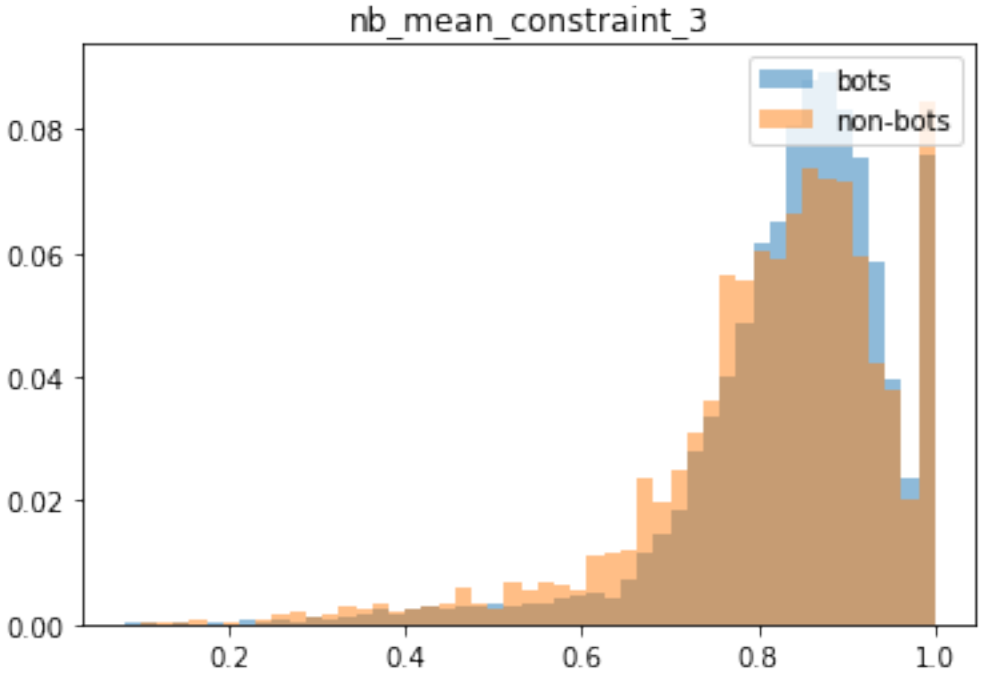

nb_mean_coreness_2
bots
non-bots
0.08
0.06
0.04
0.02
0.00
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00

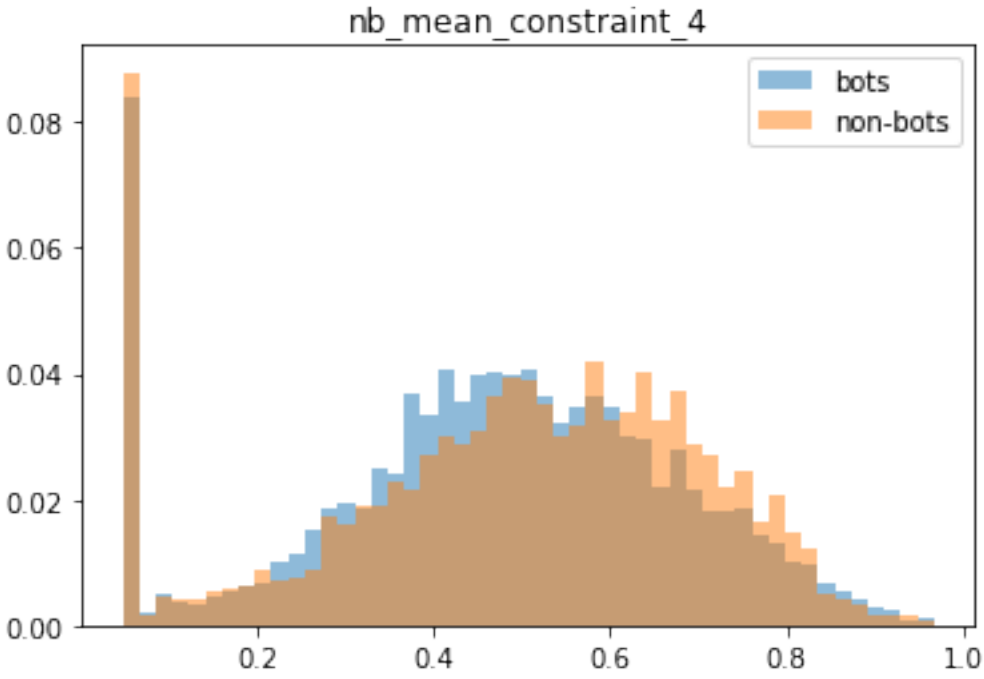

nb_mean_coreness_3
bots
non-bots
0.08
0.06
0.04
0.02
0.00
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4

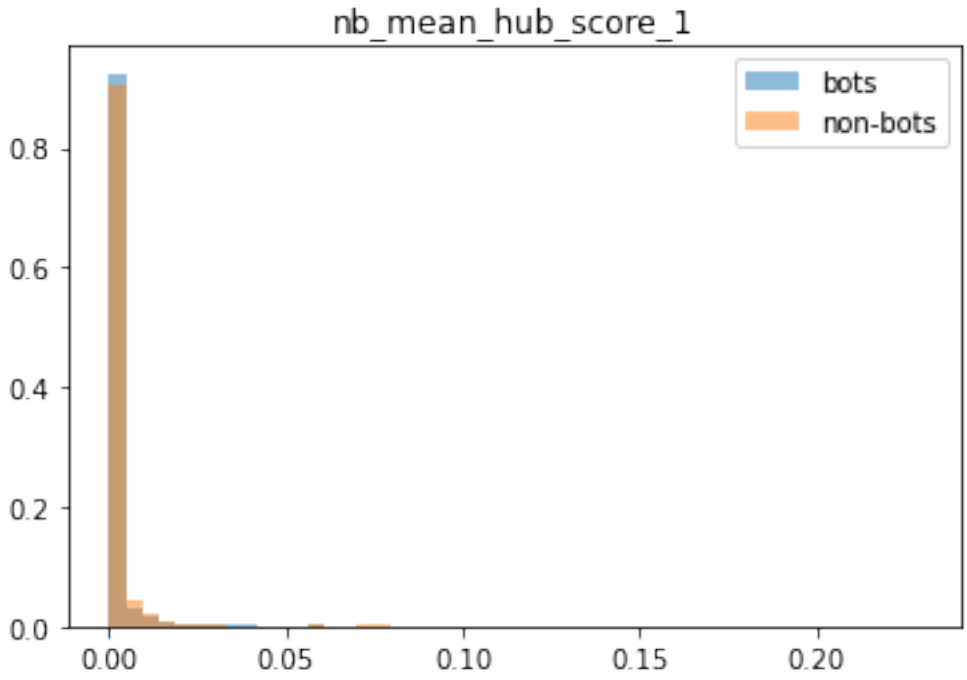

nb_mean_coreness_4
bots
non-bots
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75

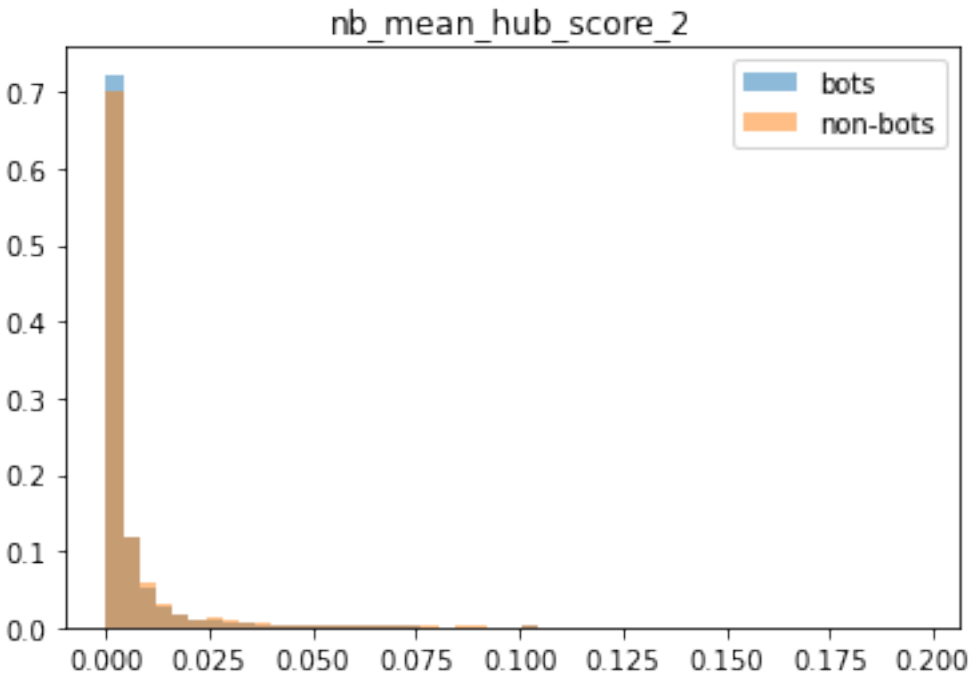

nb_mean_constraint_1
bots
non-bots
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.0
0.2
0.4
0.6
0.8
1.0


nb_mean_constraint_2
bots
non-bots
0.25
0.20
0.15
0.10
0.05
0.00
0.0
0.2
0.4
0.6
0.8
1.0


nb_mean_constraint_3
bots
non-bots
0.08
0.06
0.04
0.02
0.00
0.2
0.4
0.6
0.8
1.0


nb_mean_constraint_4
bots
non-bots
0.08
0.06
0.04
0.02
0.00
0.2
0.4
0.6
0.8
1.0


nb_mean_hub_score_1
bots
non-bots
0.8
0.6
0.4
0.2
0.0
0.00
0.05
0.10
0.15
0.20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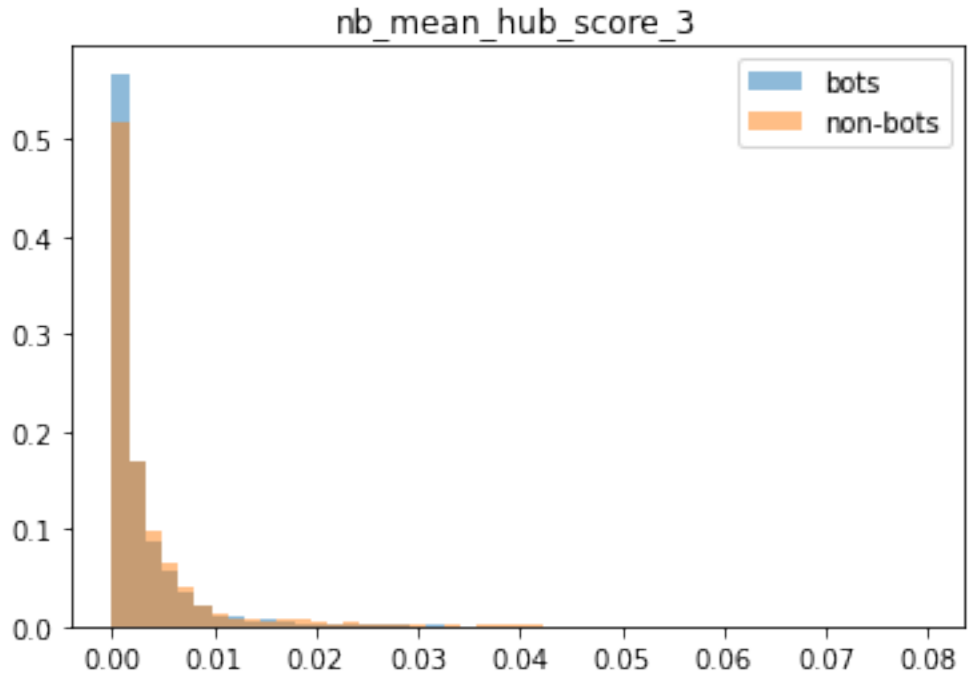
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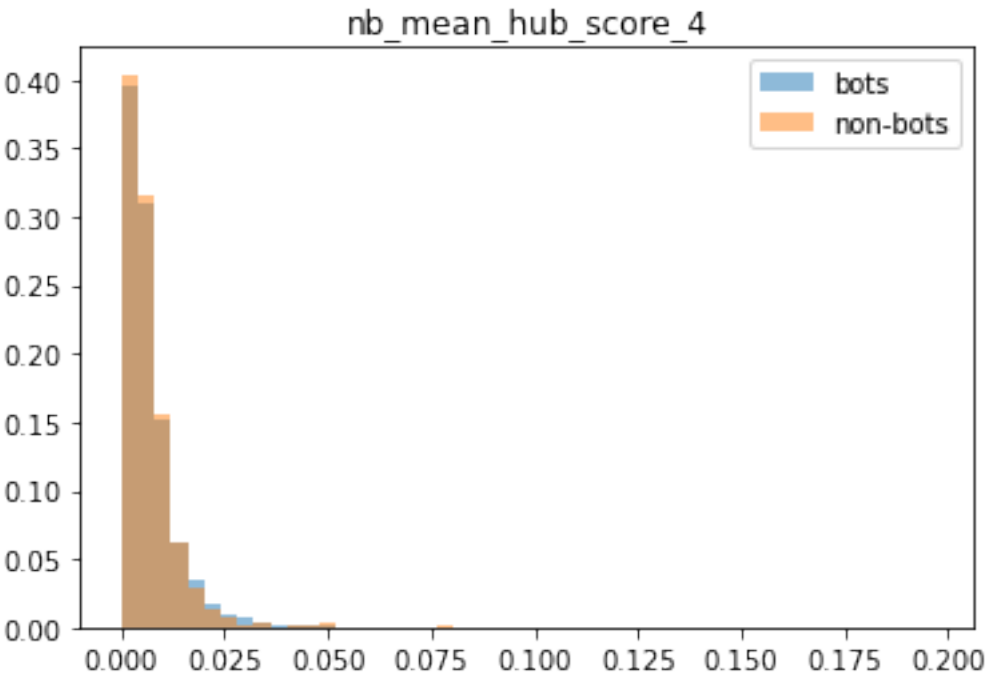
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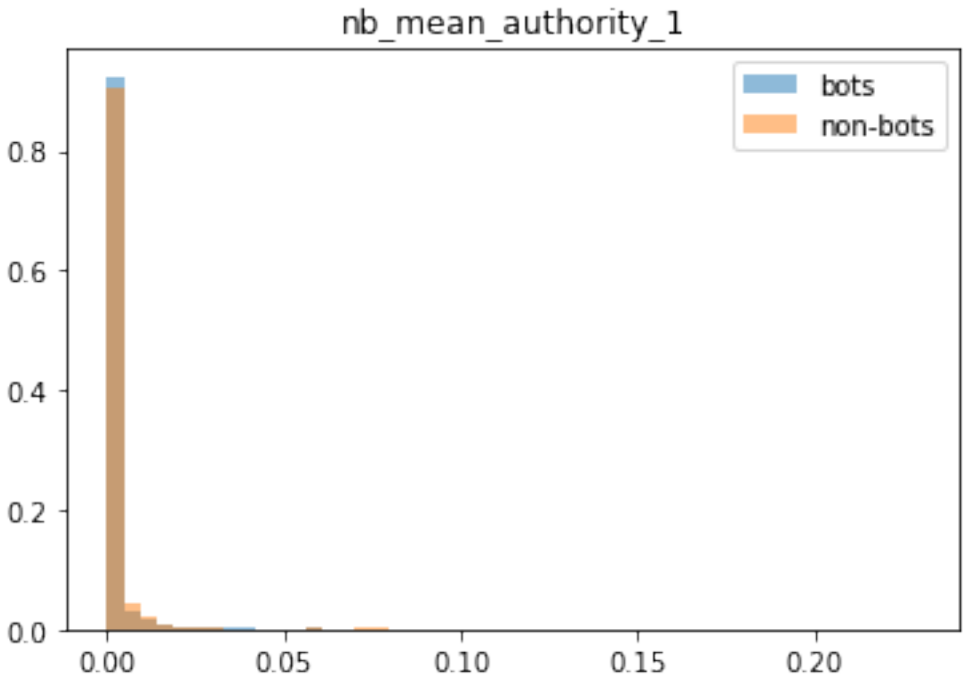
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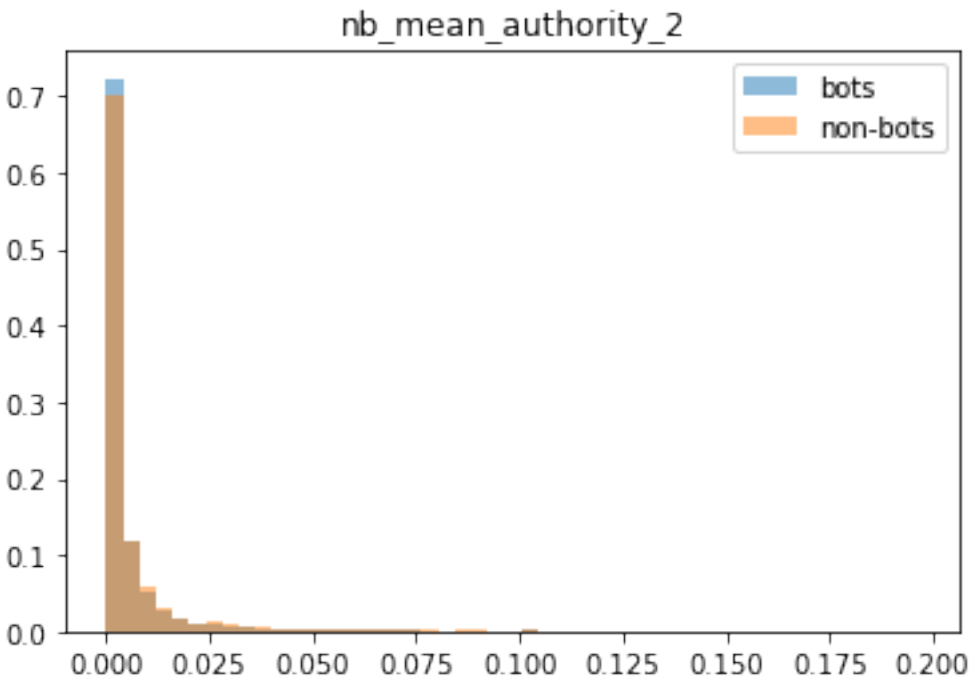
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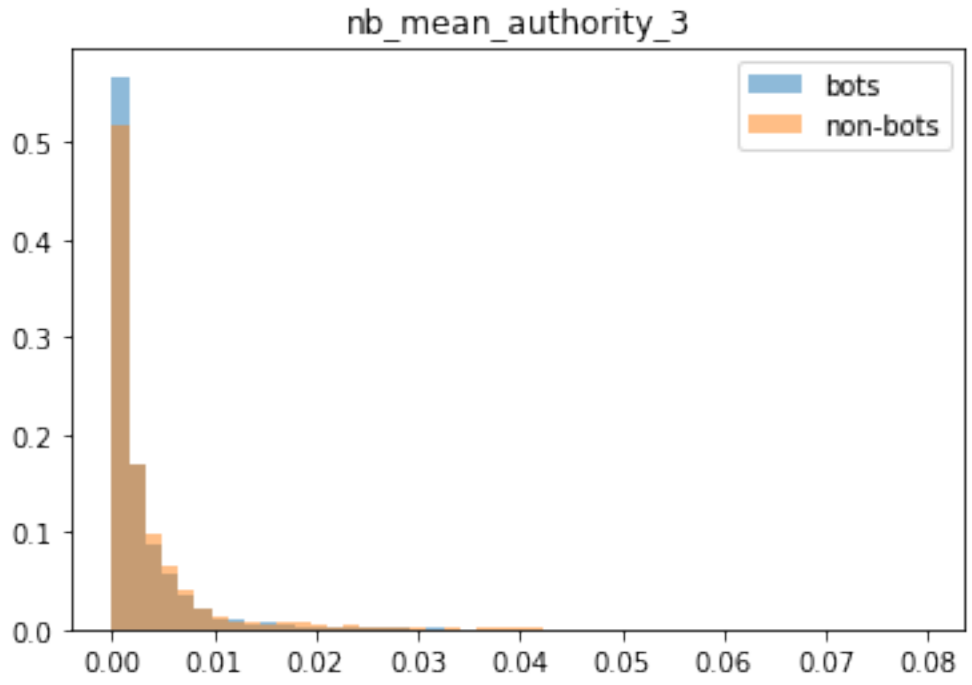
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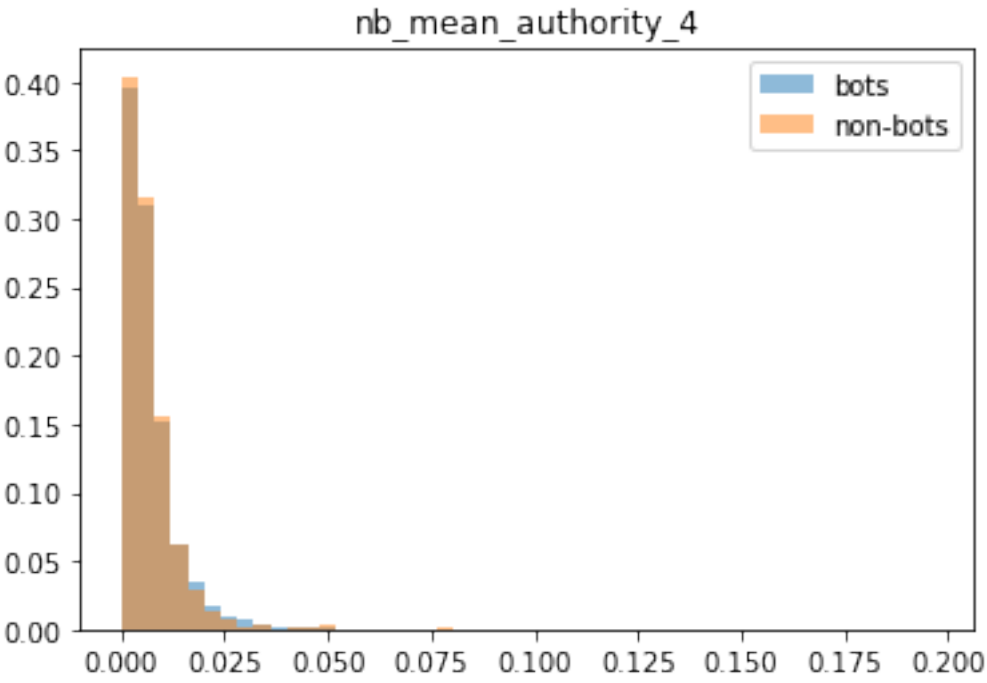
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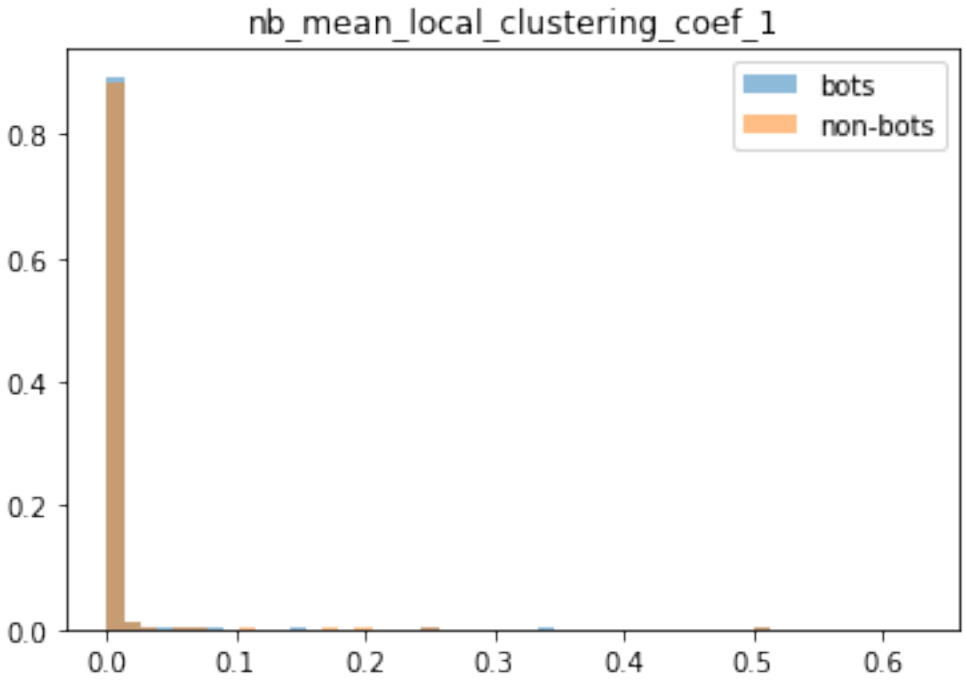
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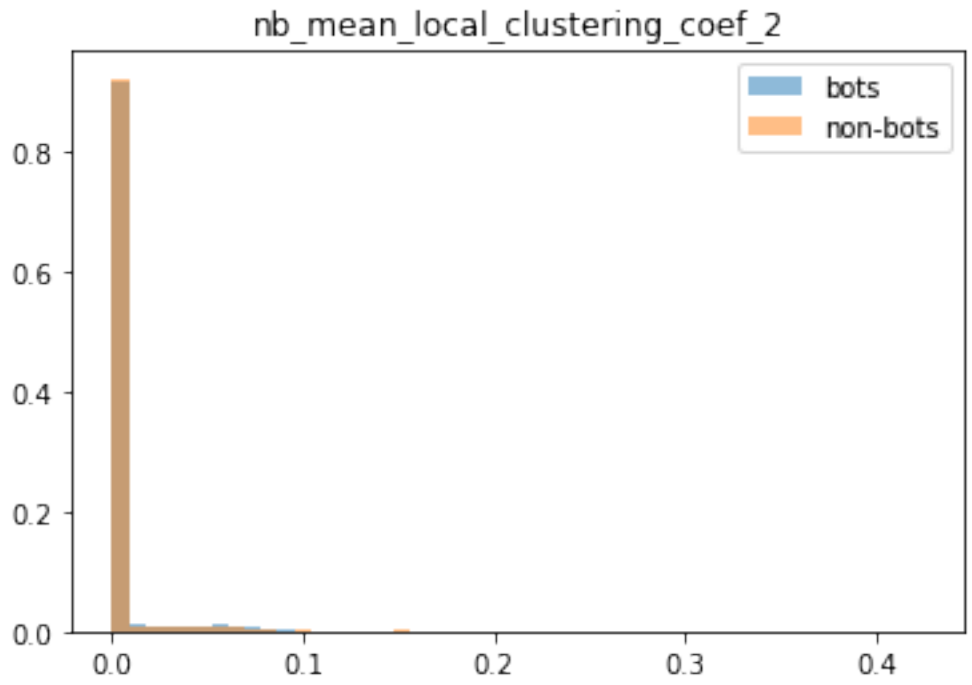
0.6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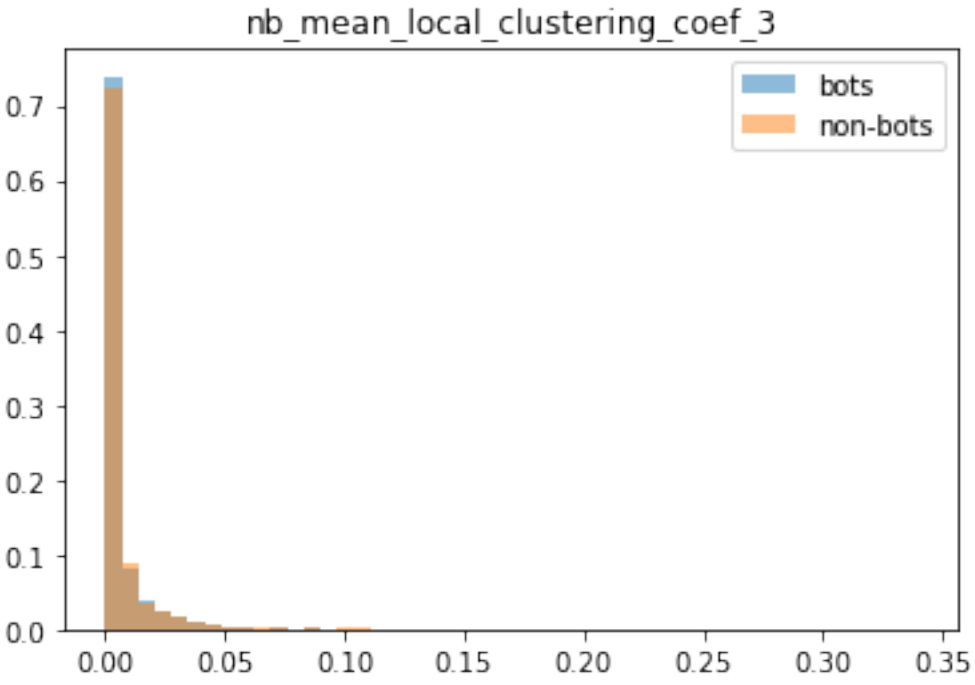
0.2
0.3
0.4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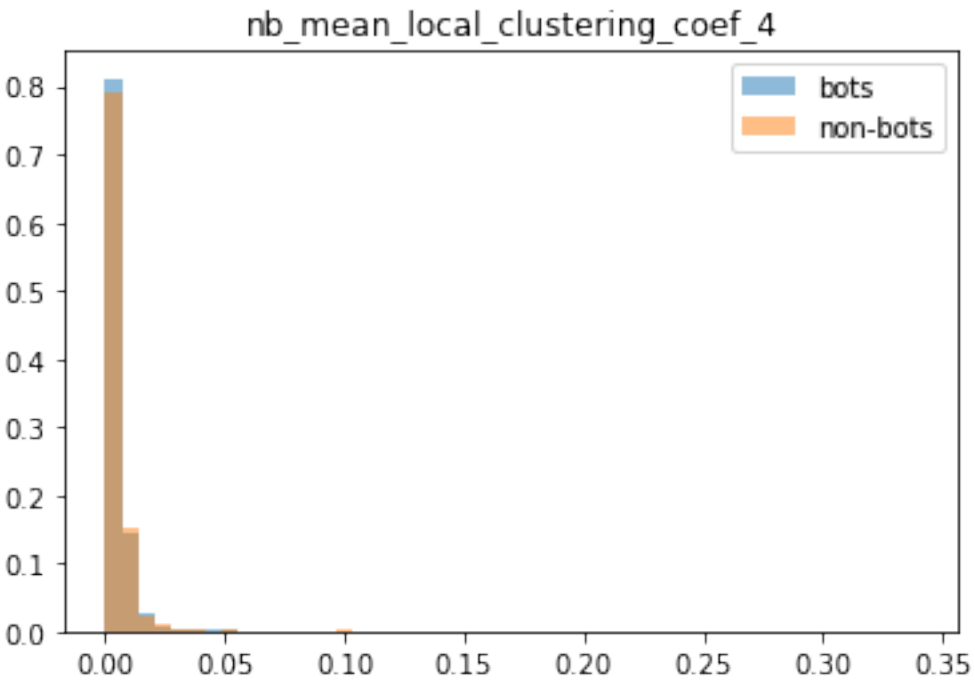
0.20
0.25
0.30
0.35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0.10
0.15
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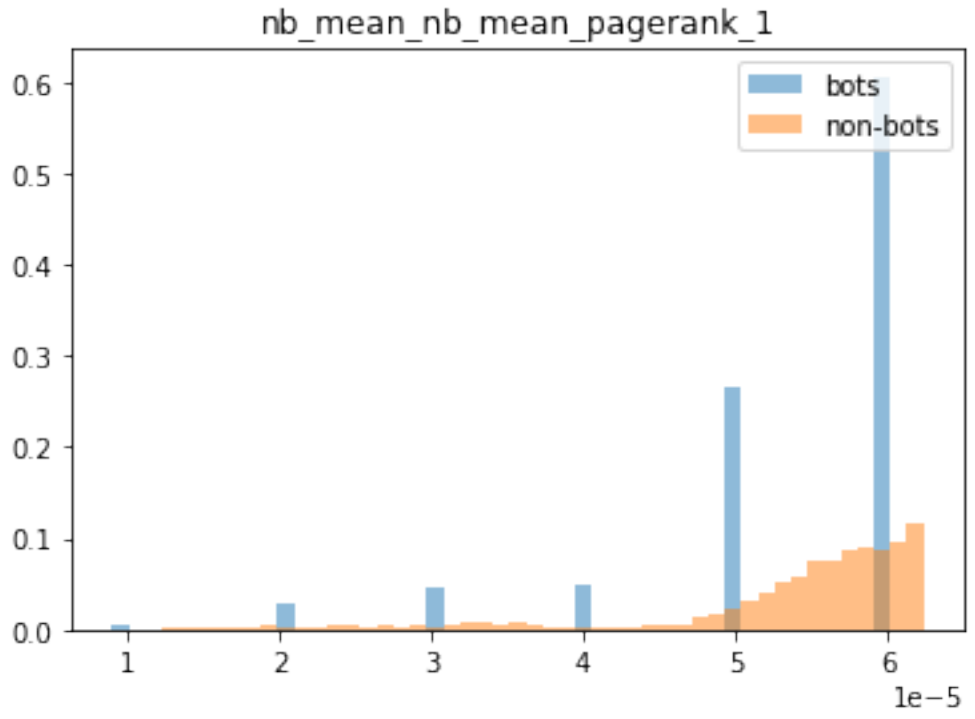
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0.1
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5
6
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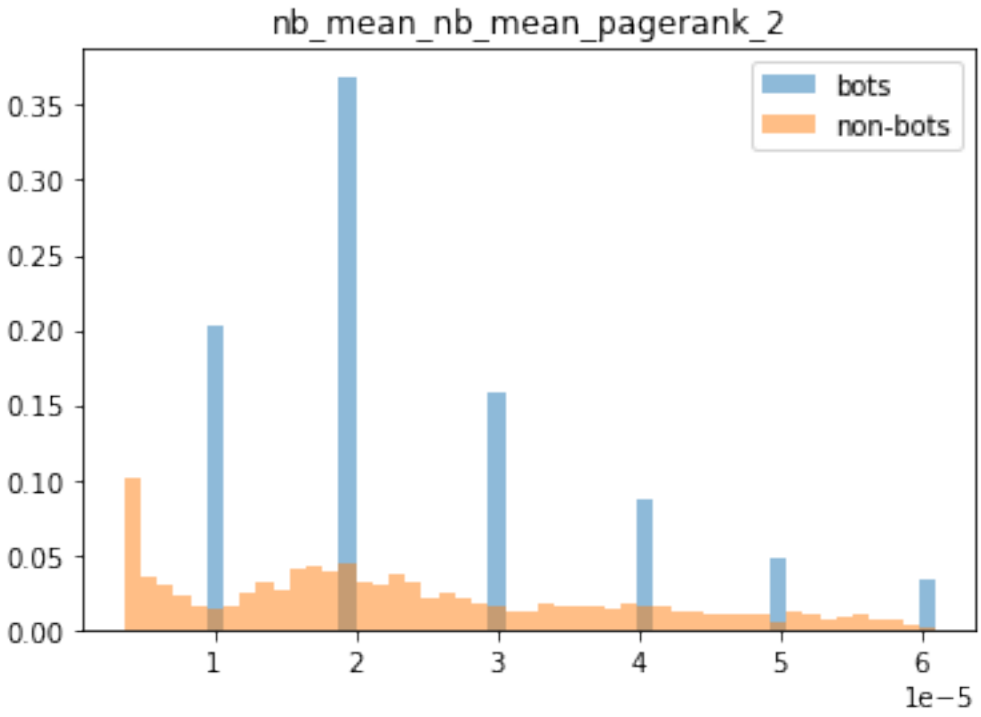
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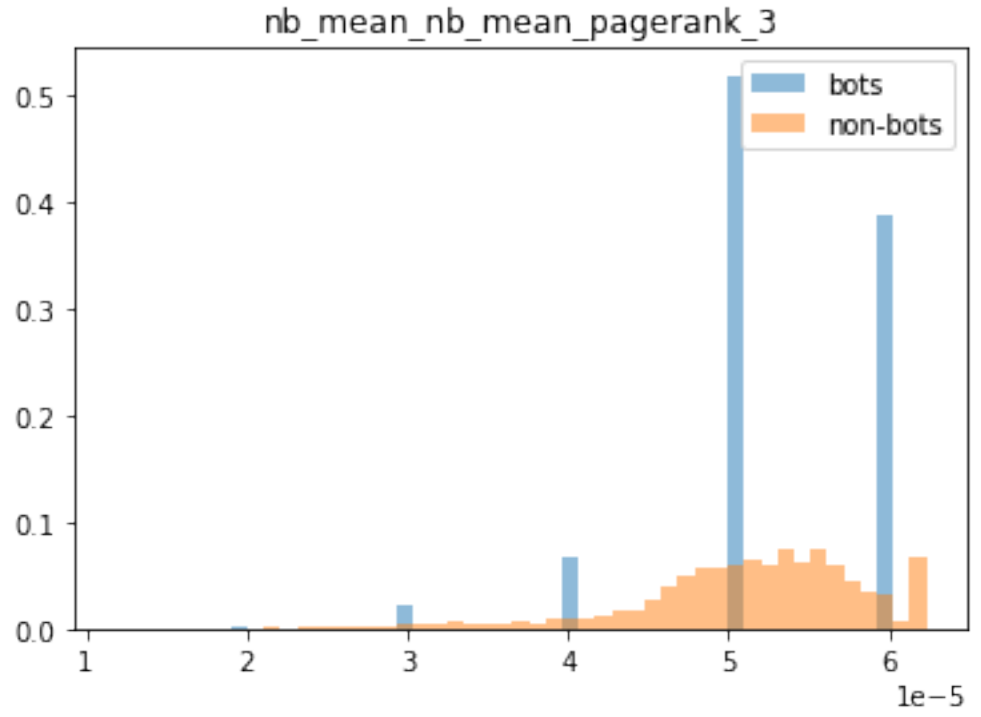
1e−5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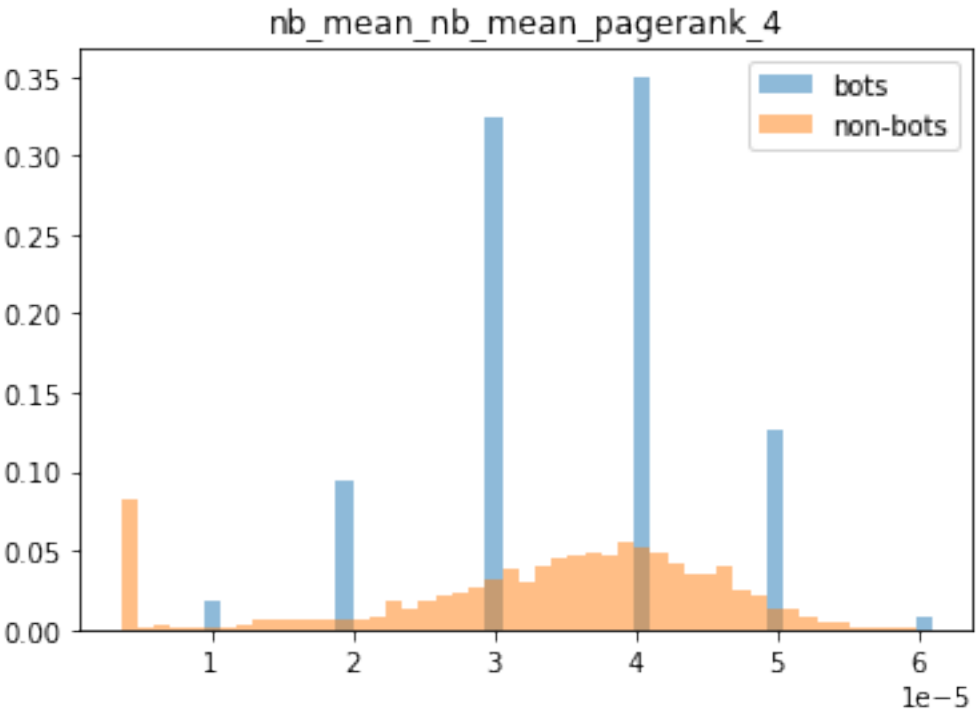
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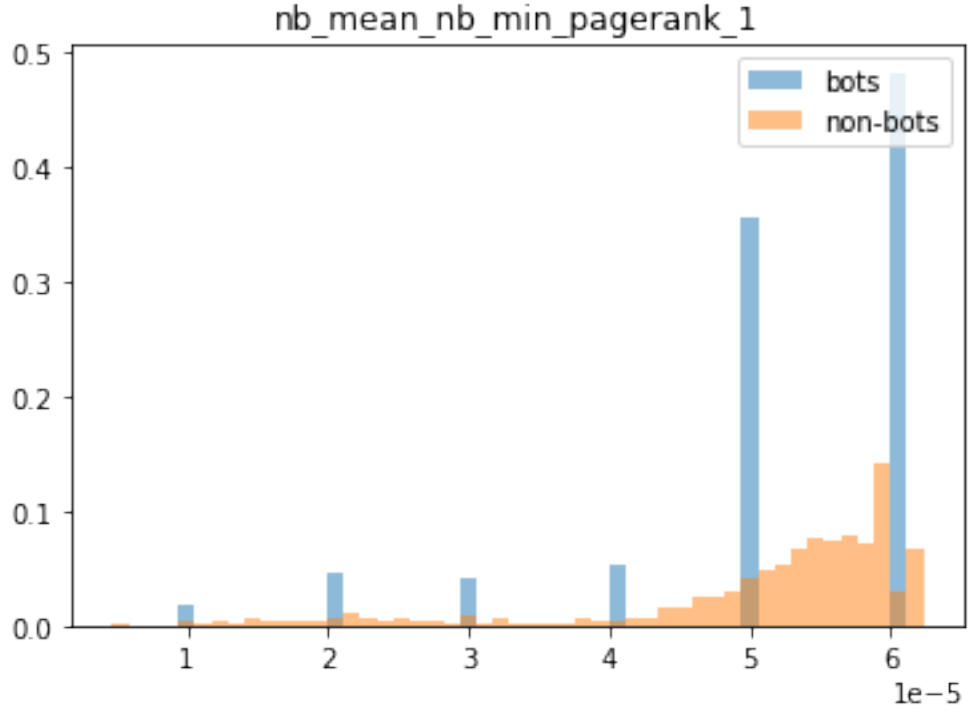
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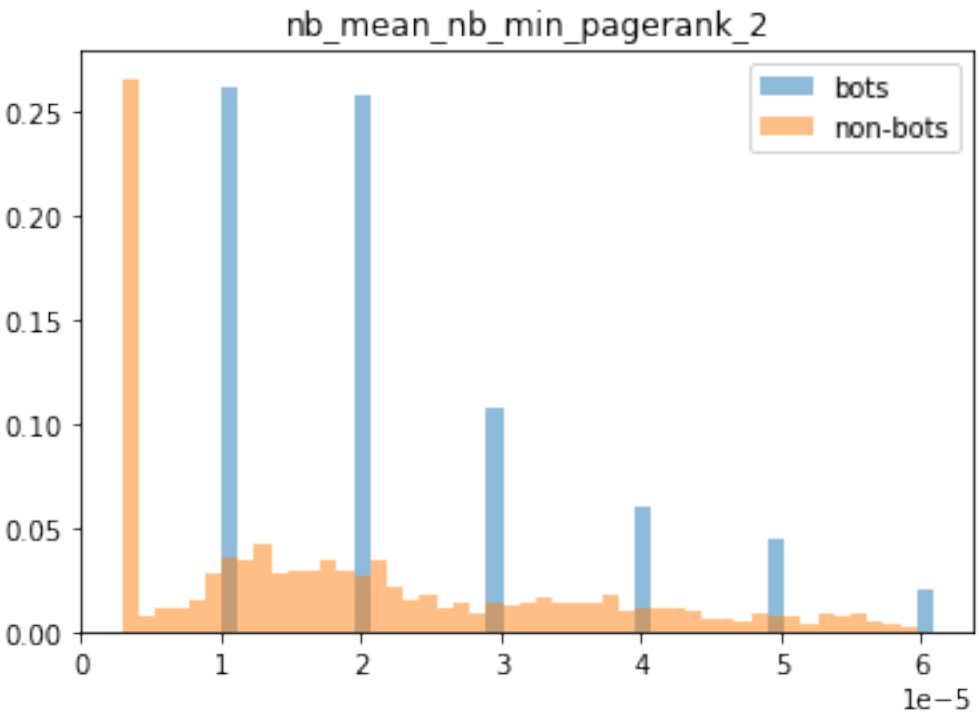
1e−5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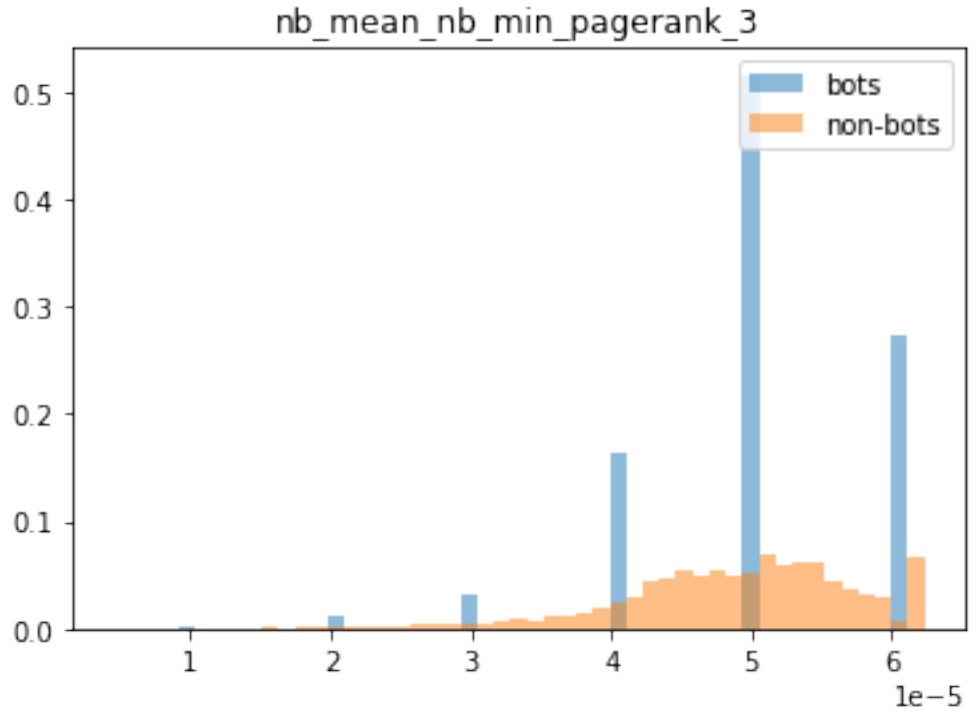
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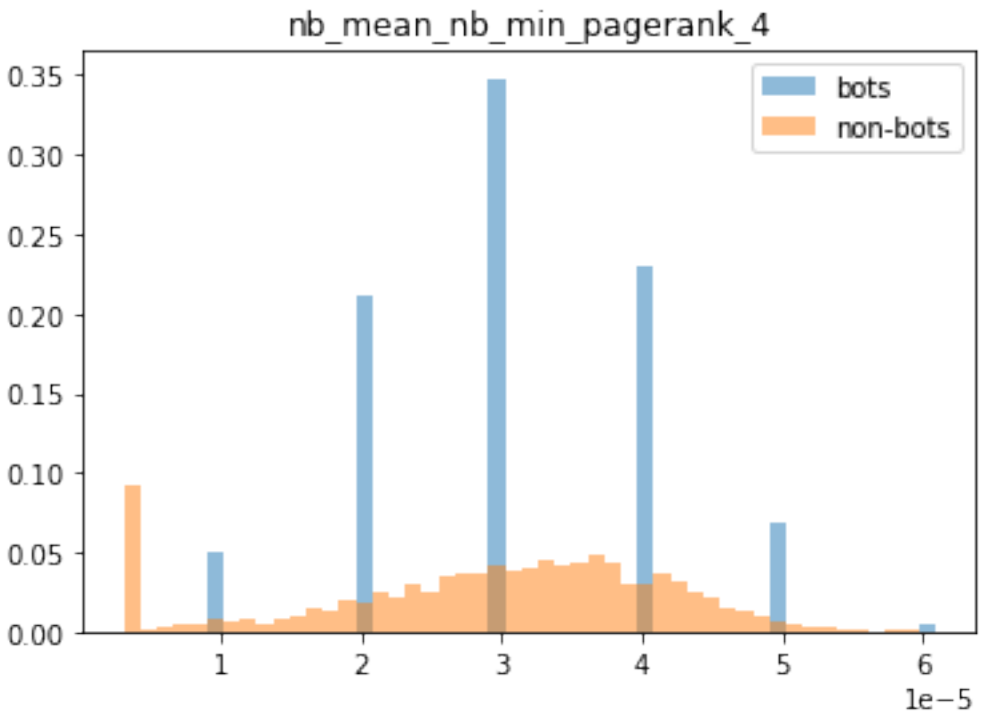
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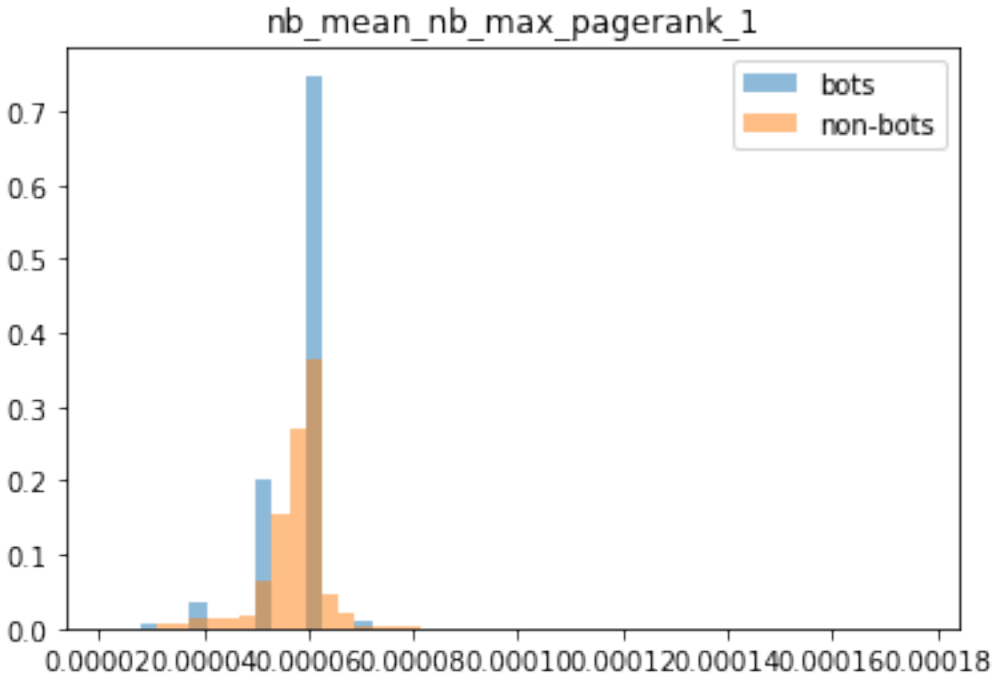
1e−5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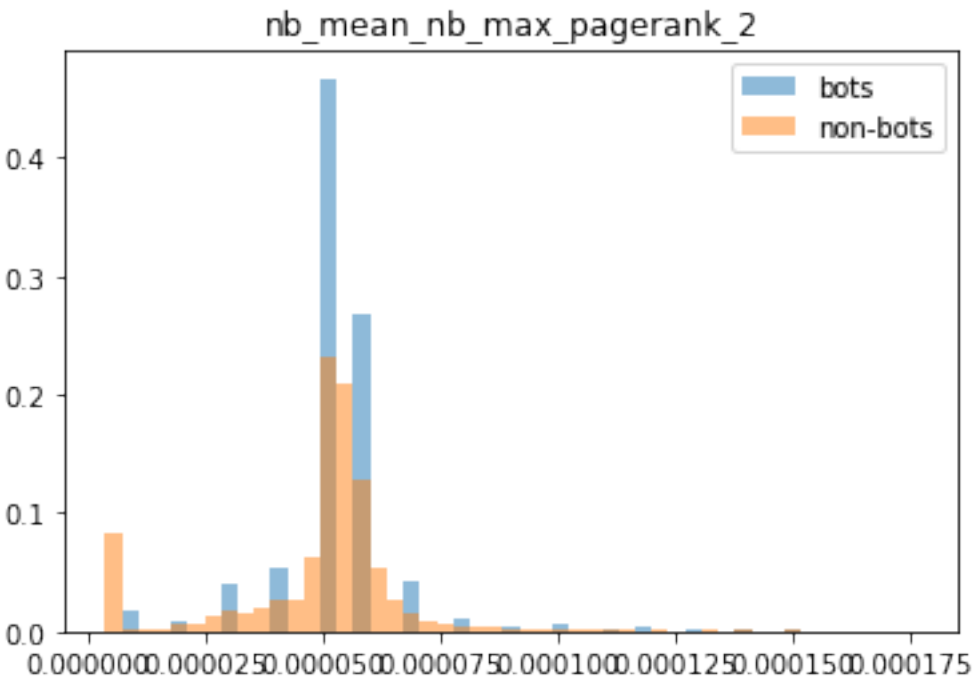
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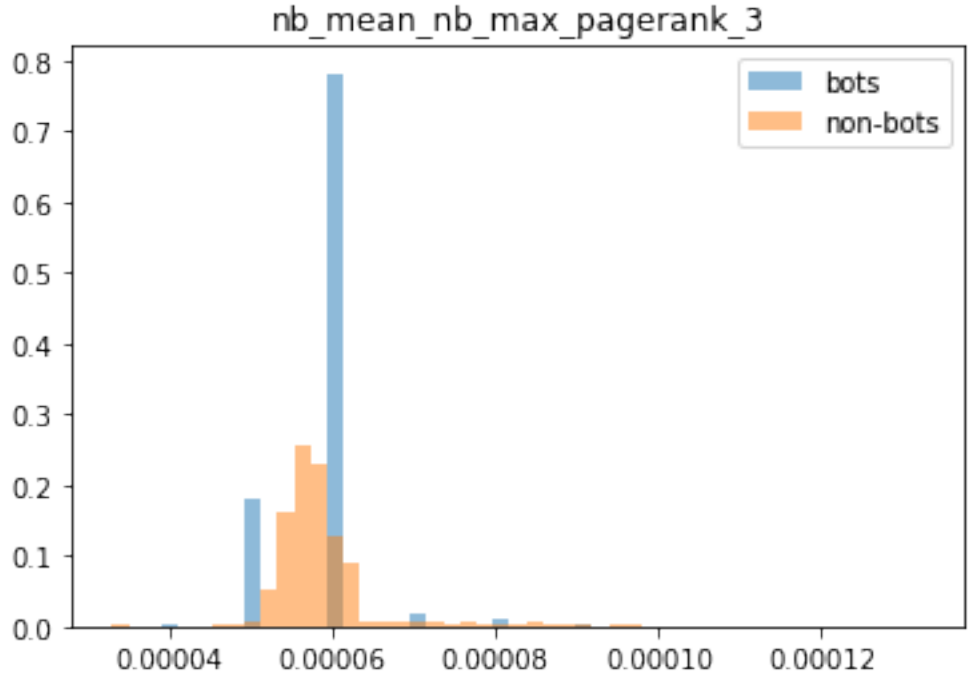
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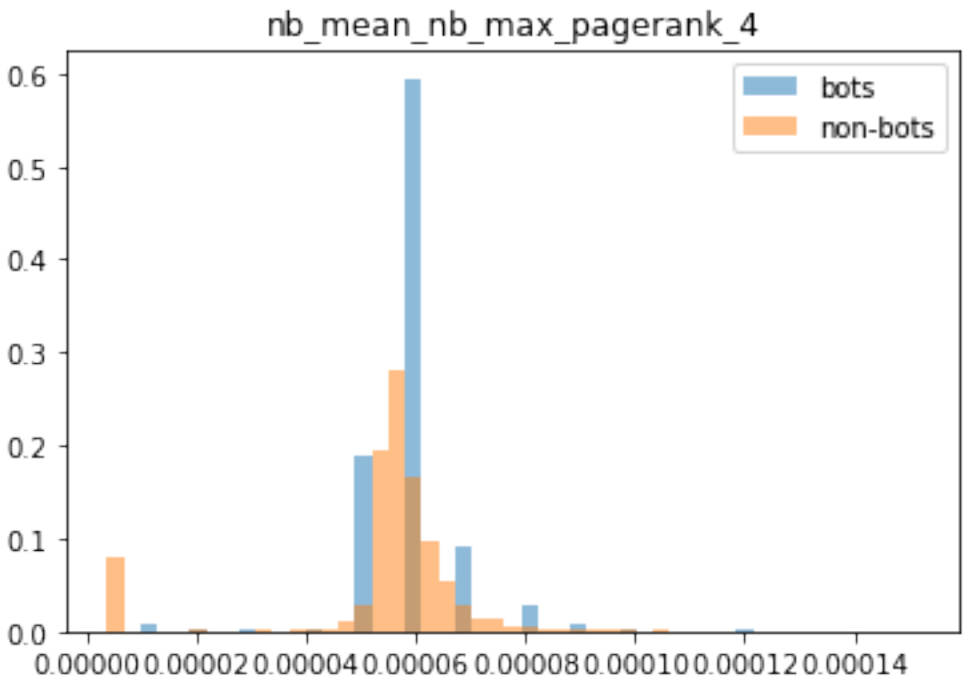
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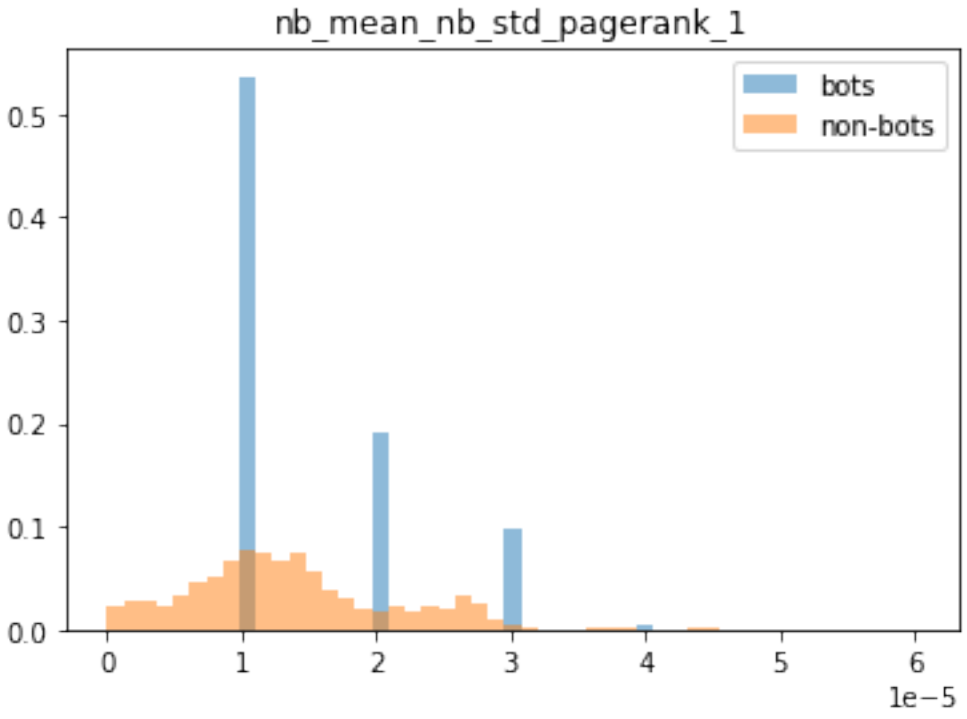
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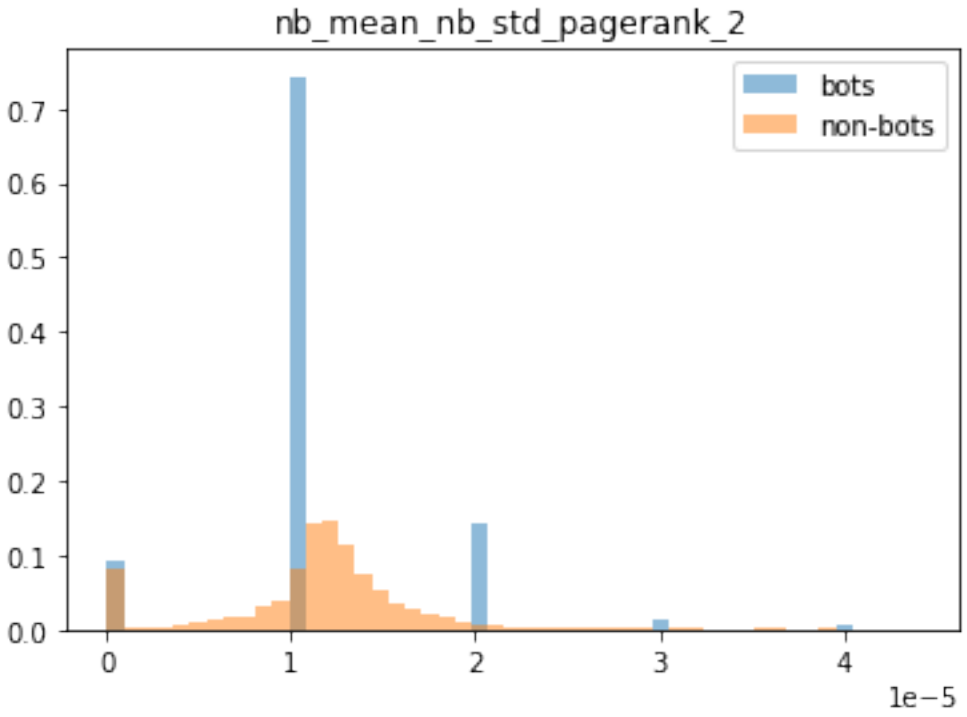
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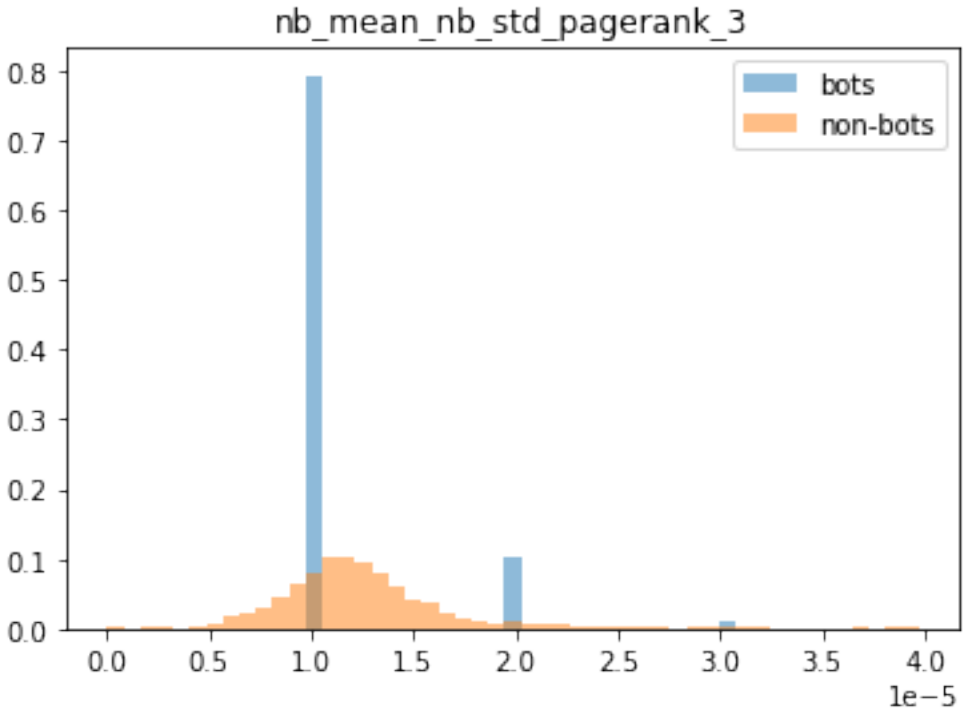
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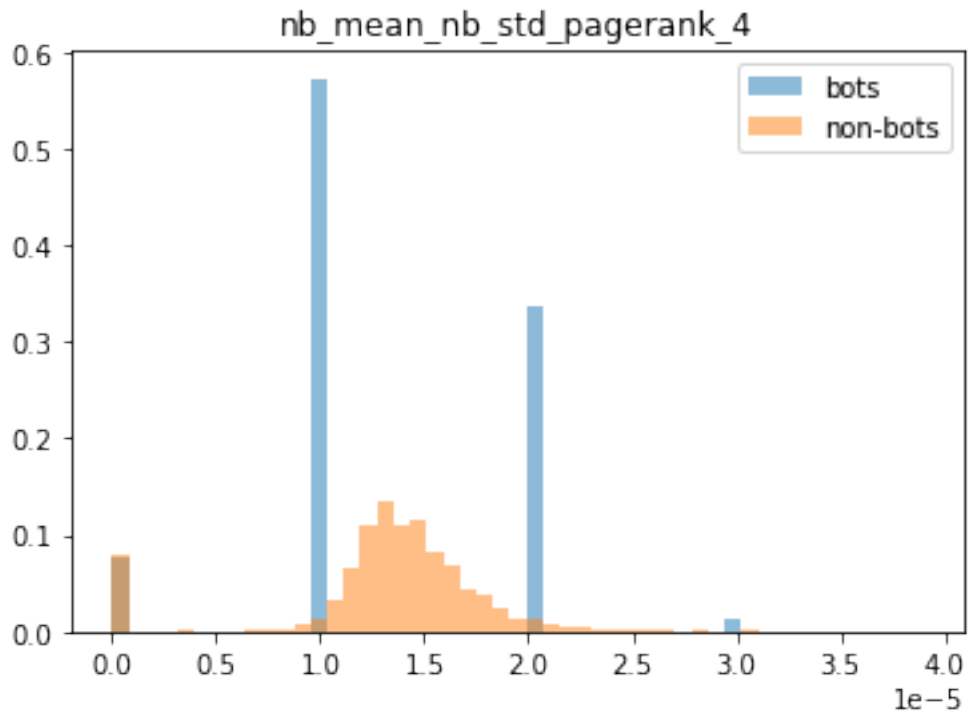
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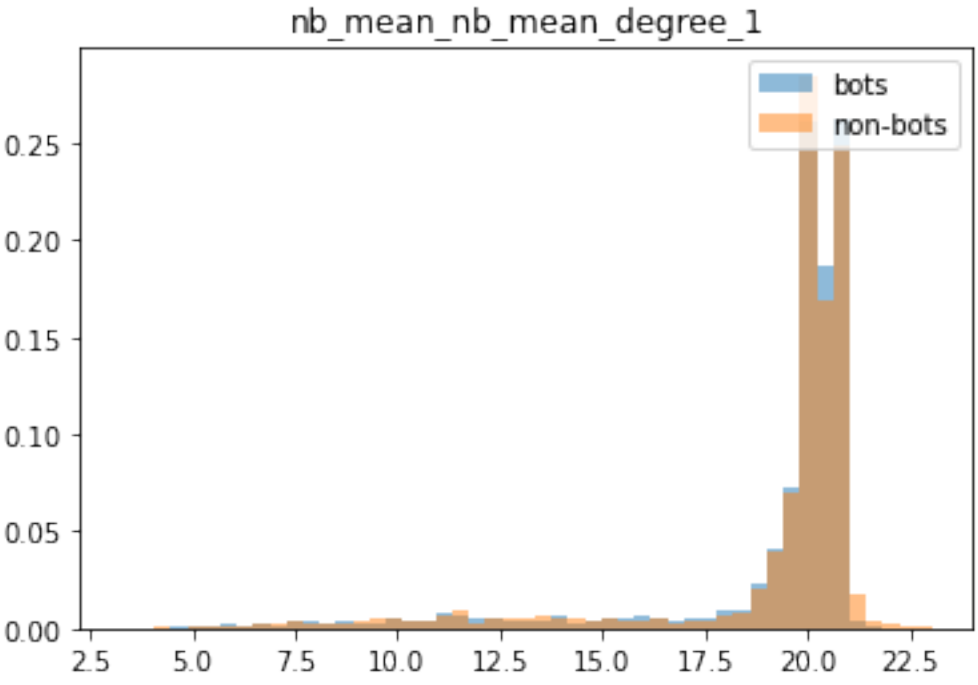
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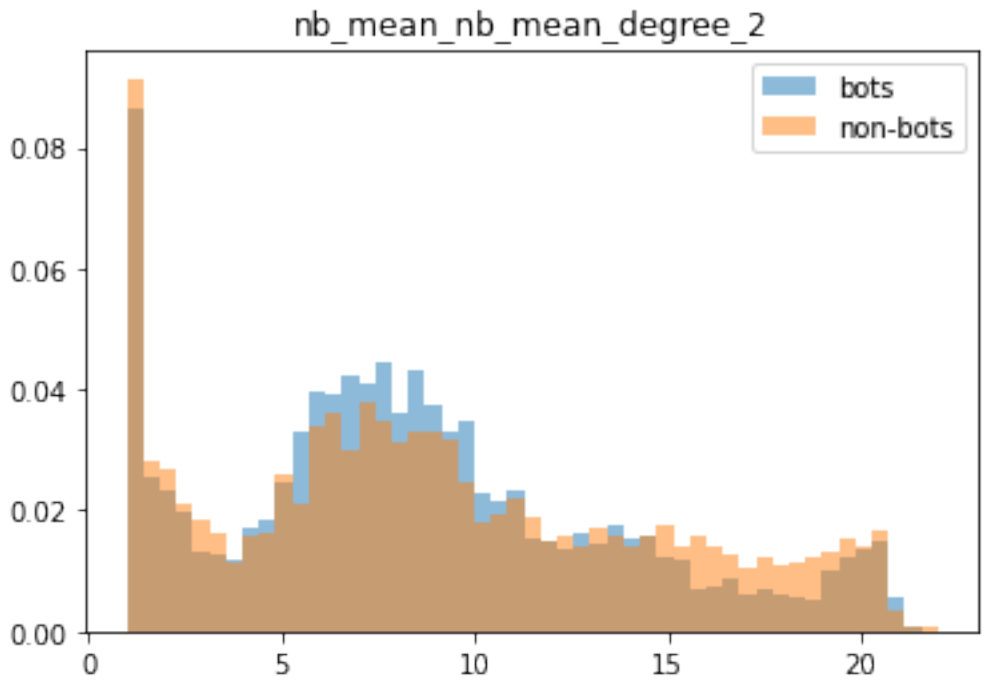
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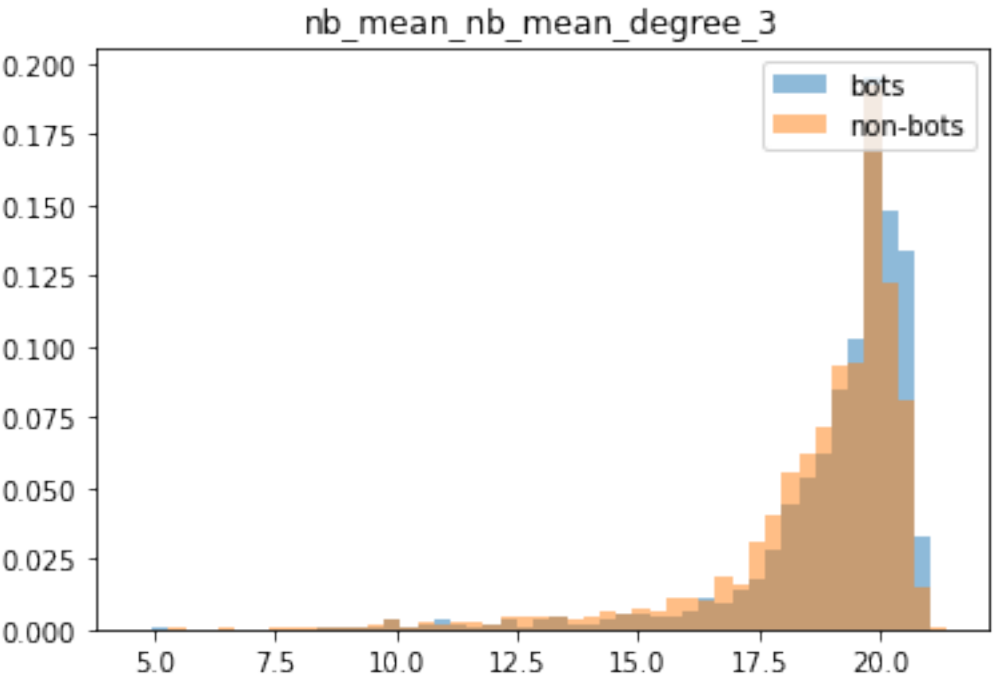
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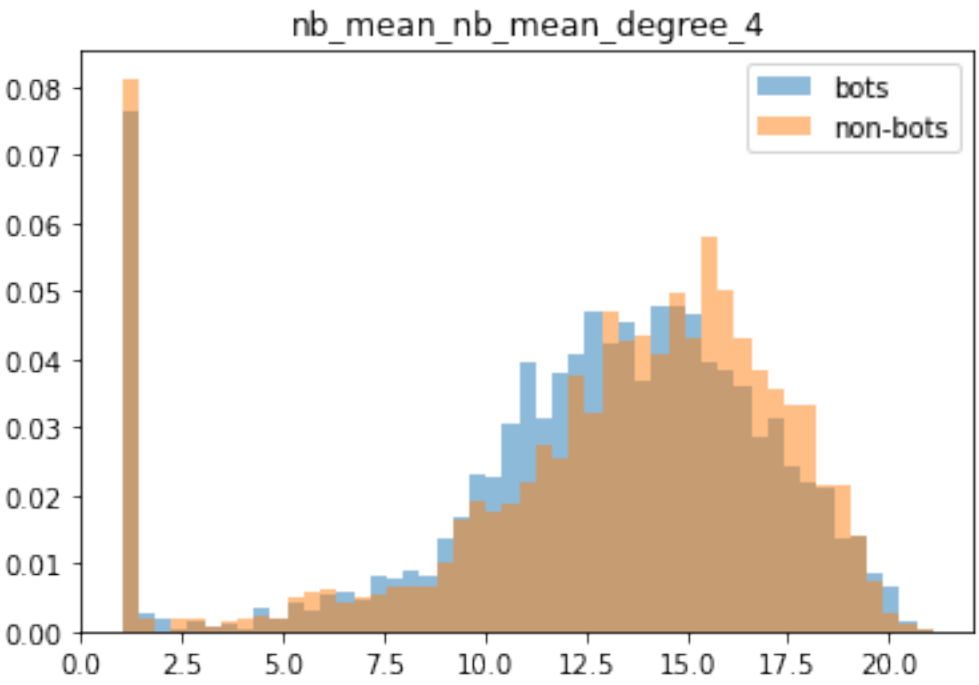
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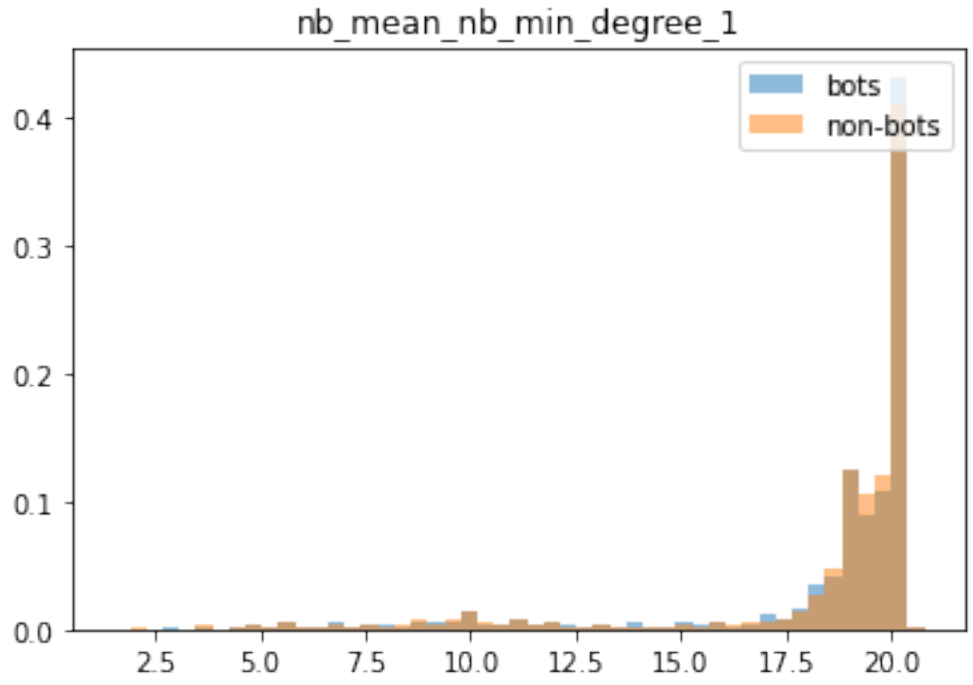
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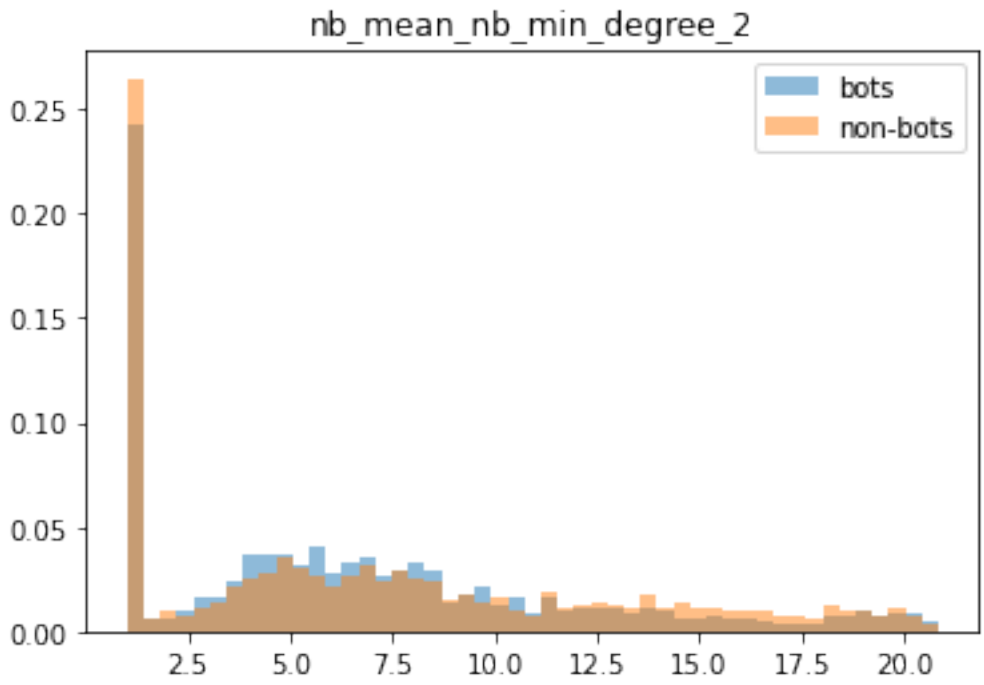
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bots
non-bots
0.25
0.20
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0.05
0.00
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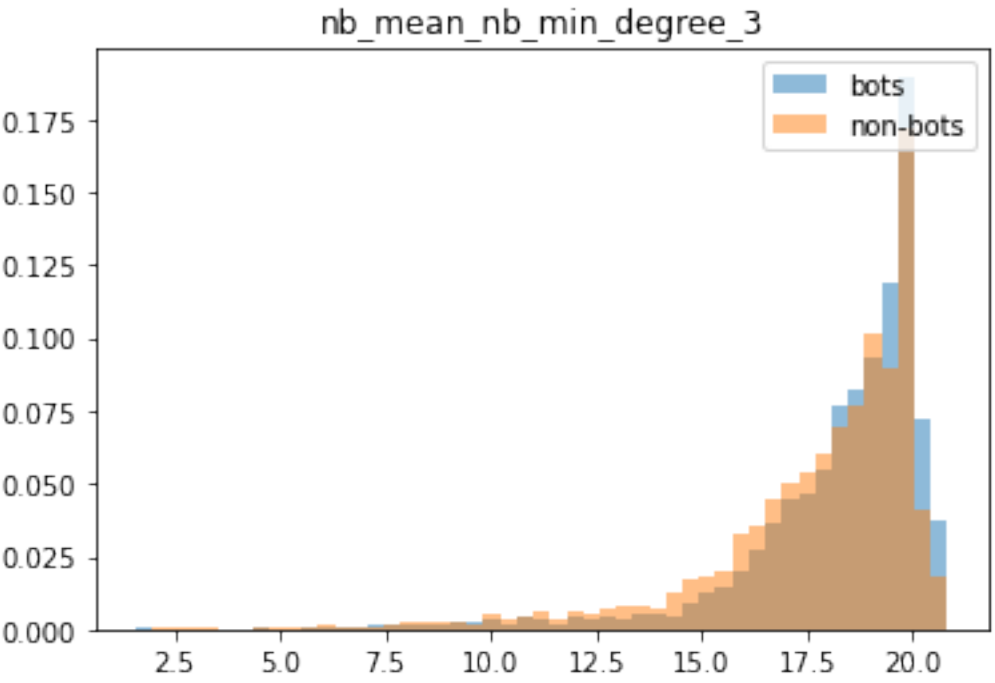
5.0
7.5
10.0
12.5
15.0
17.5
20.0


nb_mean_nb_min_degree_3
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non-bots
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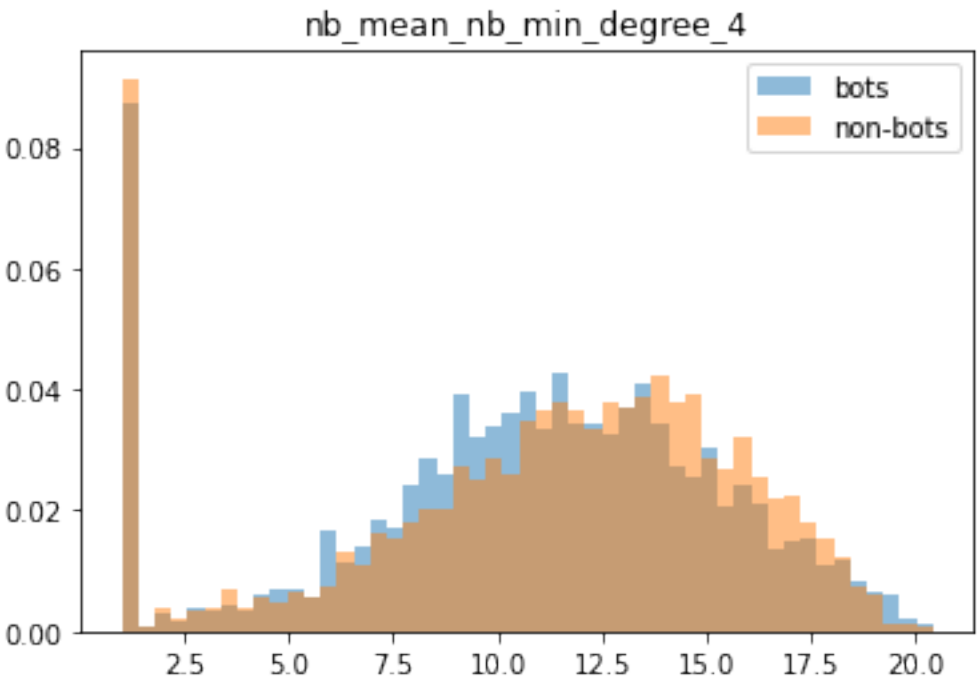
nb_mean_nb_min_degree_4
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non-bots
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10.0
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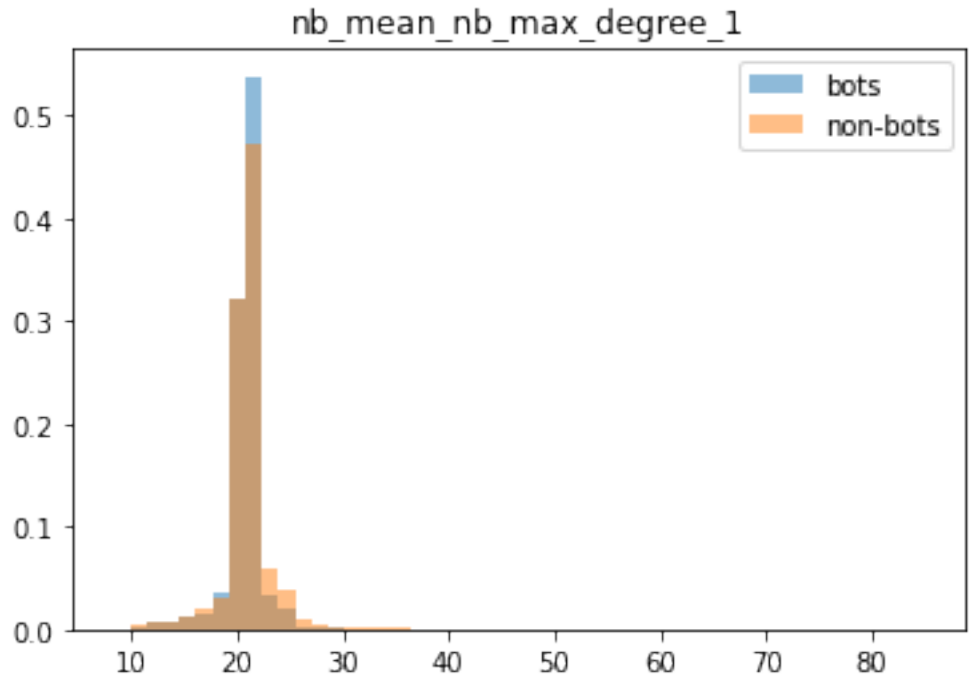
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bots
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0.0
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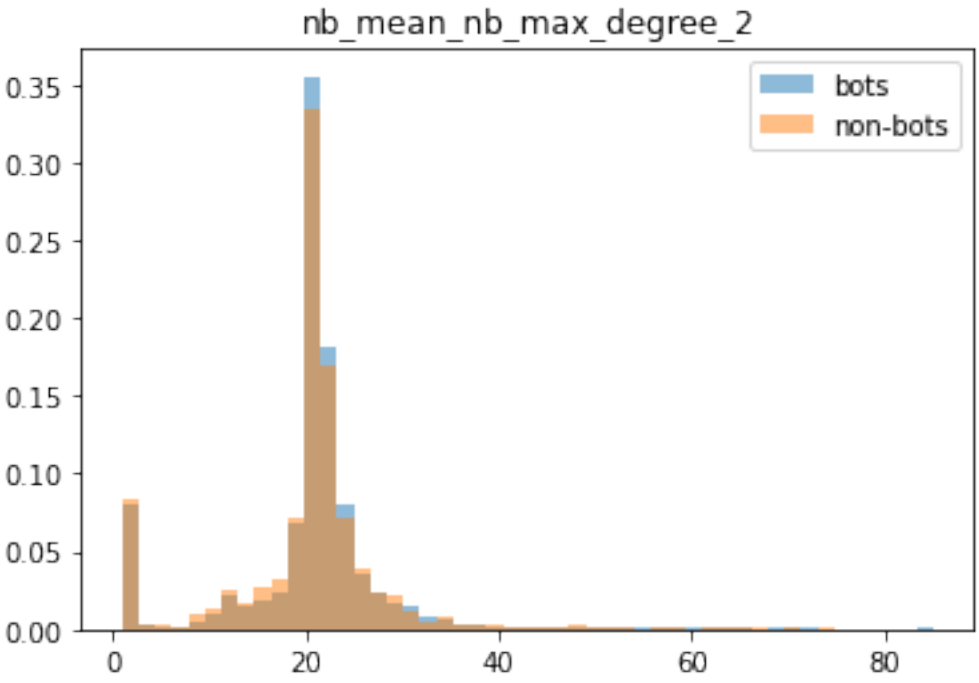
50
60
70
80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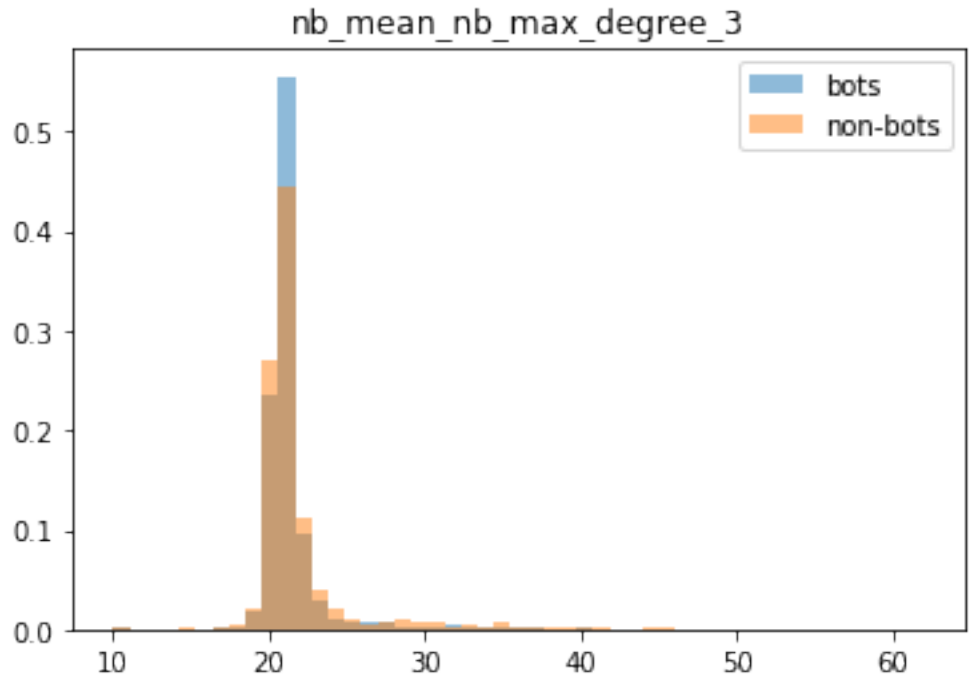
60
80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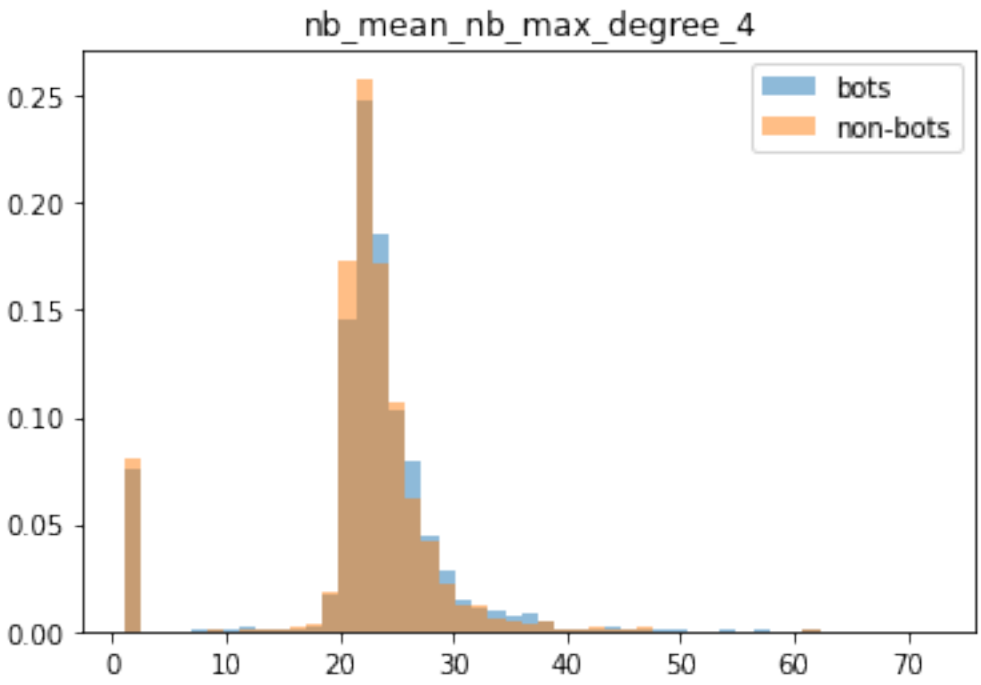
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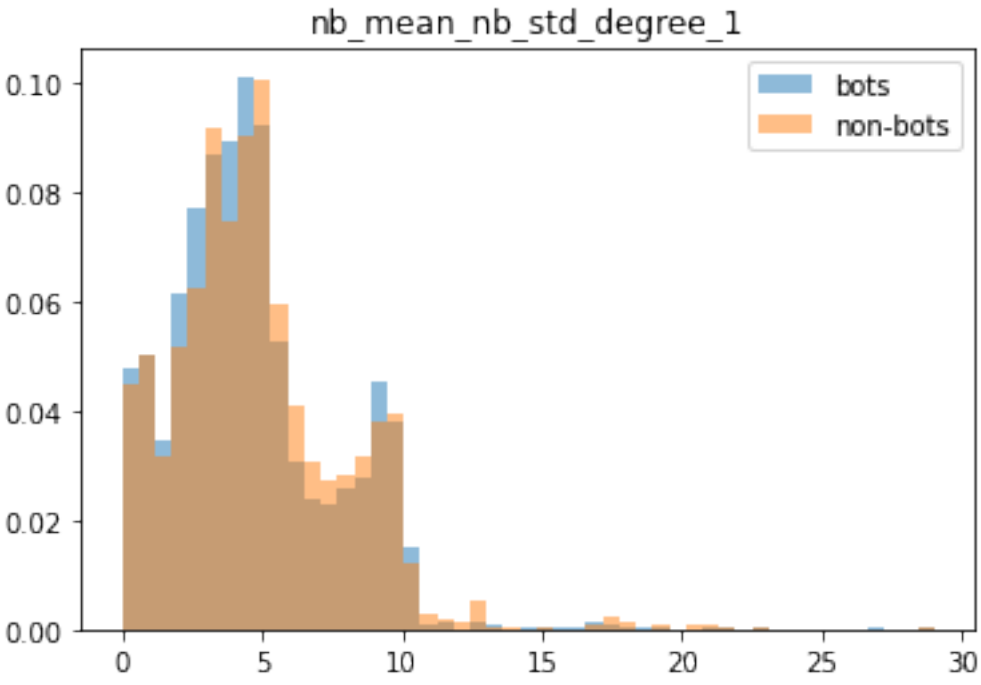
nb_mean_nb_std_degree_1
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non-bots
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0.02
0.00
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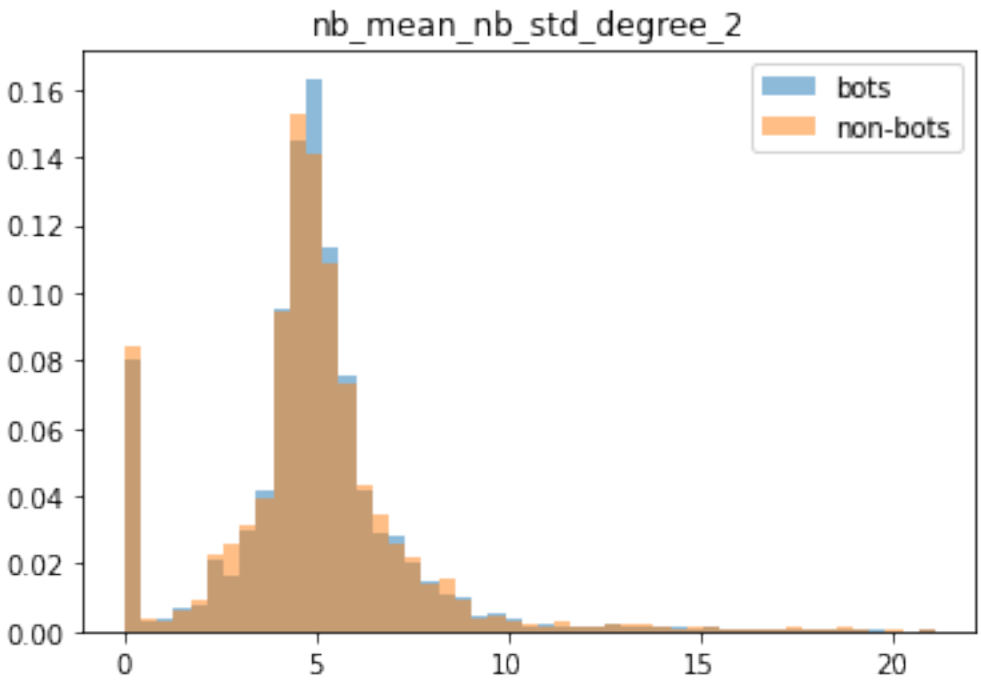
15
20
25
30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non-bots
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0.02
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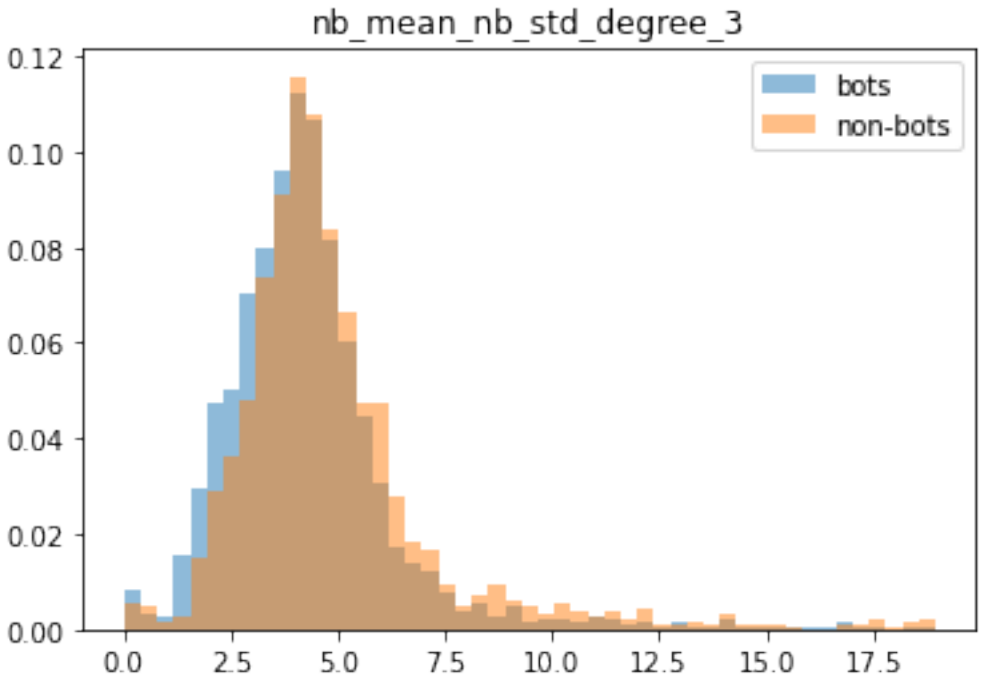
15
20


nb_mean_nb_std_degree_3
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non-bots
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7.5
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12.5
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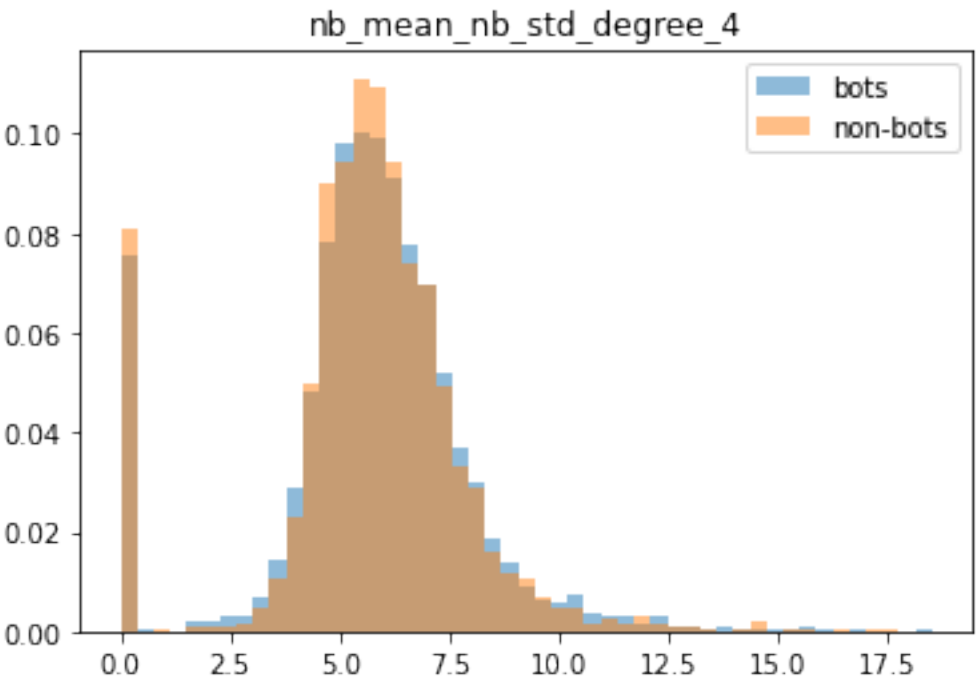
17.5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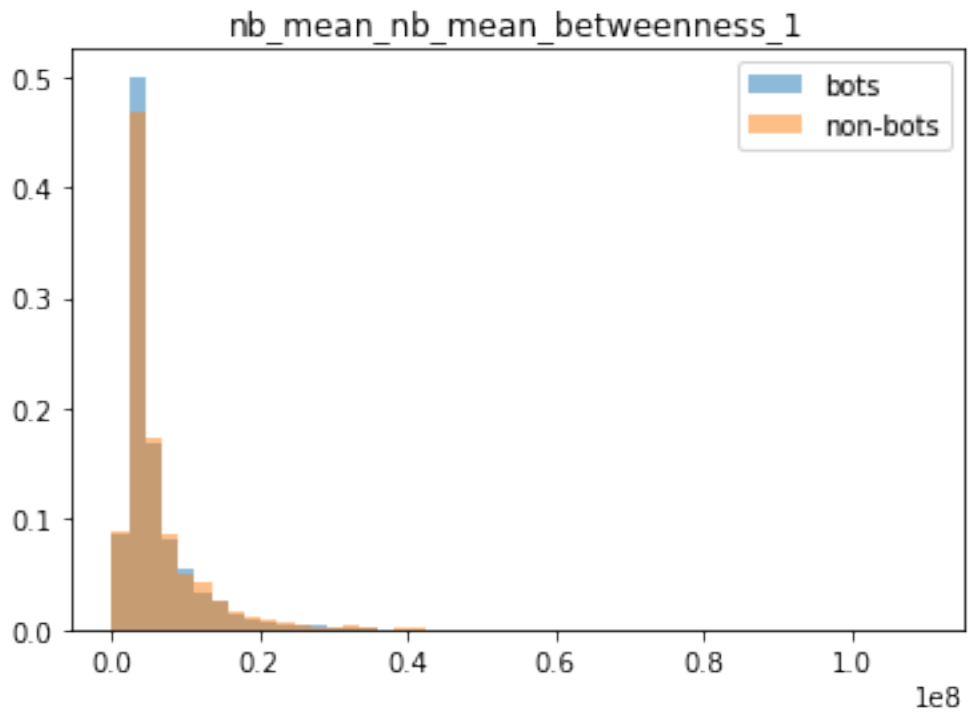
15.0
17.5


nb_mean_nb_mean_betweenness_1
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non-bots
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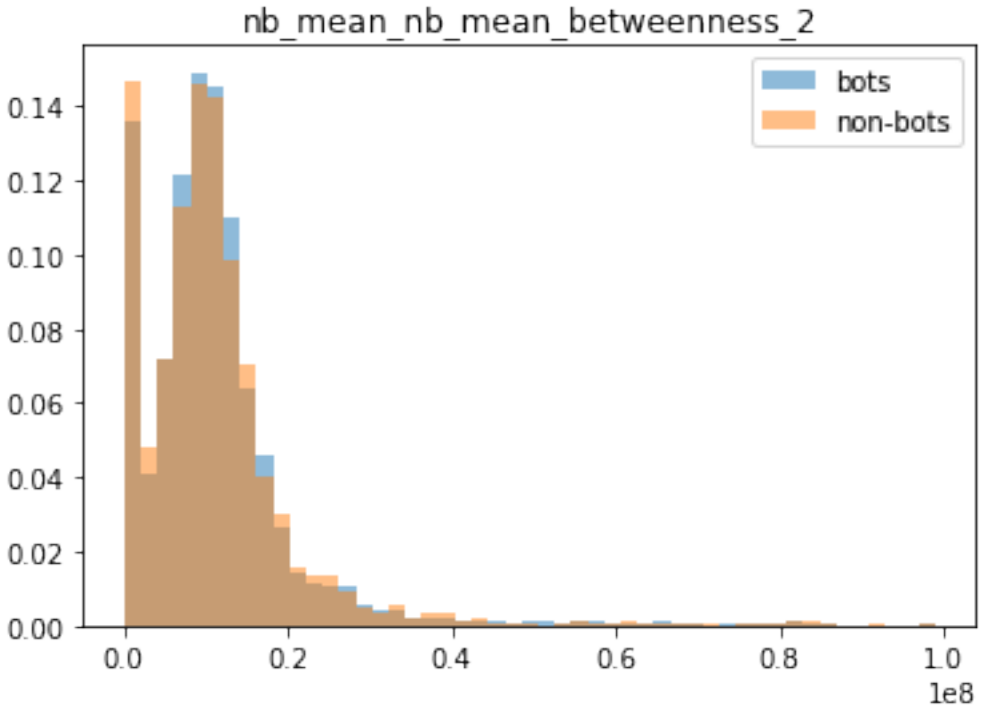
0.2
0.1
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1e8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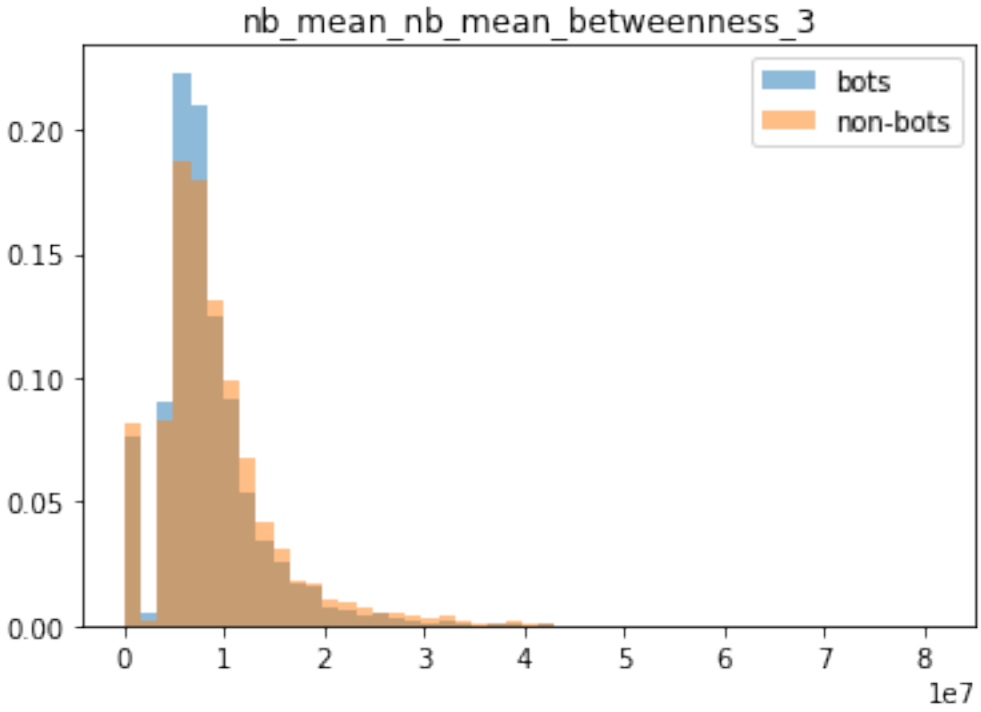
0.6
0.8
1.0
1e8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3
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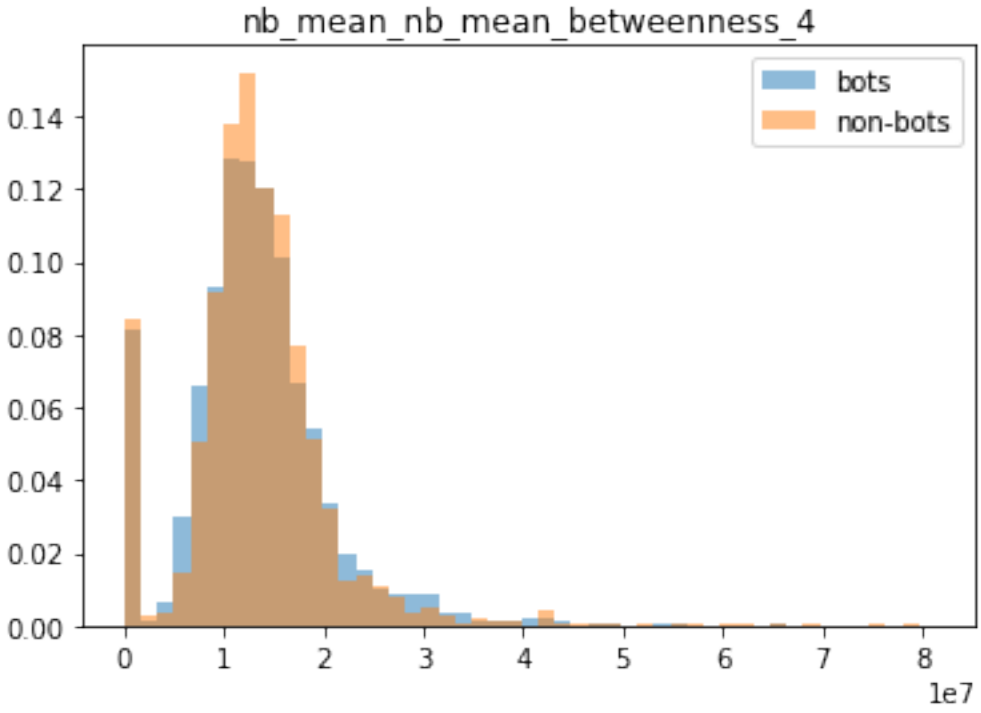
5
6
7
8
1e7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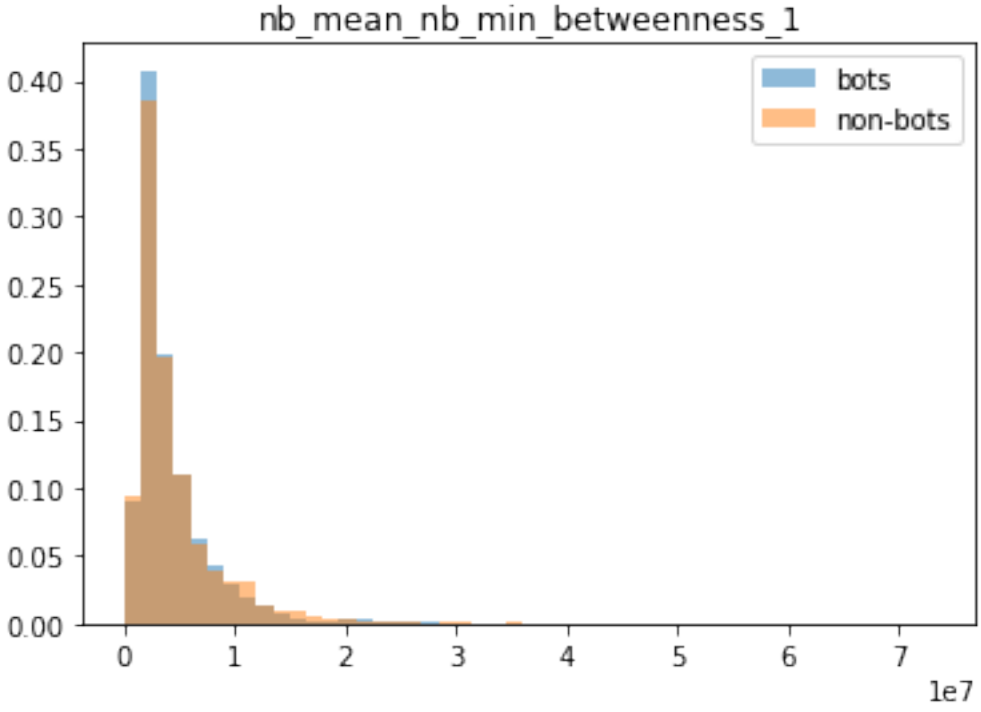
1e7


nb_mean_nb_min_betweenness_1
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non-bots
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0.15
0.10
0.05
0.00
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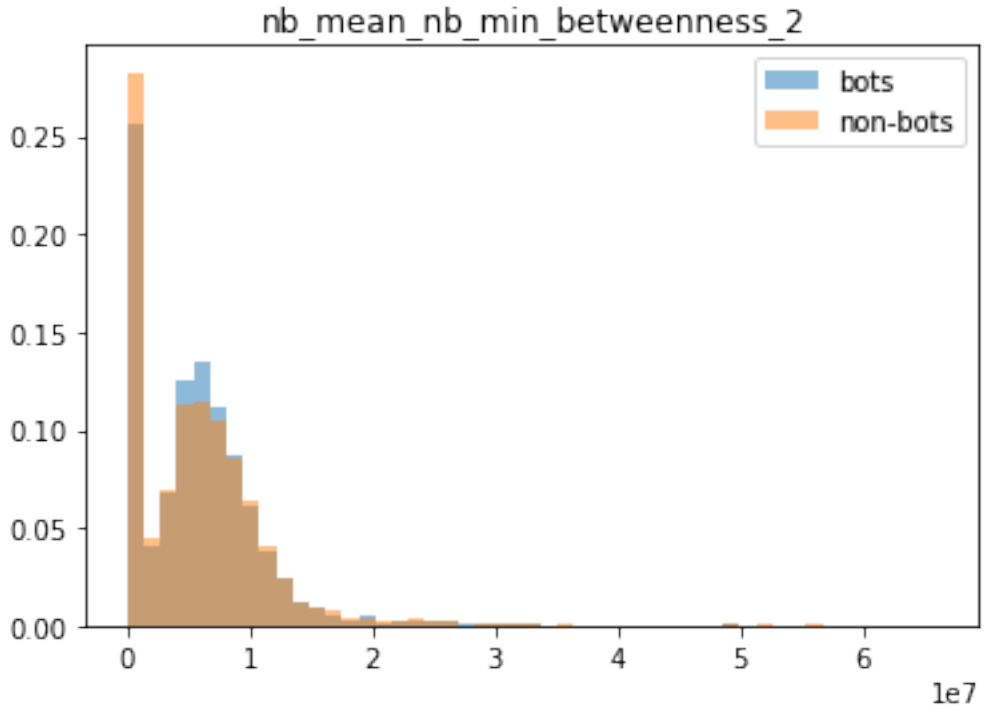
2
3
4
5
6
7
1e7


nb_mean_nb_min_betweenness_2
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0.05
0.00
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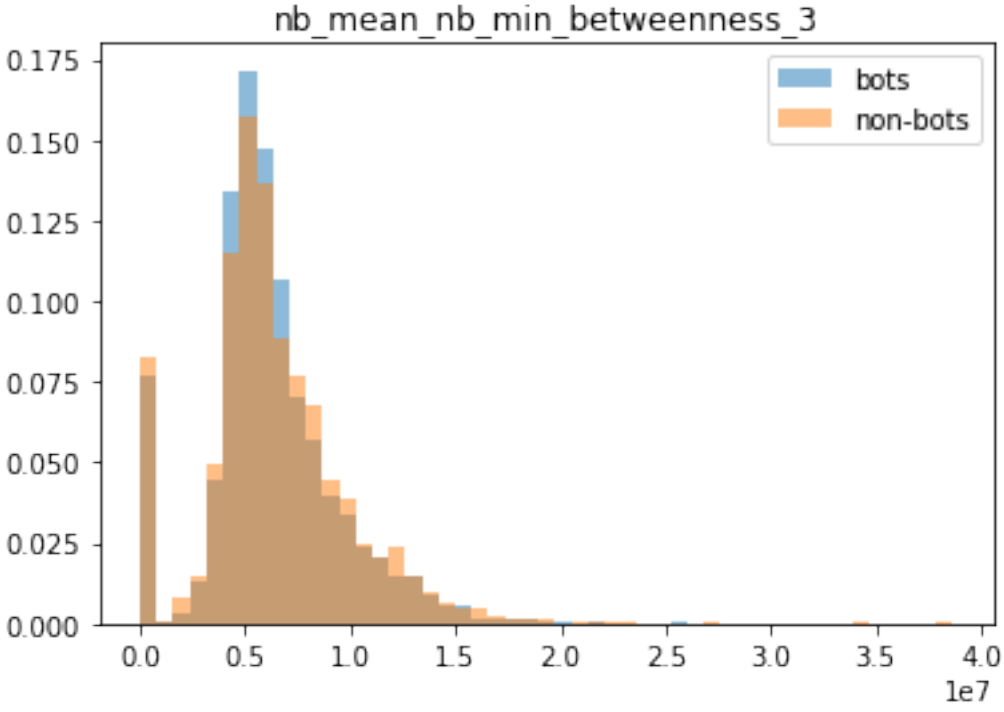
3
4
5
6
1e7


nb_mean_nb_min_betweenness_3
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non-bots
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0.125
0.100
0.075
0.050
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0.000
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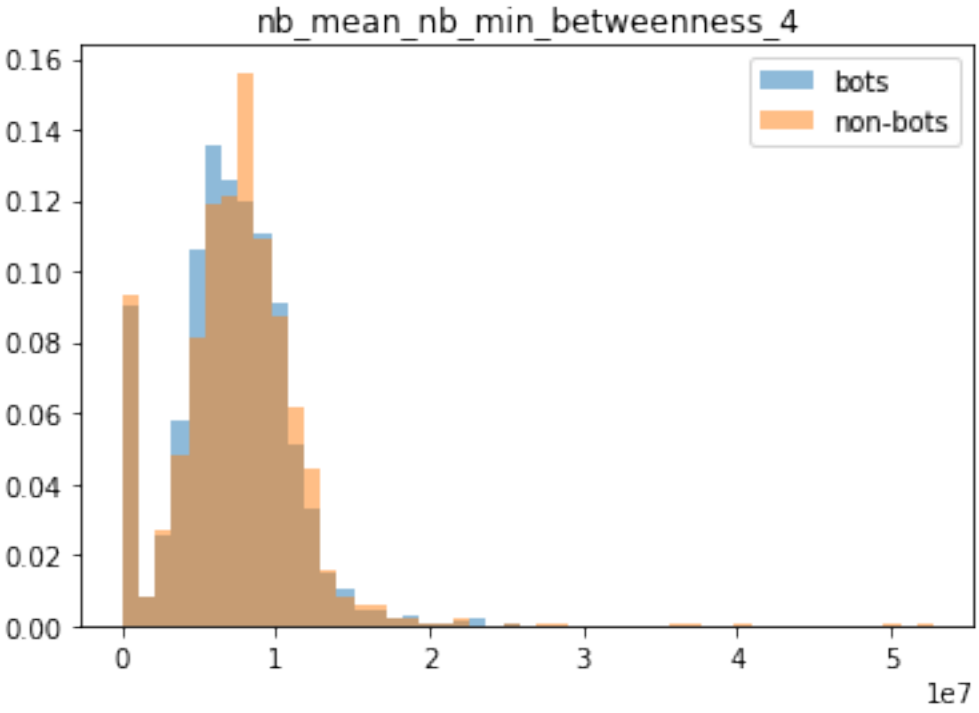
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
1e7


nb_mean_nb_min_betweenness_4
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non-bots
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0.04
0.02
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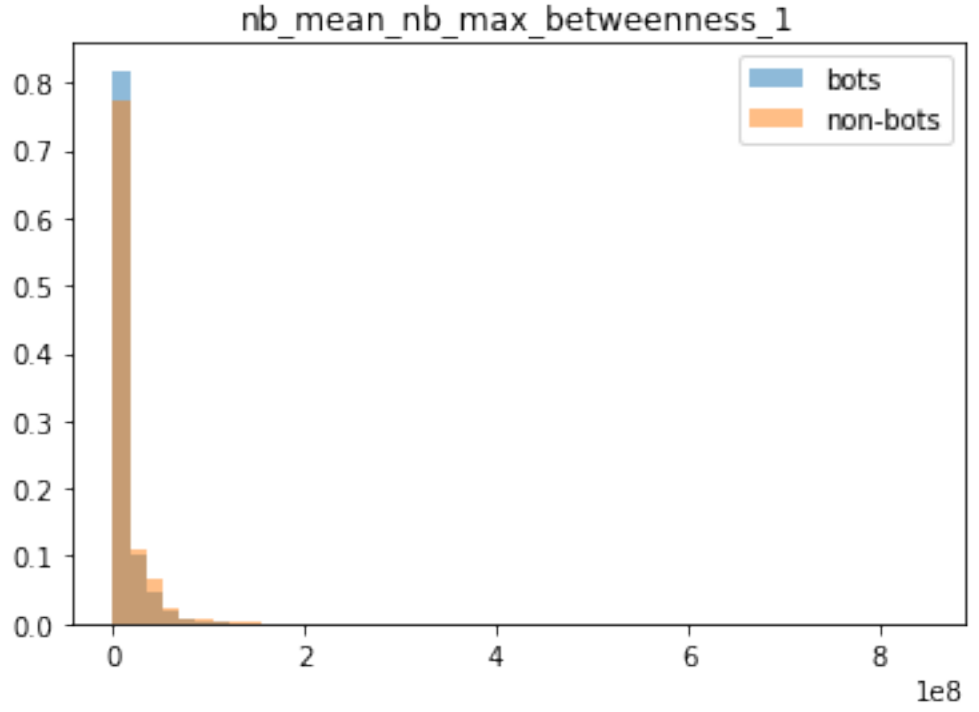
3
4
5
1e7


nb_mean_nb_max_betweenness_1
bots
non-bots
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0.0
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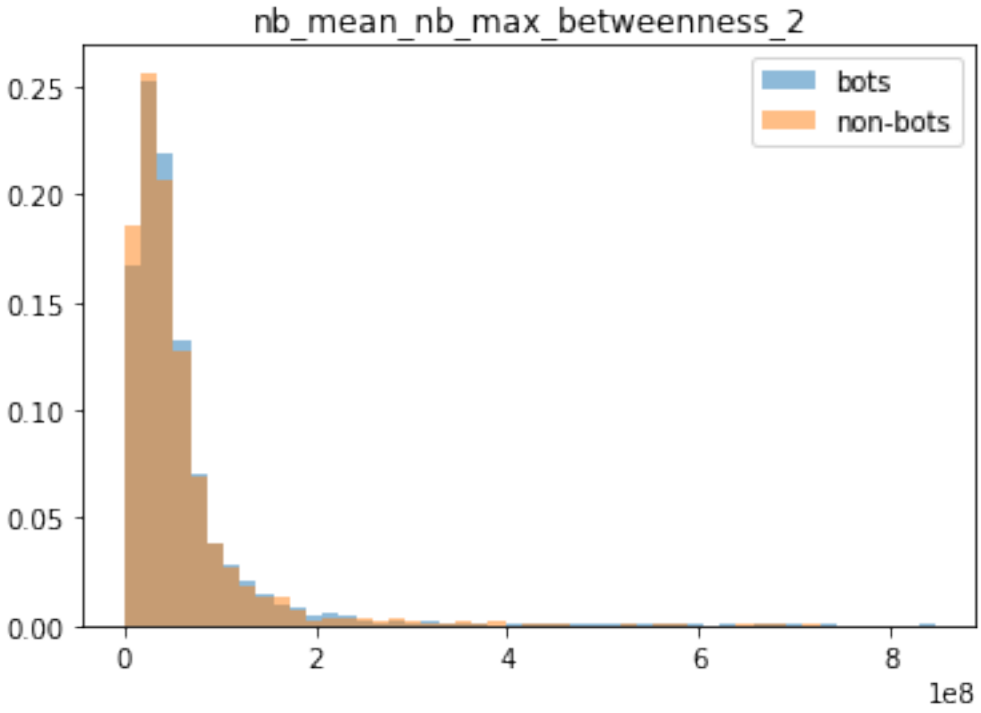
1e8


nb_mean_nb_max_betweenness_2
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6
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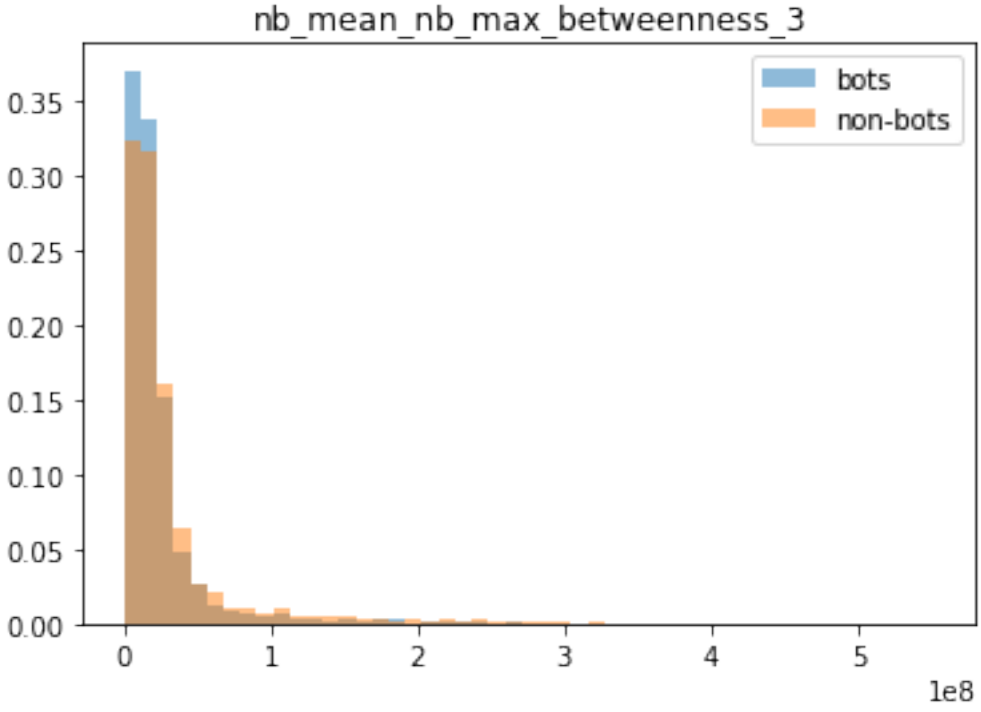
1e8


nb_mean_nb_max_betweenness_3
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0.10
0.05
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2
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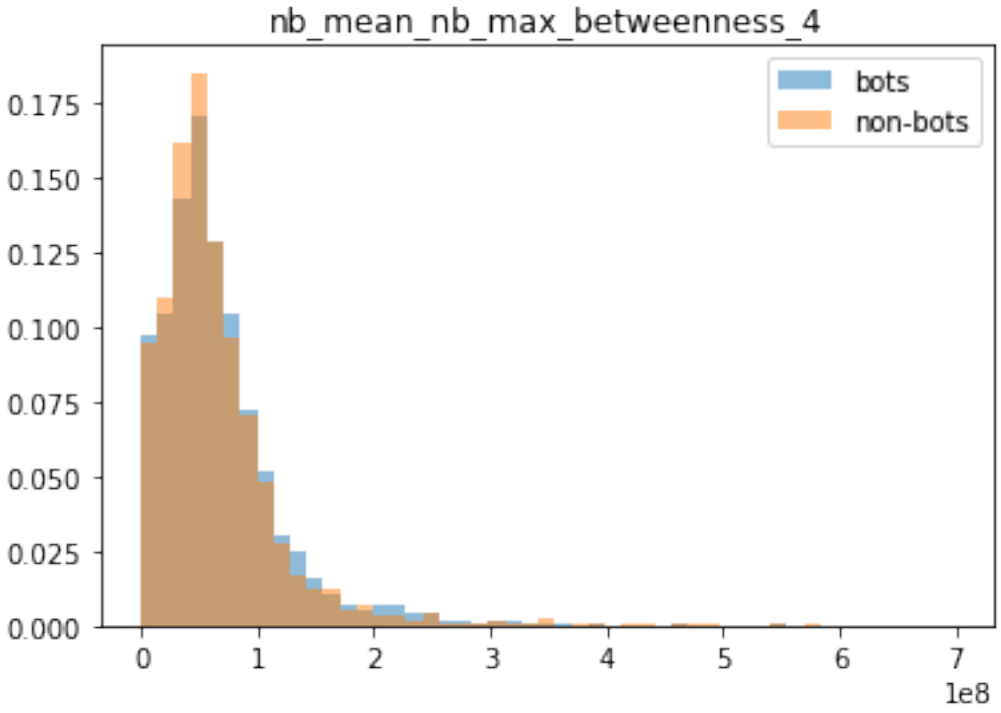
4
5
1e8


nb_mean_nb_max_betweenness_4
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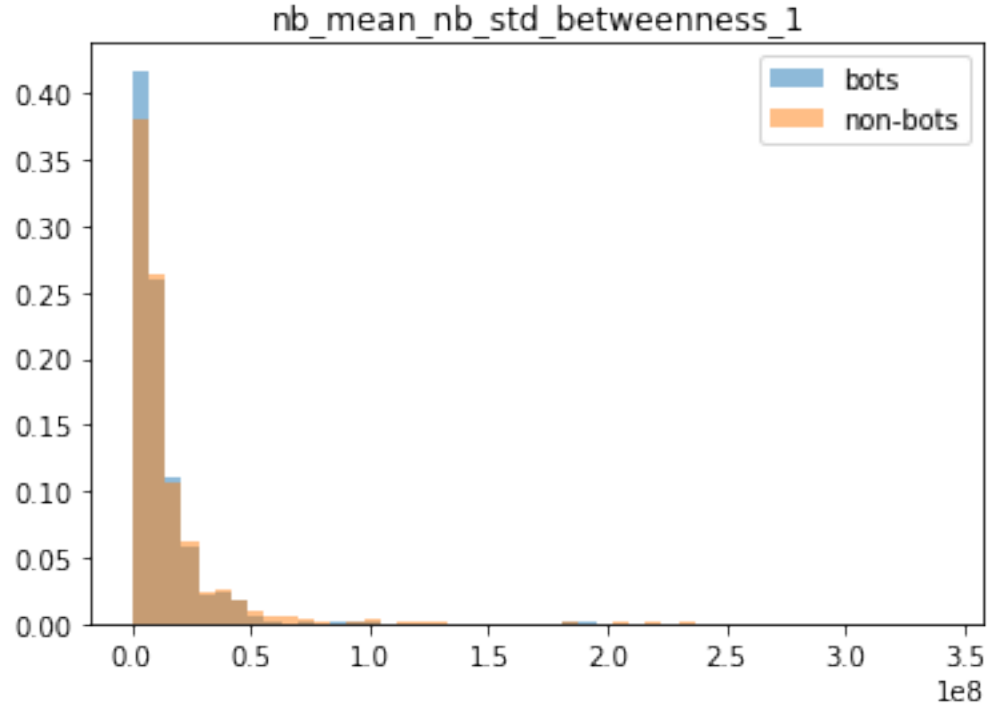
5
6
7
1e8


nb_mean_nb_std_betweenness_1
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0.20
0.15
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0.05
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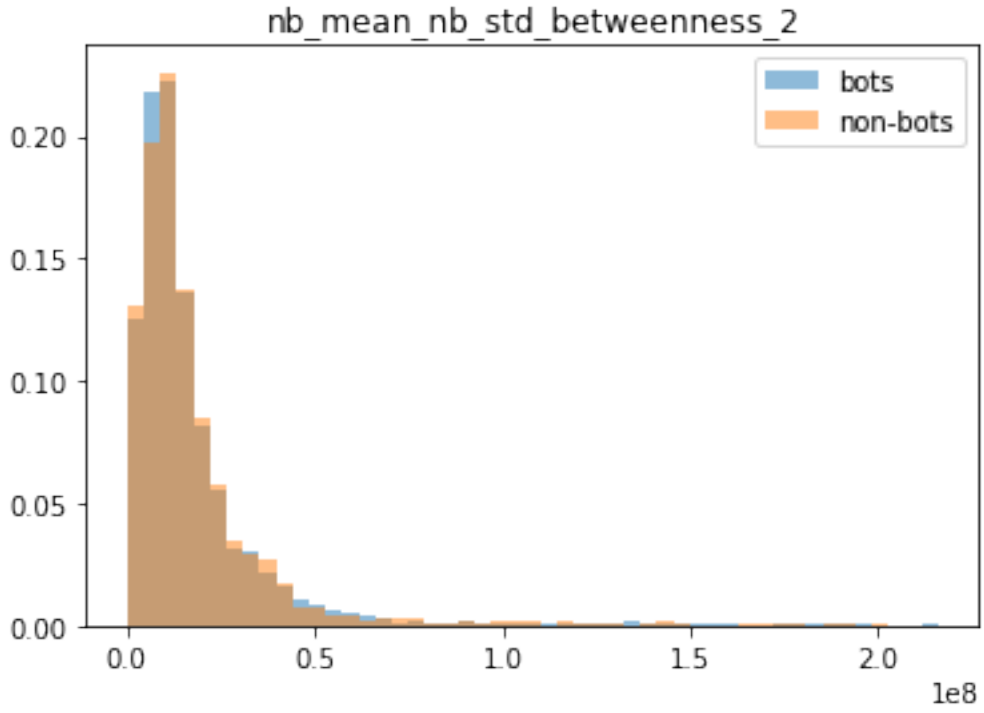
0.5
1.0
1.5
2.0
2.5
3.0
3.5
1e8


nb_mean_nb_std_betweenness_2
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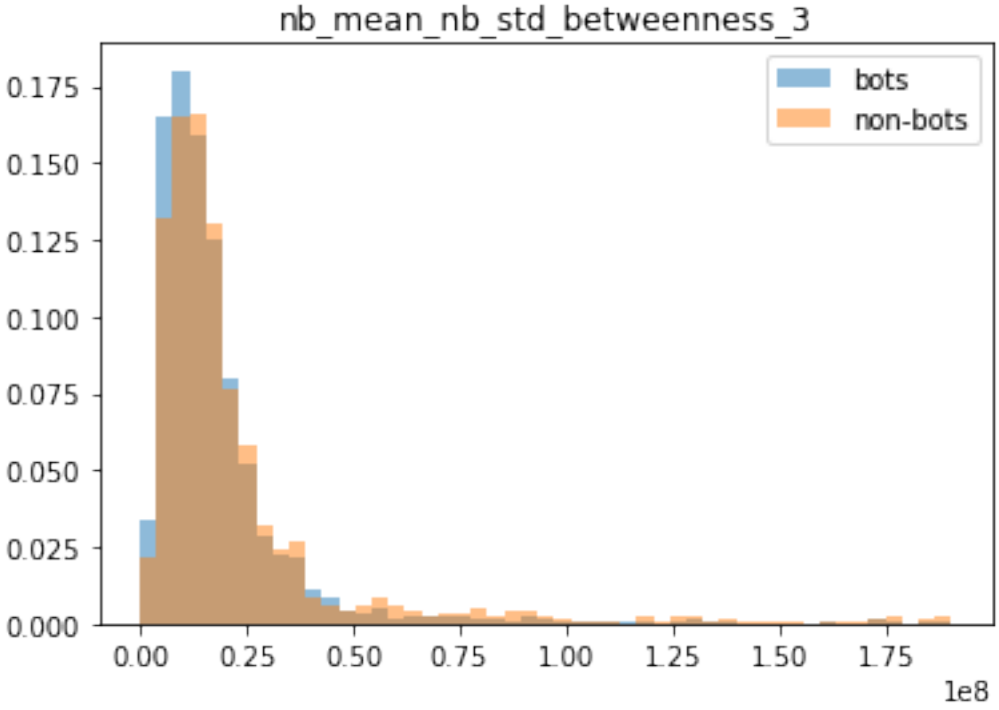
0.5
1.0
1.5
2.0
1e8


nb_mean_nb_std_betweenness_3
bots
non-bots
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0.125
0.100
0.075
0.050
0.025
0.000
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0.50
0.75
1.00
1.25
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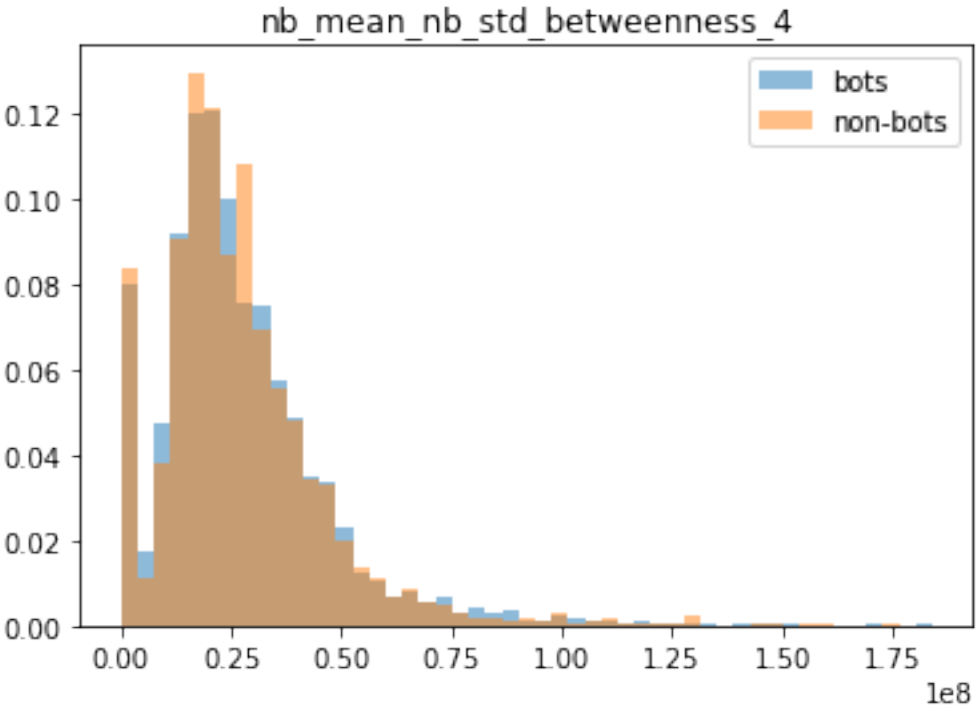
1.75
1e8


nb_mean_nb_std_betweenness_4
bots
non-bots
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0.06
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1.00
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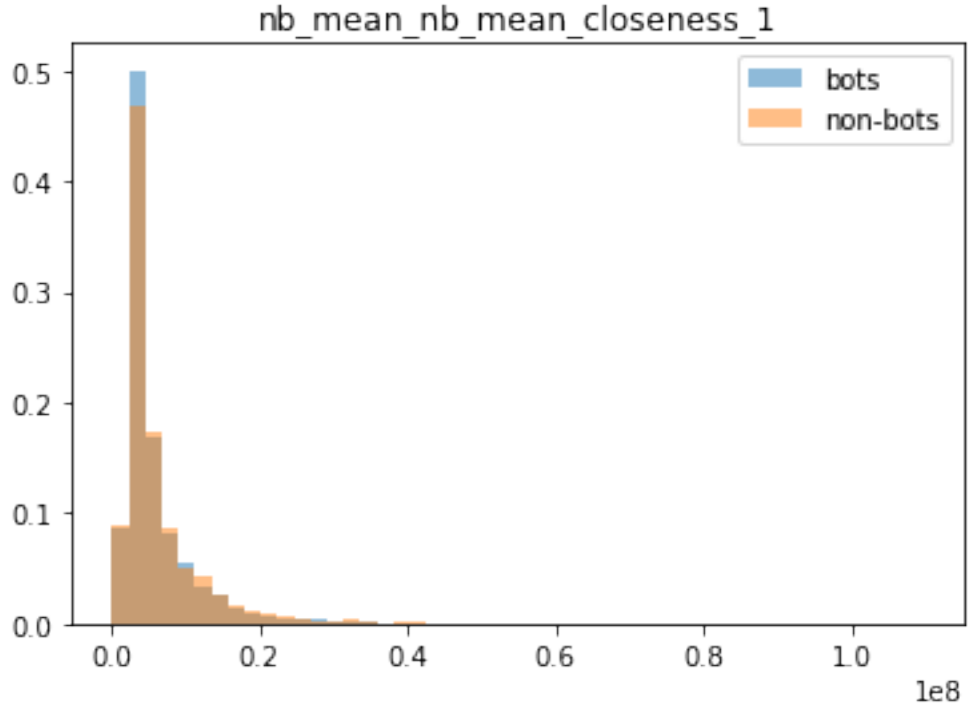
1.75
1e8


nb_mean_nb_mean_closeness_1
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non-bots
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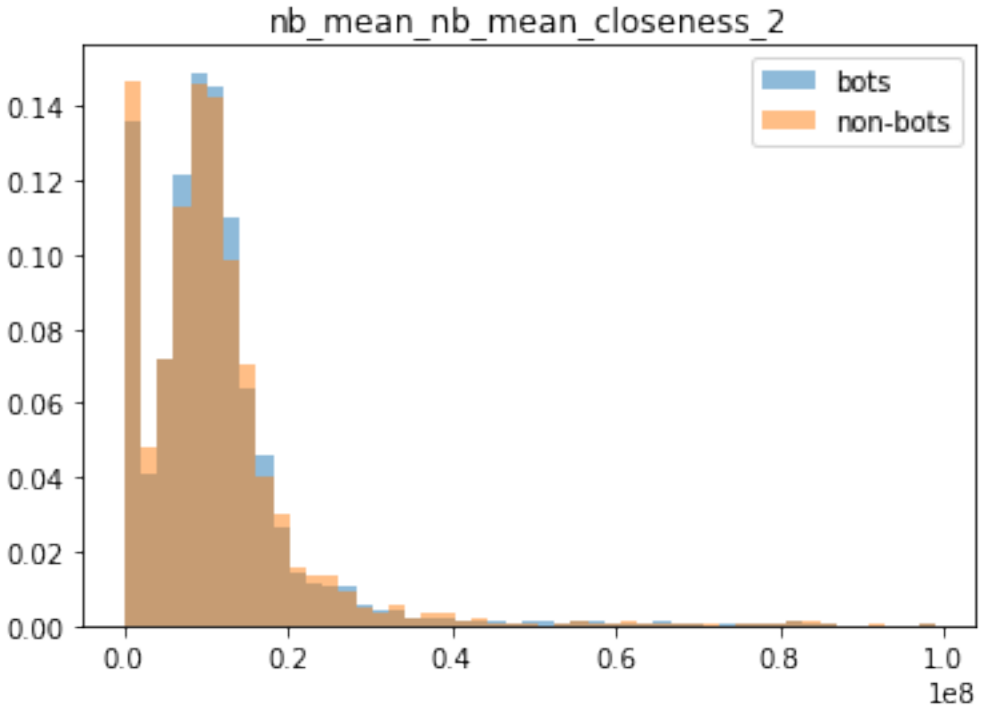
0.2
0.1
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1e8


nb_mean_nb_mean_closeness_2
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non-bots
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0.04
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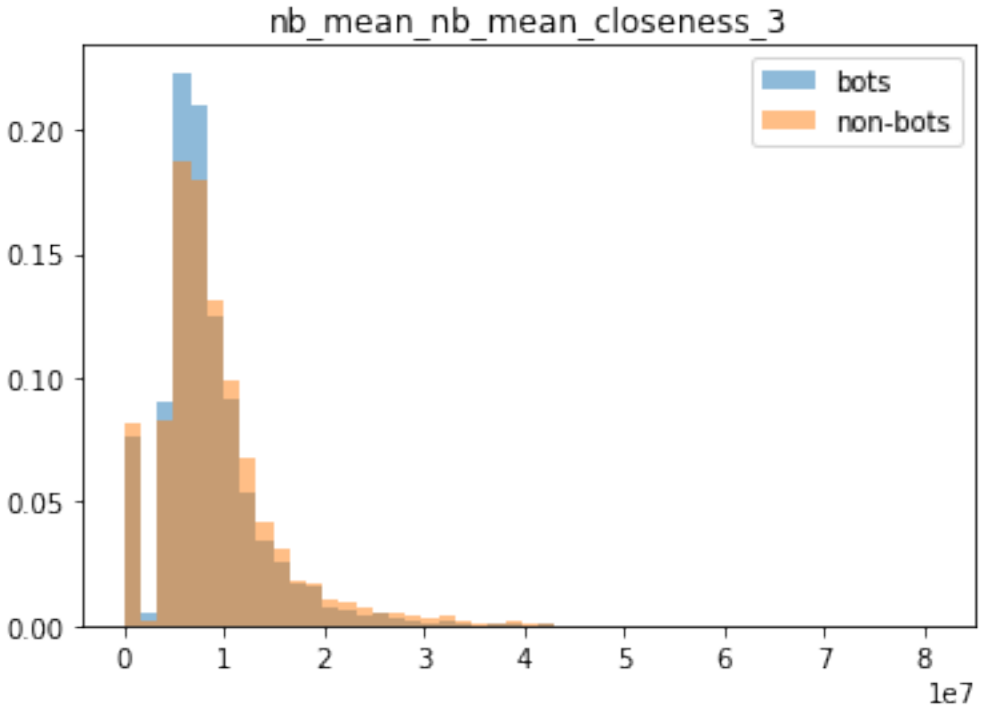
0.4
0.6
0.8
1.0
1e8


nb_mean_nb_mean_closeness_3
bots
non-bots
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0.10
0.05
0.00
0
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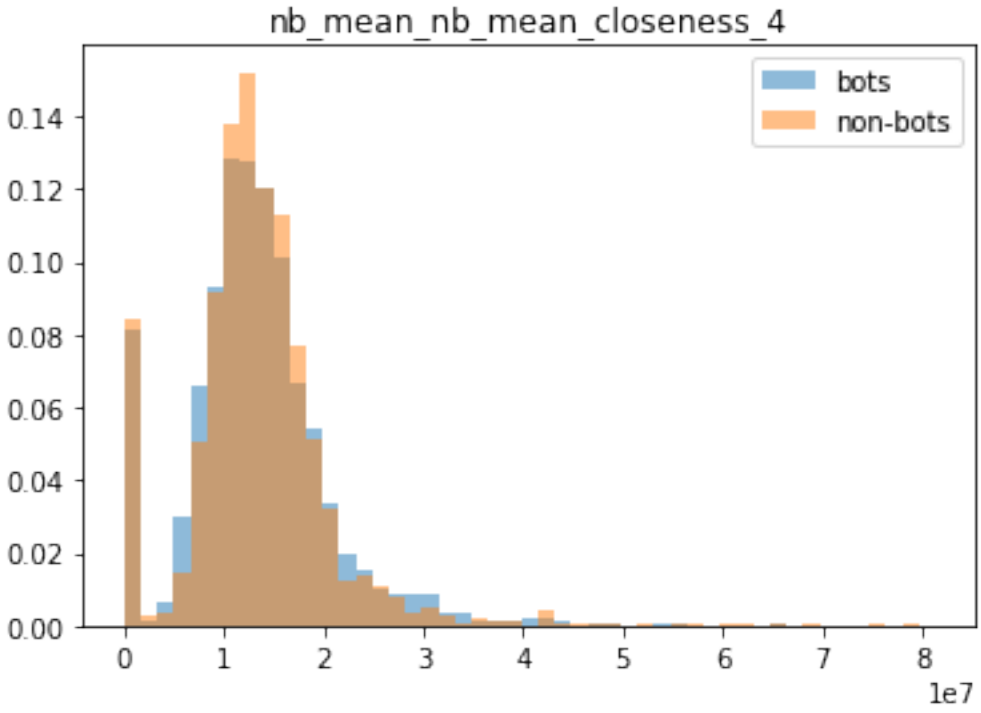
2
3
4
5
6
7
8
1e7


nb_mean_nb_mean_closeness_4
bots
non-bots
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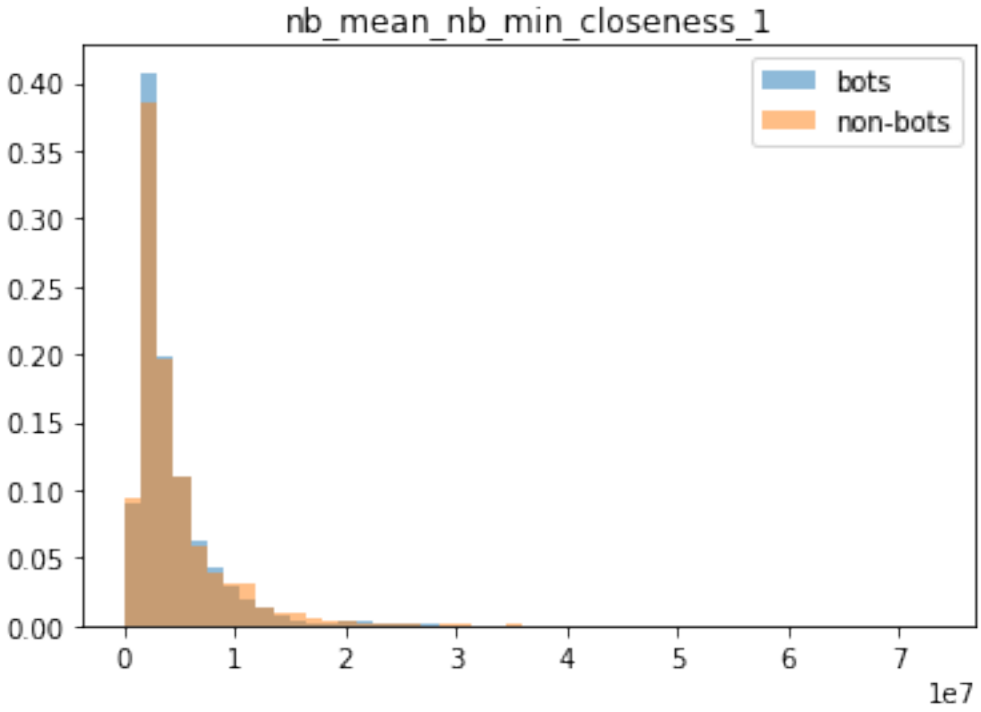
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
1
2
3
4
5
6
7
8
1e7


nb_mean_nb_min_closeness_1
bots
non-bots
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0.35
0.30
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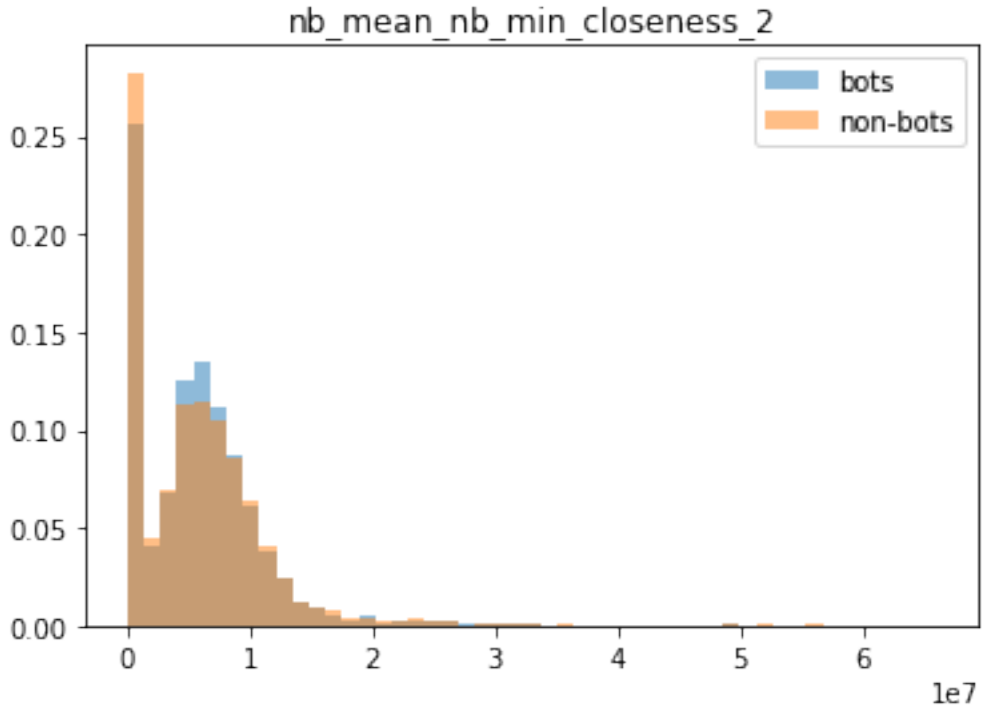
0.15
0.10
0.05
0.00
0
1
2
3
4
5
6
7
1e7


nb_mean_nb_min_closeness_2
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non-bots
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0.05
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0
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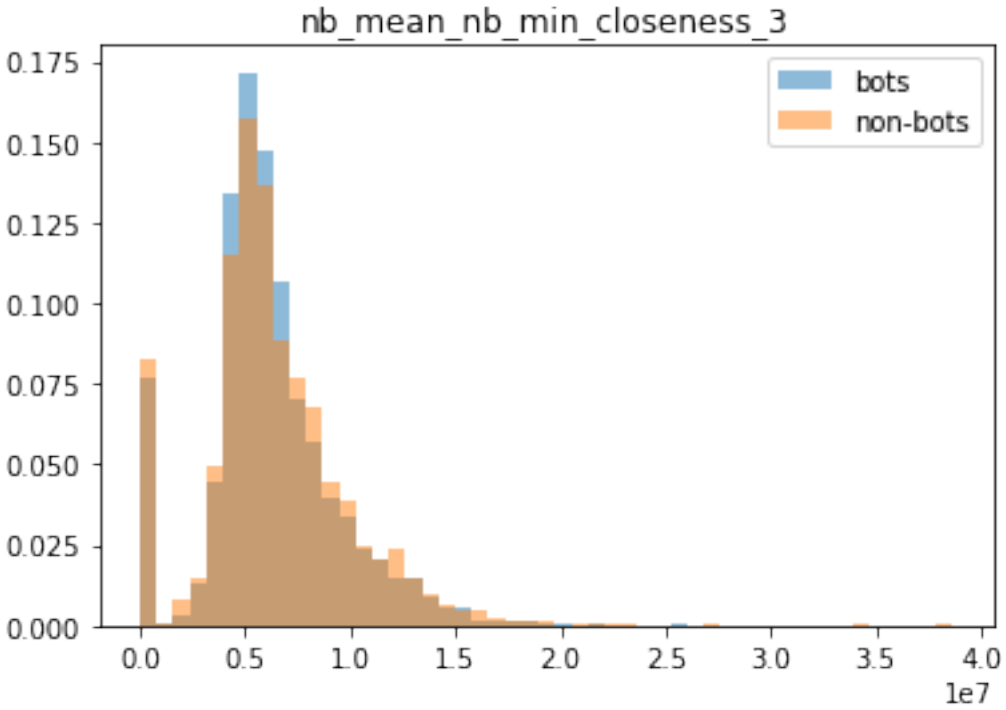
2
3
4
5
6
1e7


nb_mean_nb_min_closeness_3
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0.5
1.0
1.5
2.0
2.5
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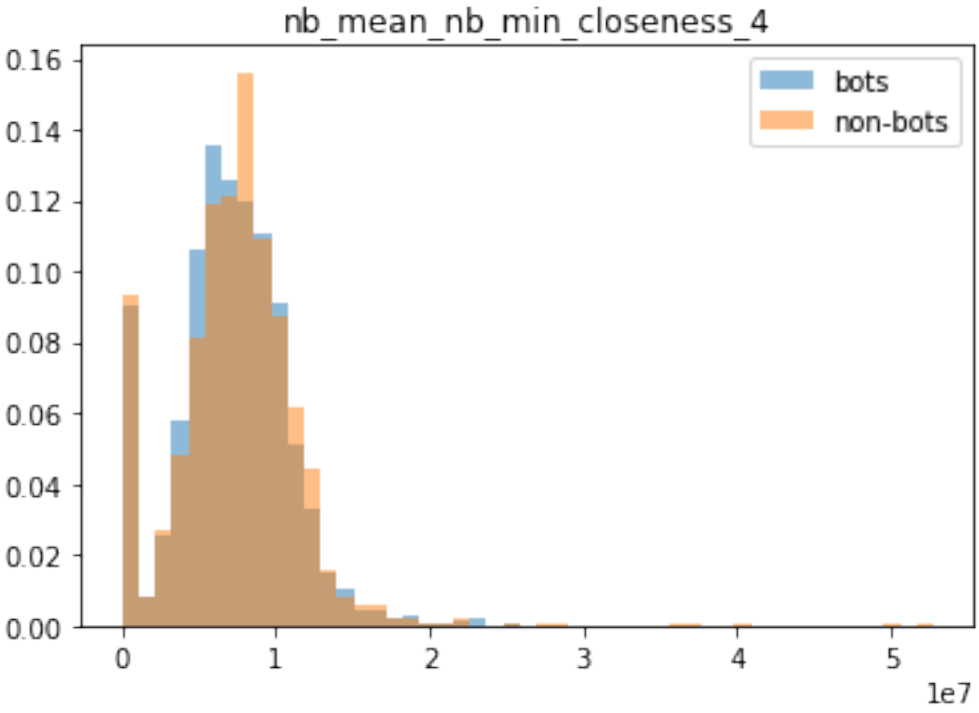
3.5
4.0
1e7


nb_mean_nb_min_closeness_4
bots
non-bots
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0.08
0.06
0.04
0.02
0.00
0
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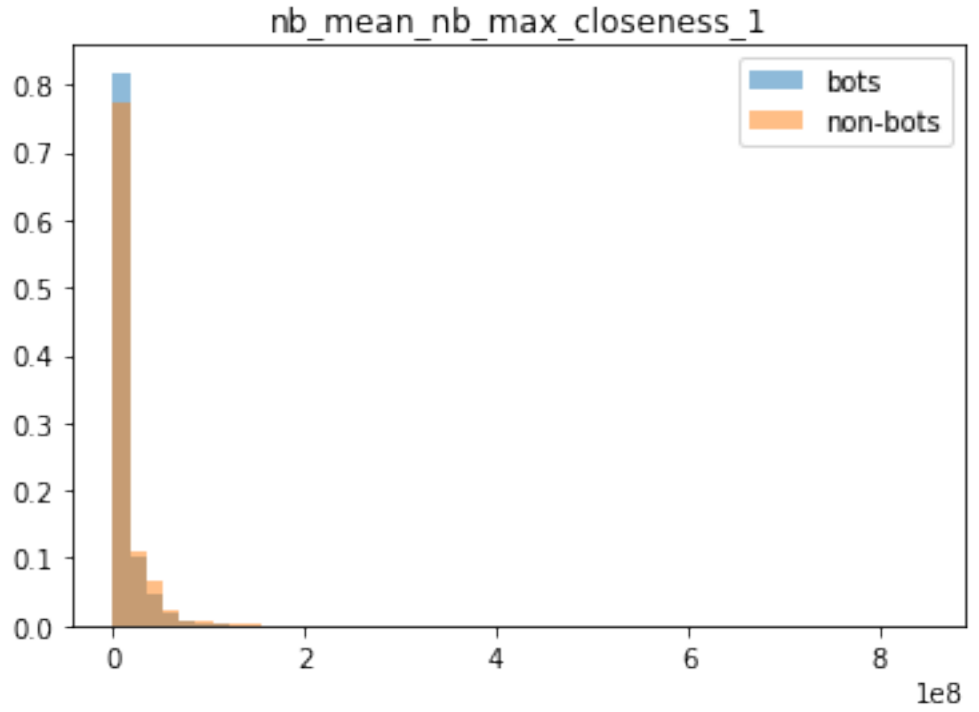
2
3
4
5
1e7


nb_mean_nb_max_closeness_1
bots
non-bots
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0.4
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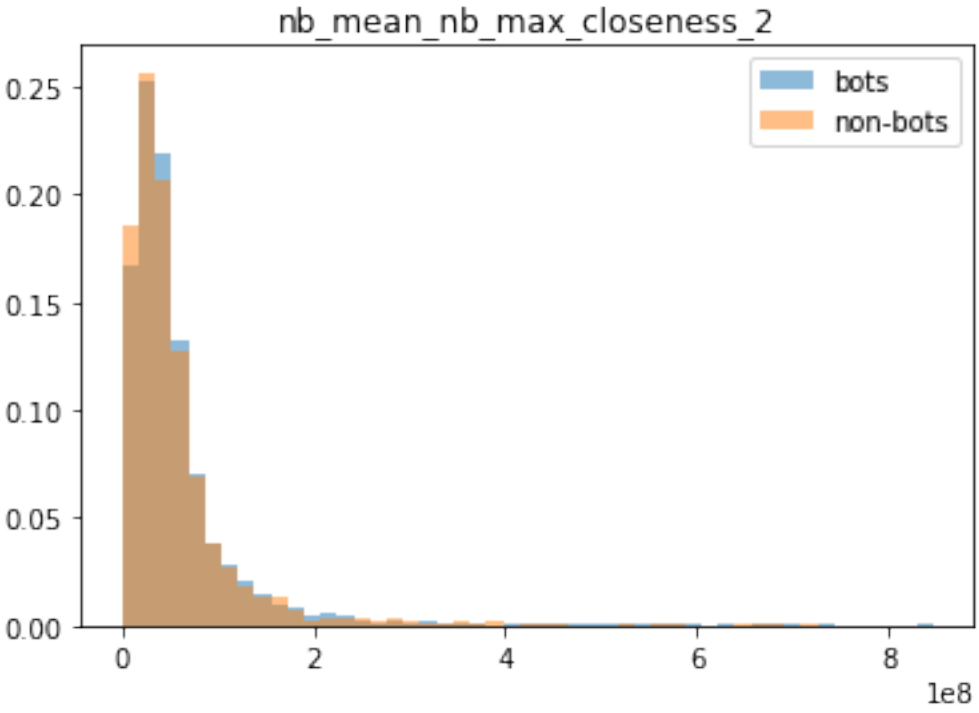
0.2
0.1
0.0
0
2
4
6
8
1e8


nb_mean_nb_max_closeness_2
bots
non-bots
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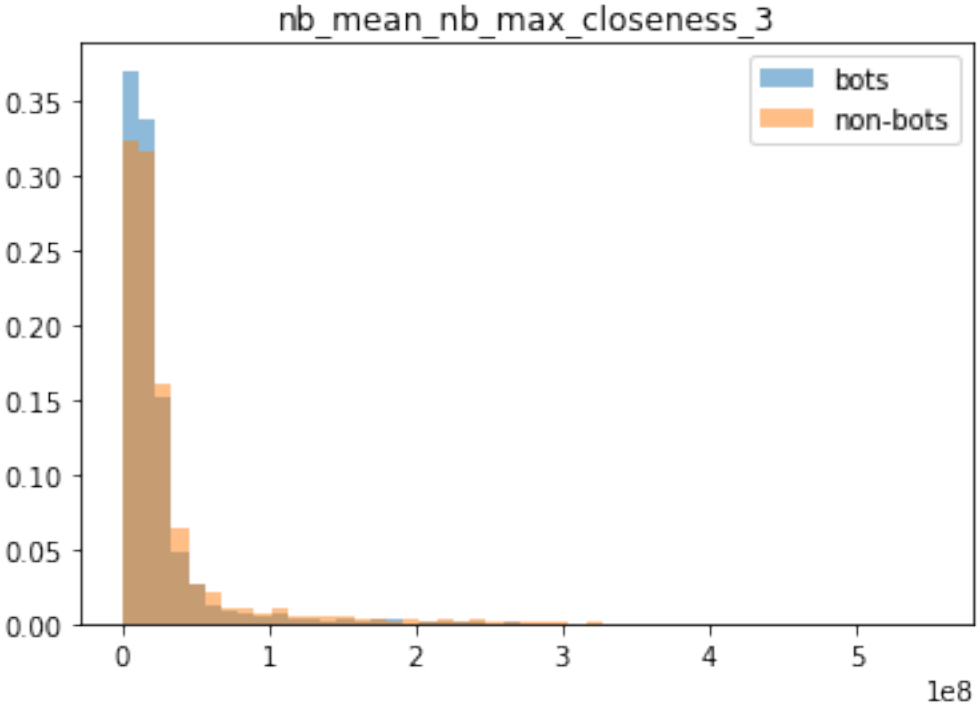
0.20
0.15
0.10
0.05
0.00
0
2
4
6
8
1e8


nb_mean_nb_max_closeness_3
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non-bots
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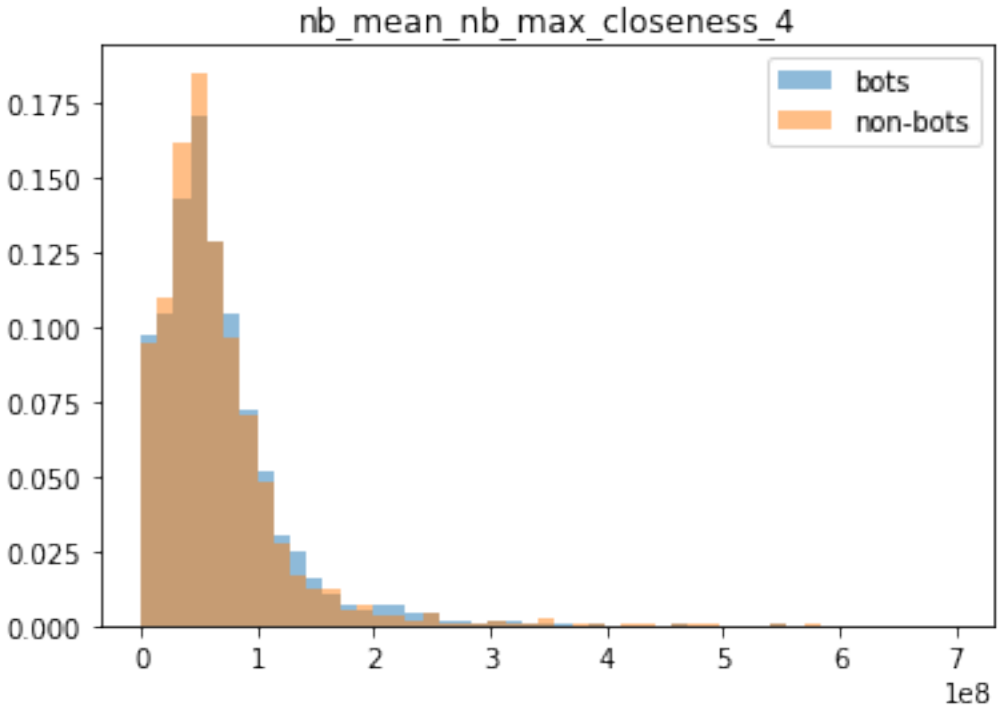
0.15
0.10
0.05
0.00
0
1
2
3
4
5
1e8


nb_mean_nb_max_closeness_4
bots
non-bots
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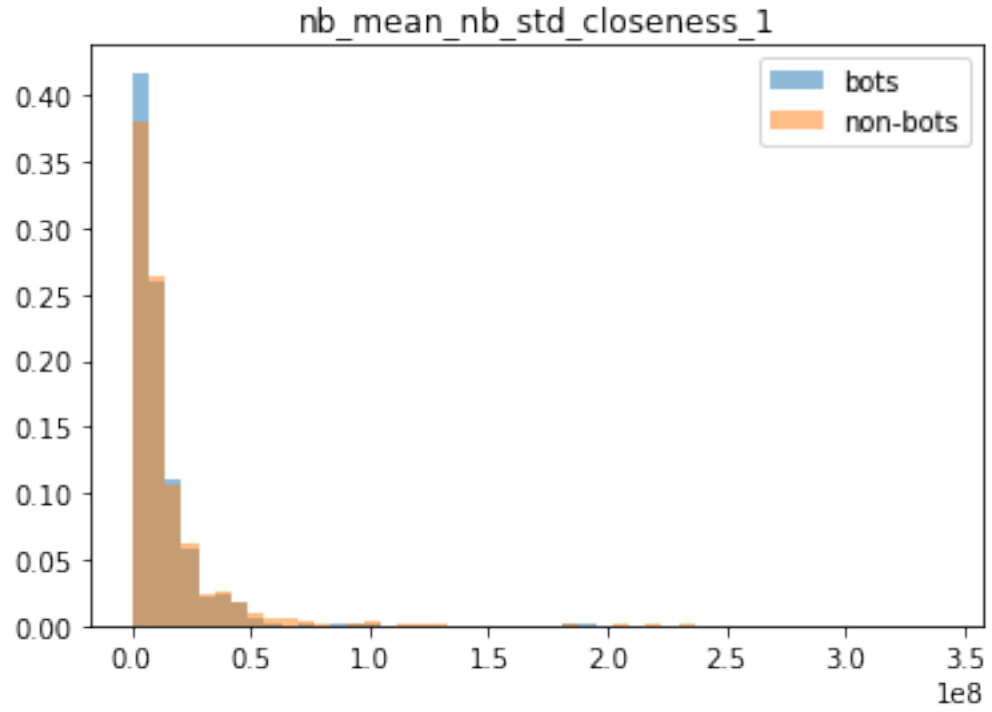
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
1
2
3
4
5
6
7
1e8


nb_mean_nb_std_closeness_1
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non-bots
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0.30
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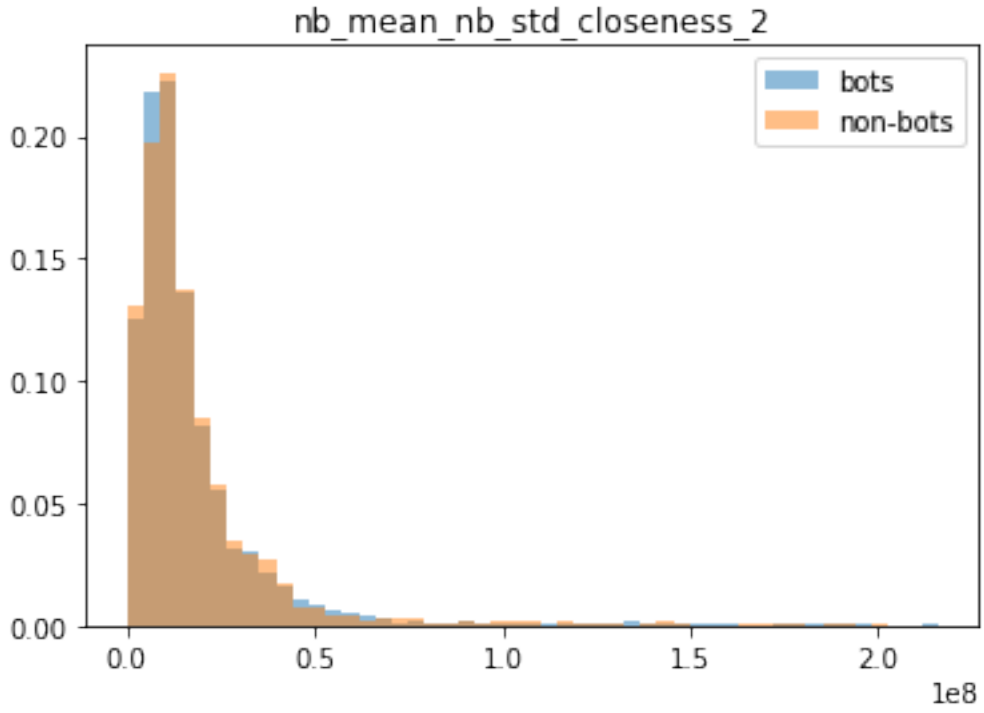
0.20
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
1e8


nb_mean_nb_std_closeness_2
bots
non-bots
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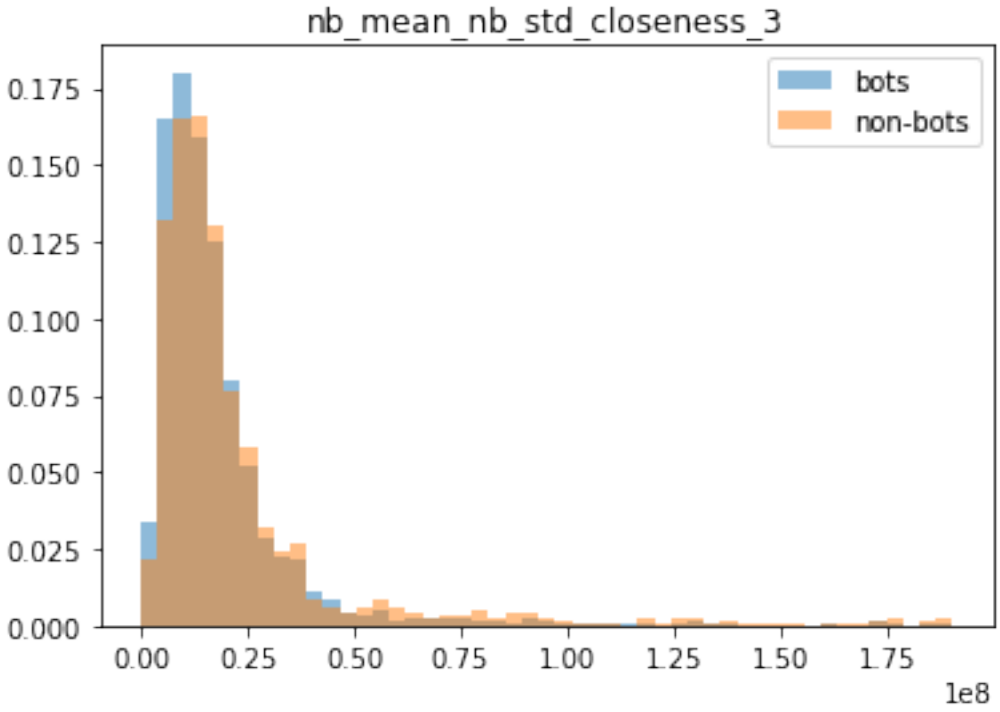
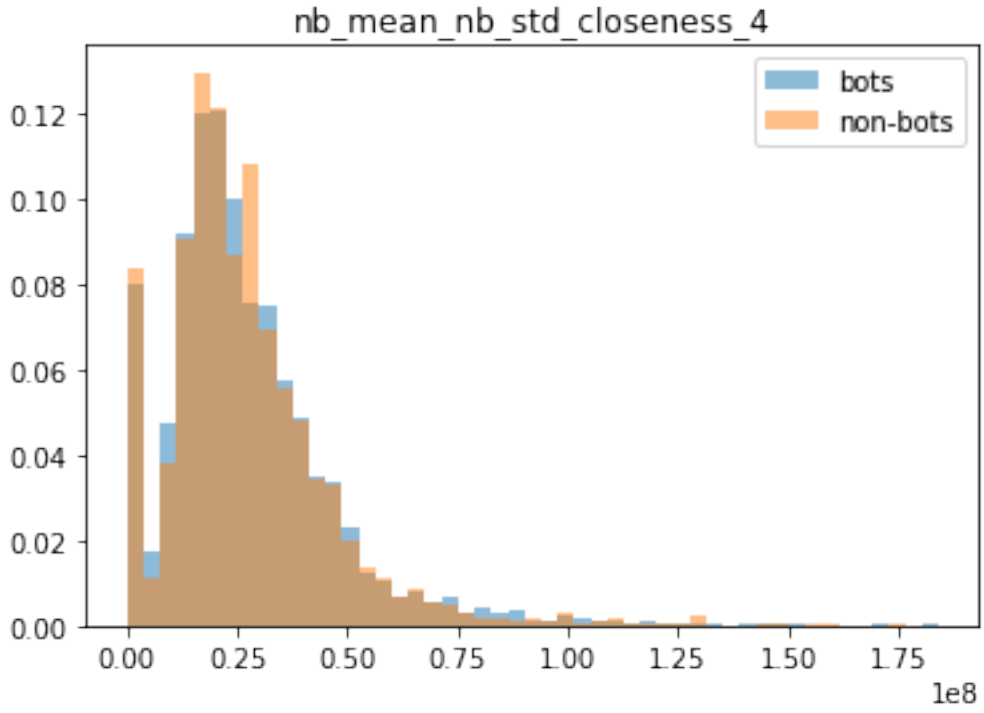
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
1e8


nb_mean_nb_std_closeness_3
bots
non-bots
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
1e8


nb_mean_nb_std_closeness_4
bots
non-bots
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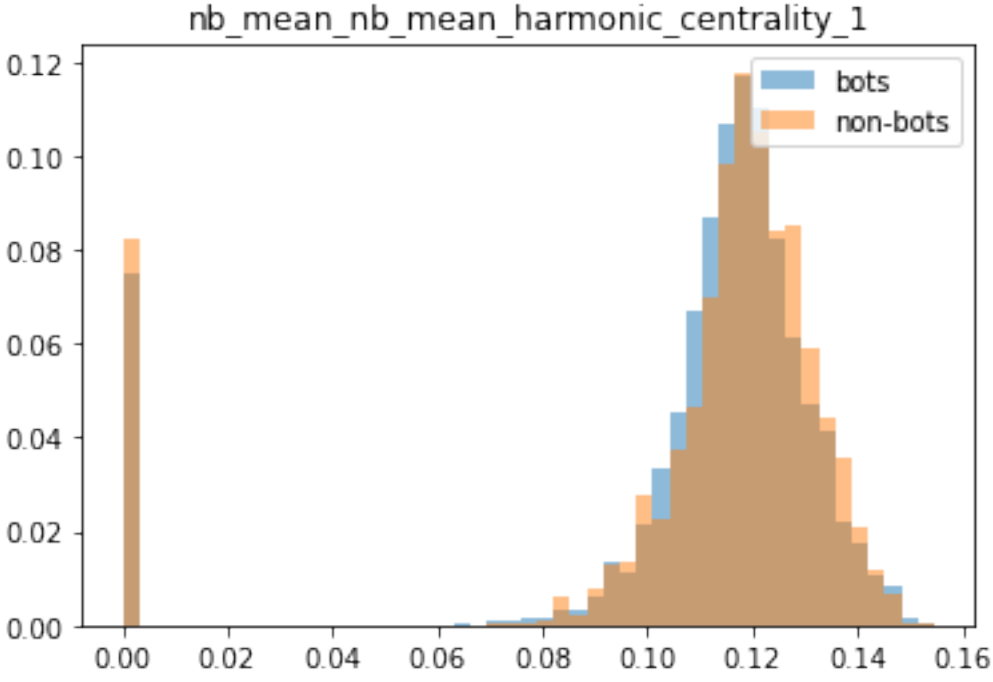
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
1e8


nb_mean_nb_mean_harmonic_centrality_1
bots
non-bots
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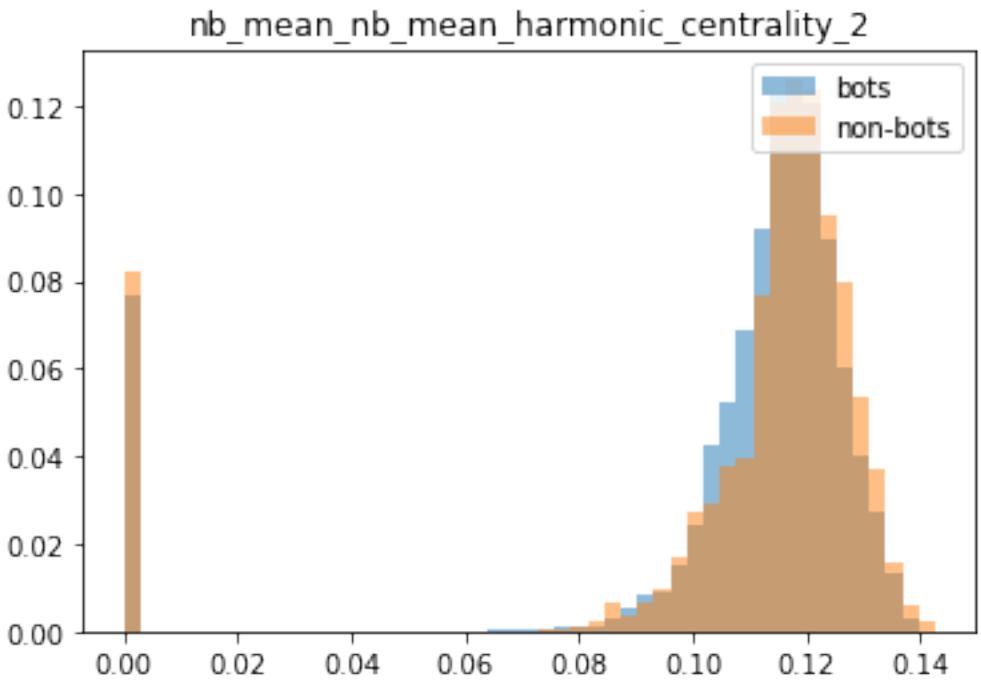
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16


nb_mean_nb_mean_harmonic_centrality_2
bots
non-bots
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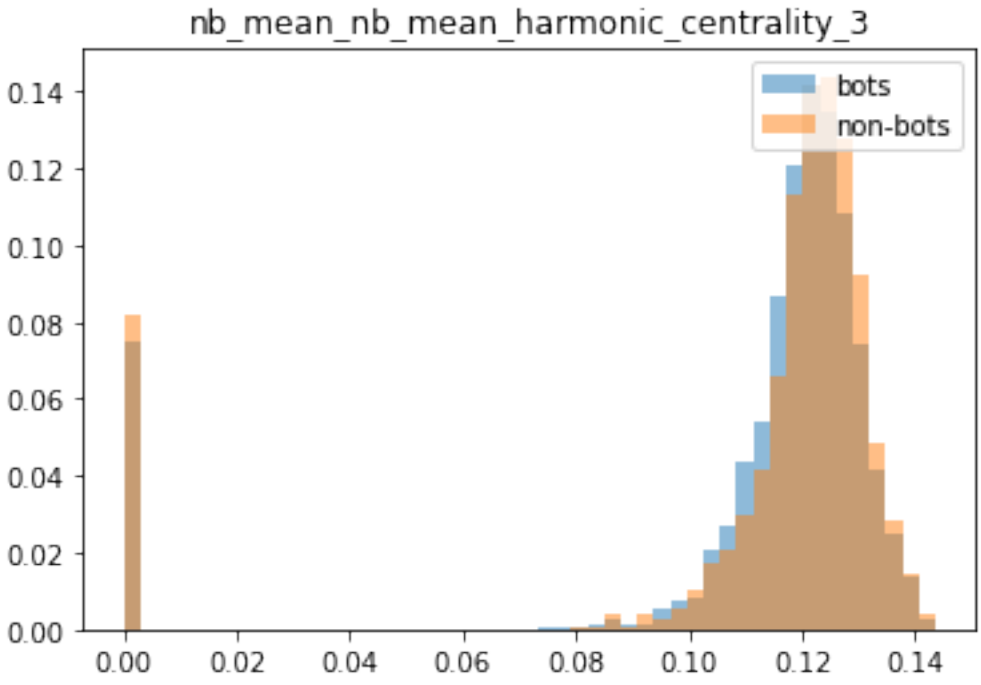
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_nb_mean_harmonic_centrality_3
bots
non-bots
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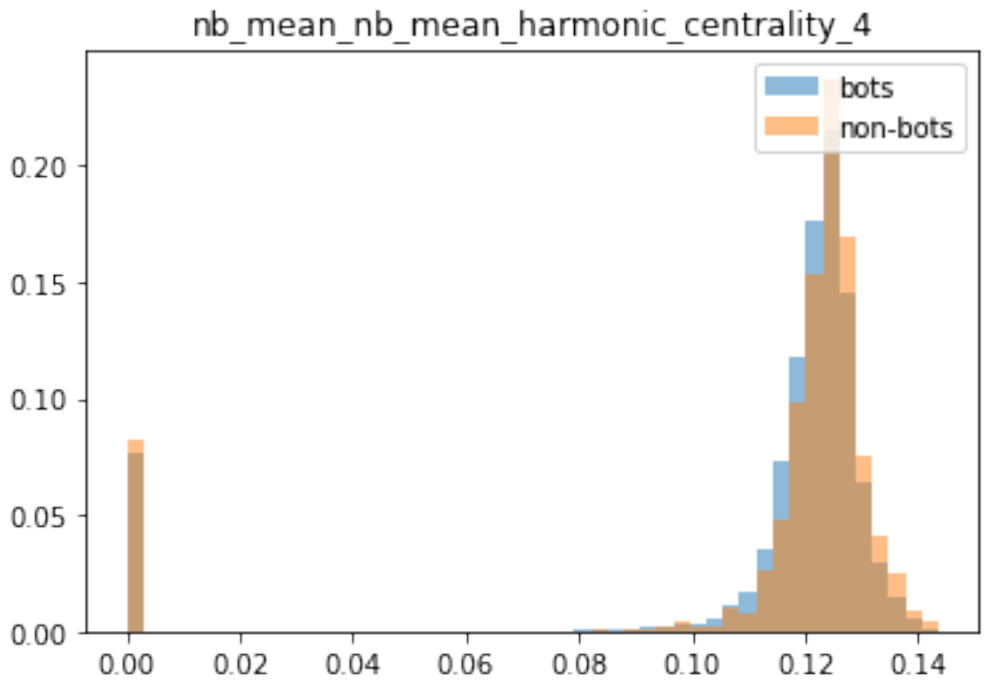
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_nb_mean_harmonic_centrality_4
bots
non-bots
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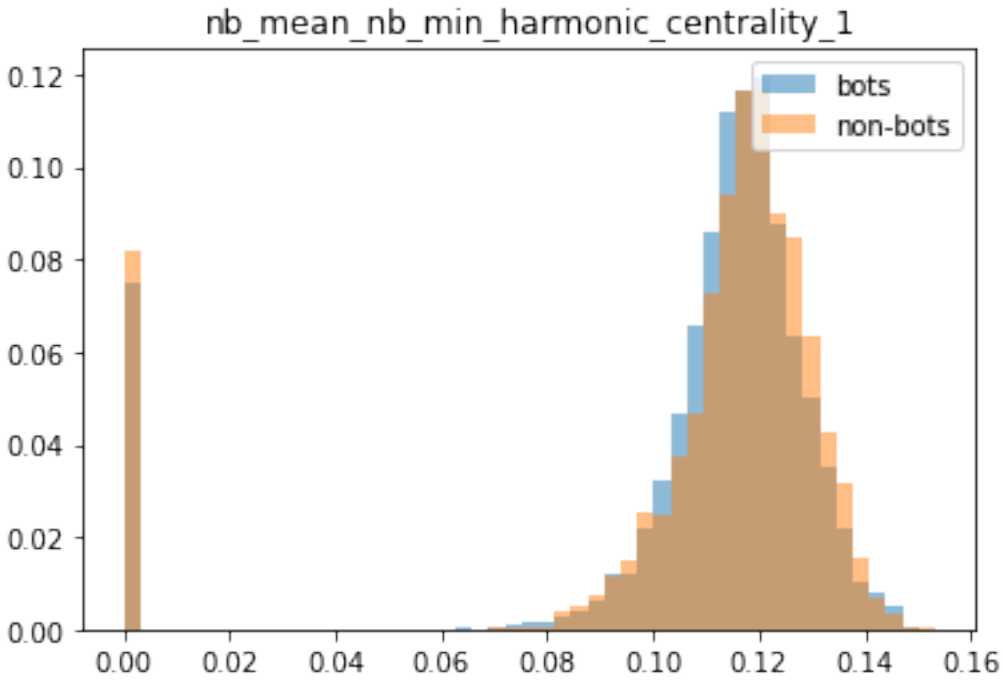
0.15
0.10
0.05
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_nb_min_harmonic_centrality_1
bots
non-bots
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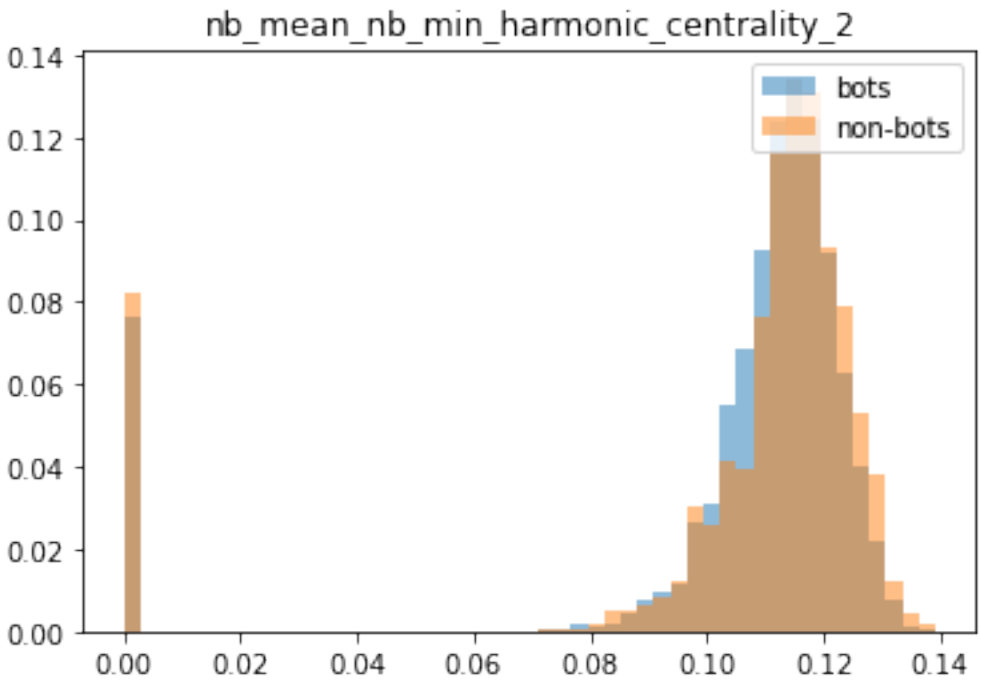
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16


nb_mean_nb_min_harmonic_centrality_2
bots
non-bots
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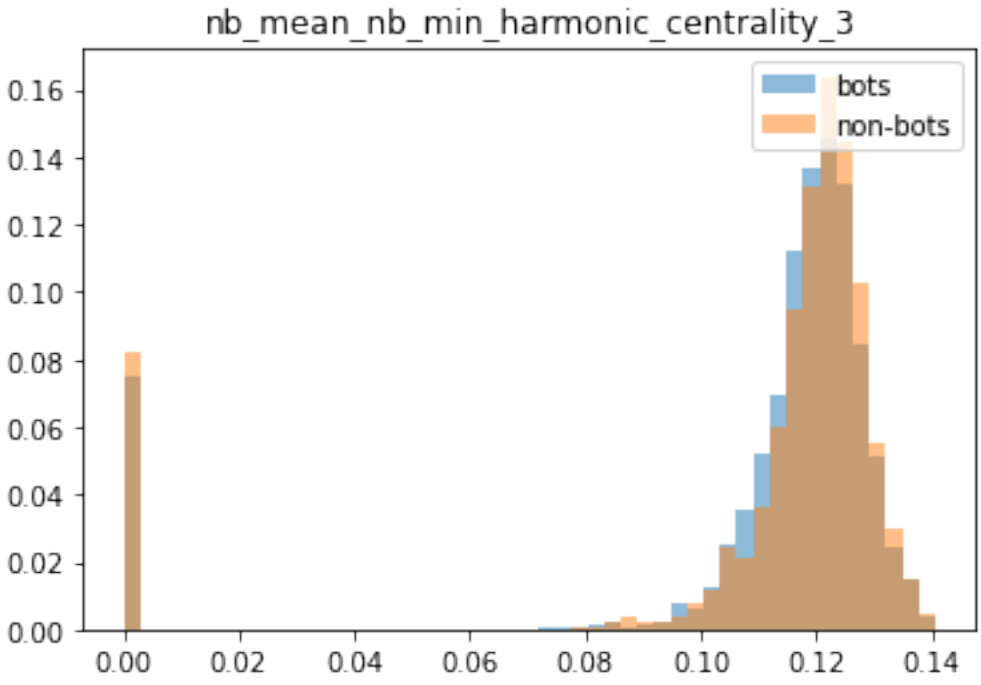
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_nb_min_harmonic_centrality_3
bots
non-bots
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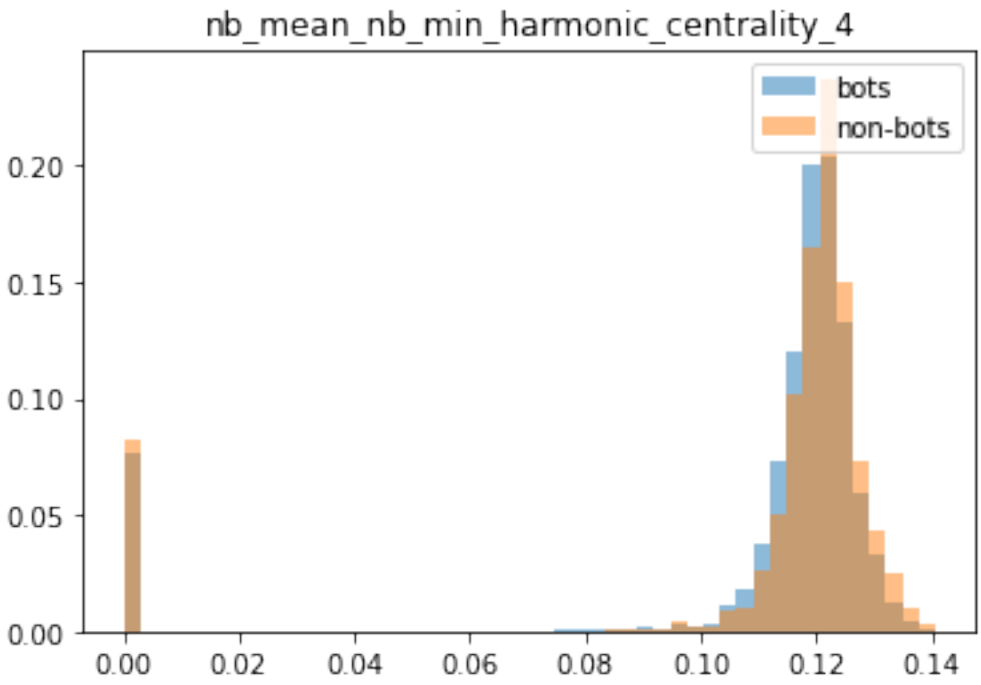
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_nb_min_harmonic_centrality_4
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non-bots
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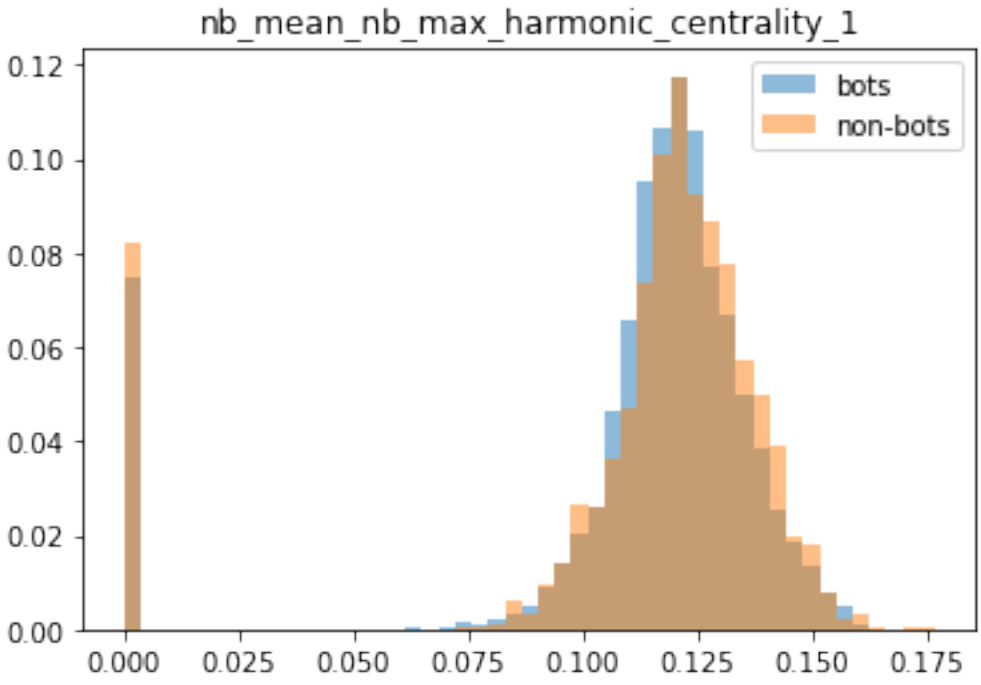
0.10
0.05
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14


nb_mean_nb_max_harmonic_centrality_1
bots
non-bots
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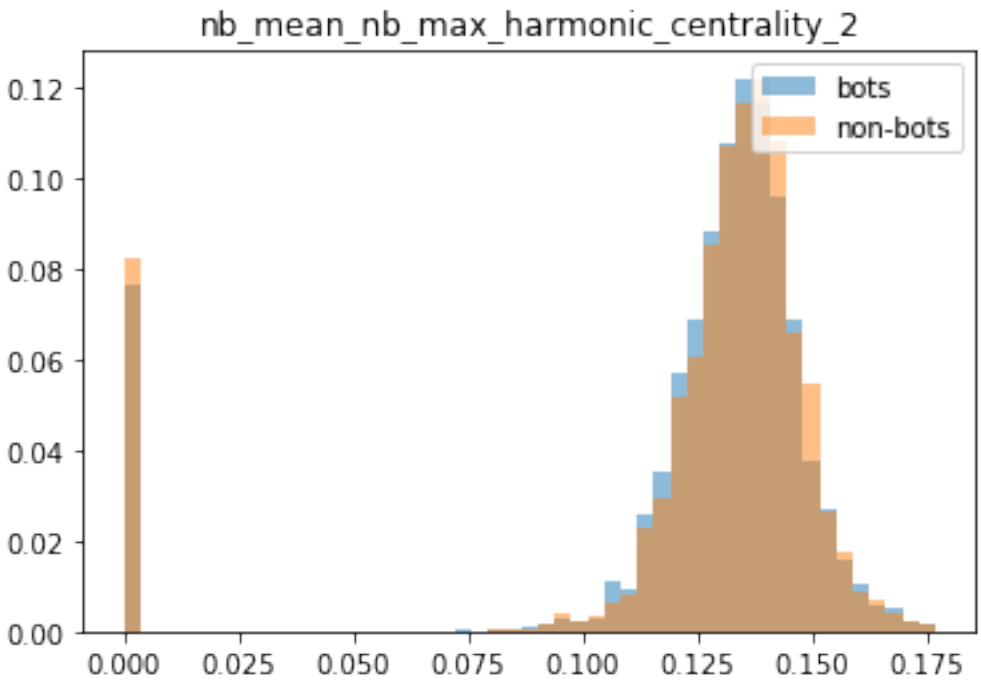
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175


nb_mean_nb_max_harmonic_centrality_2
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non-bots
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0.08
0.06
0.04
0.02
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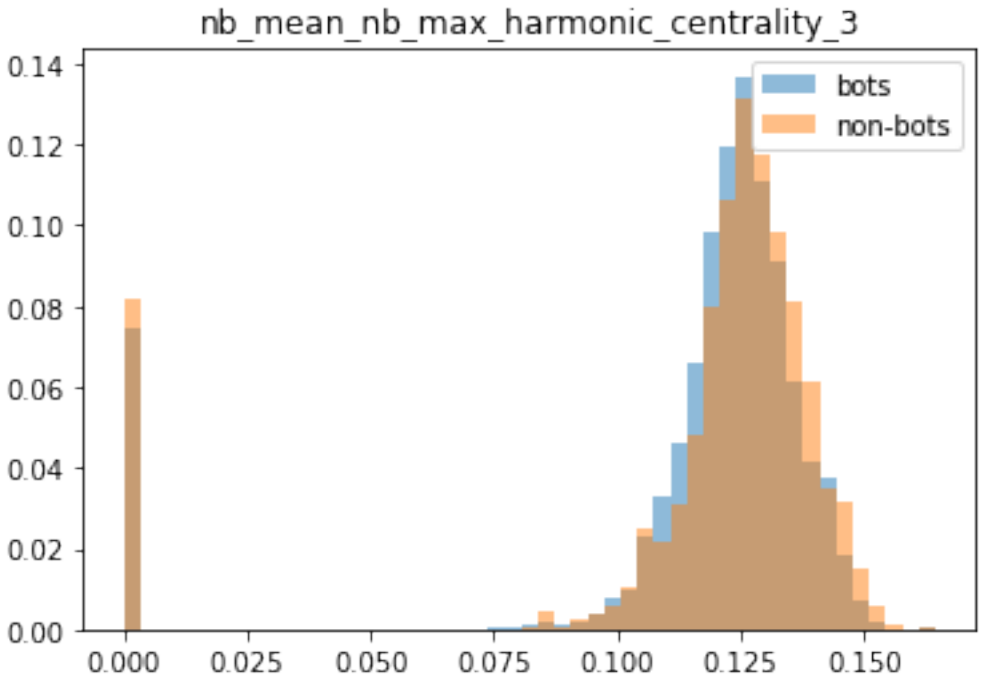
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175


nb_mean_nb_max_harmonic_centrality_3
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non-bots
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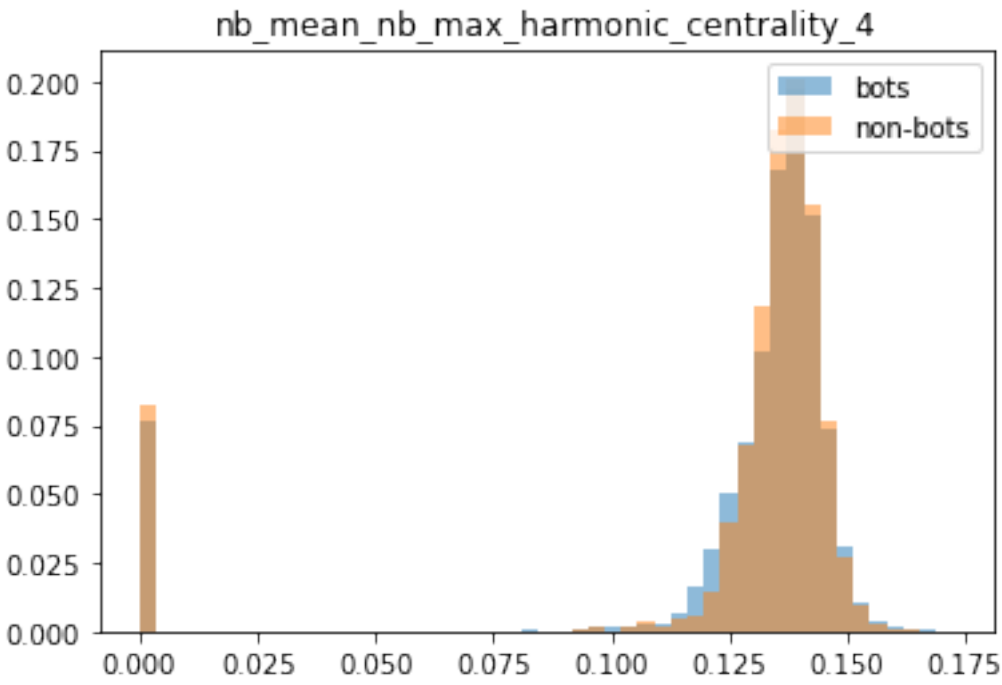
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.025
0.050
0.075
0.100
0.125
0.150


nb_mean_nb_max_harmonic_centrality_4
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non-bots
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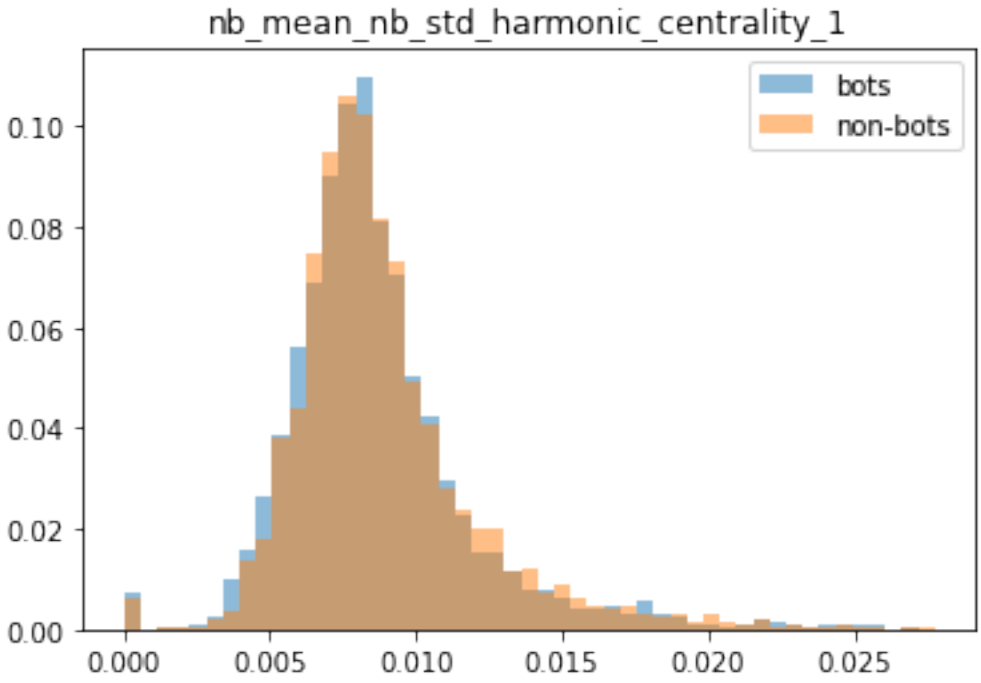
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175


nb_mean_nb_std_harmonic_centrality_1
bots
non-bots
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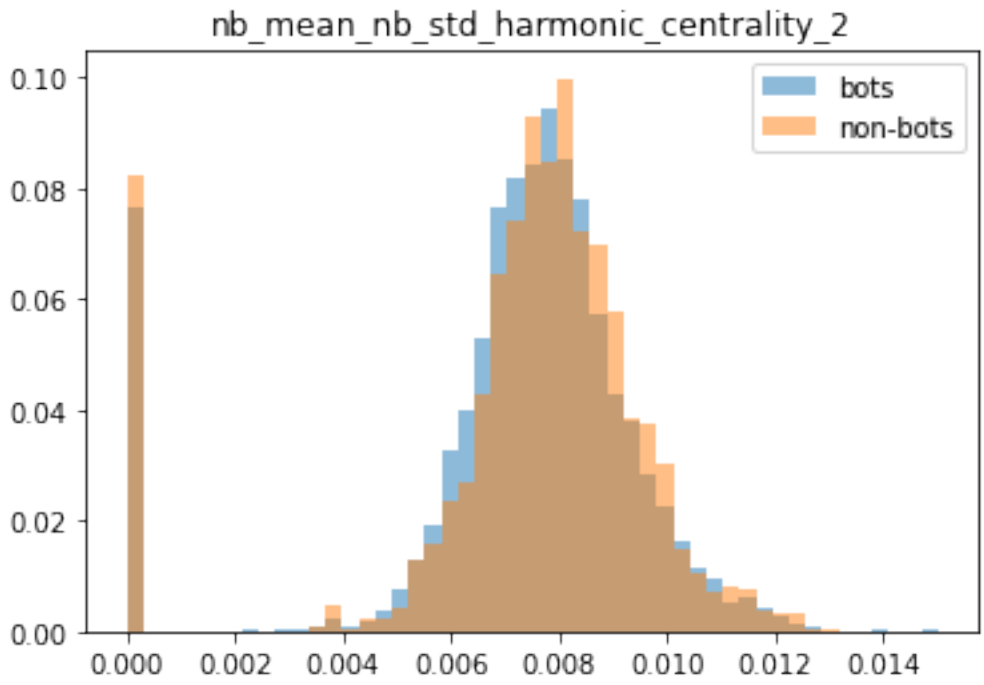
0.06
0.04
0.02
0.00
0.000
0.005
0.010
0.015
0.020
0.025


nb_mean_nb_std_harmonic_centrality_2
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non-bots
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0.02
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0.002
0.004
0.006
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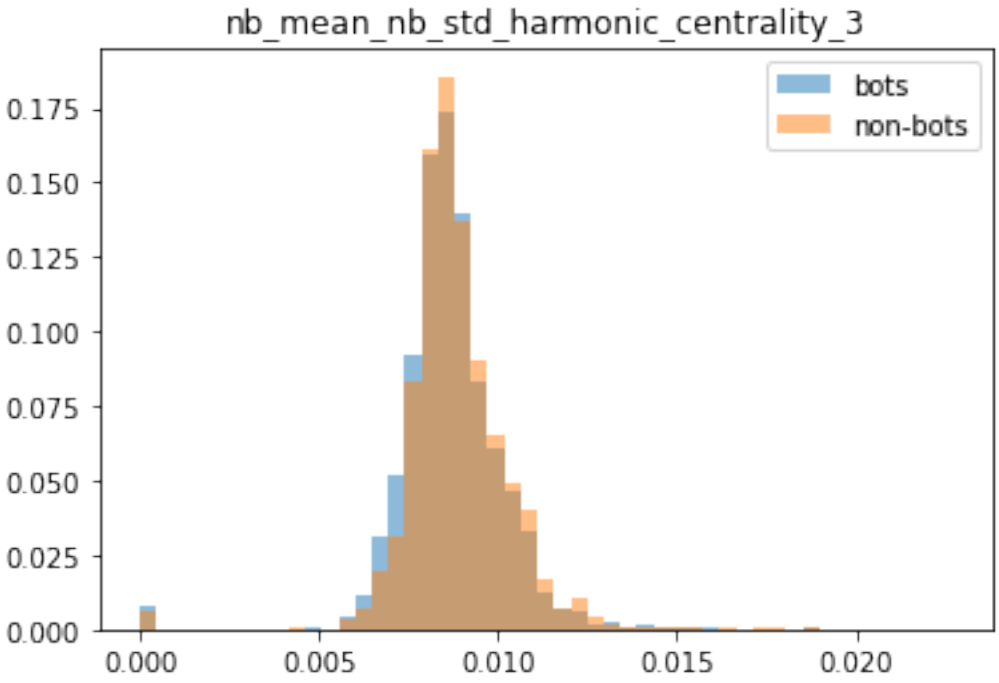
0.012
0.014


nb_mean_nb_std_harmonic_centrality_3
bots
non-bots
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0.125
0.100
0.075
0.050
0.025
0.000
0.000
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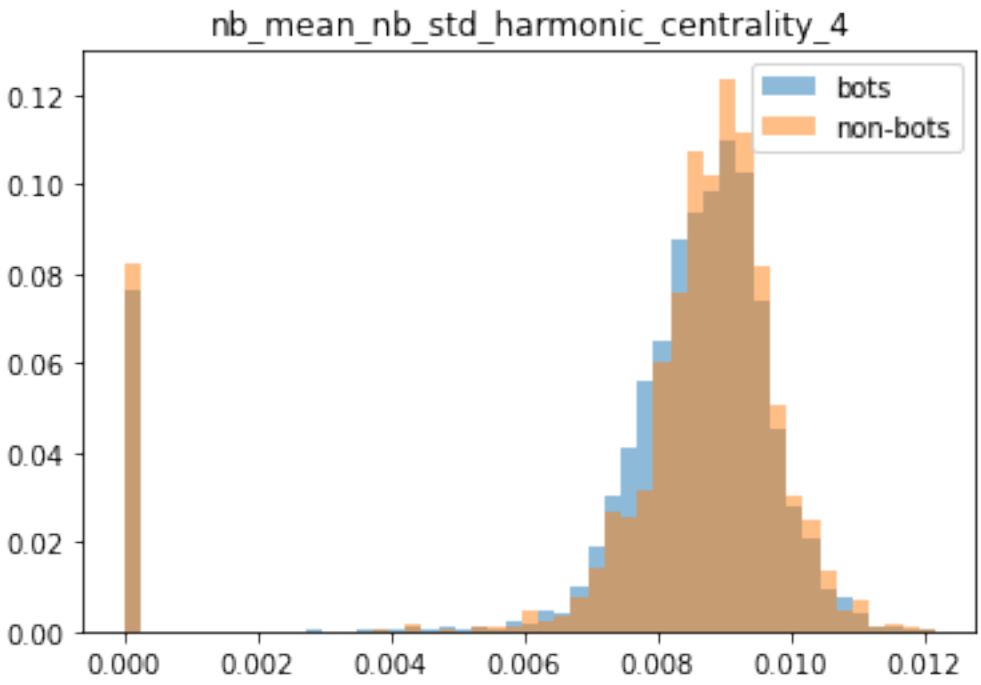
0.010
0.015
0.020


nb_mean_nb_std_harmonic_centrality_4
bots
non-bots
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0.10
0.08
0.06
0.04
0.02
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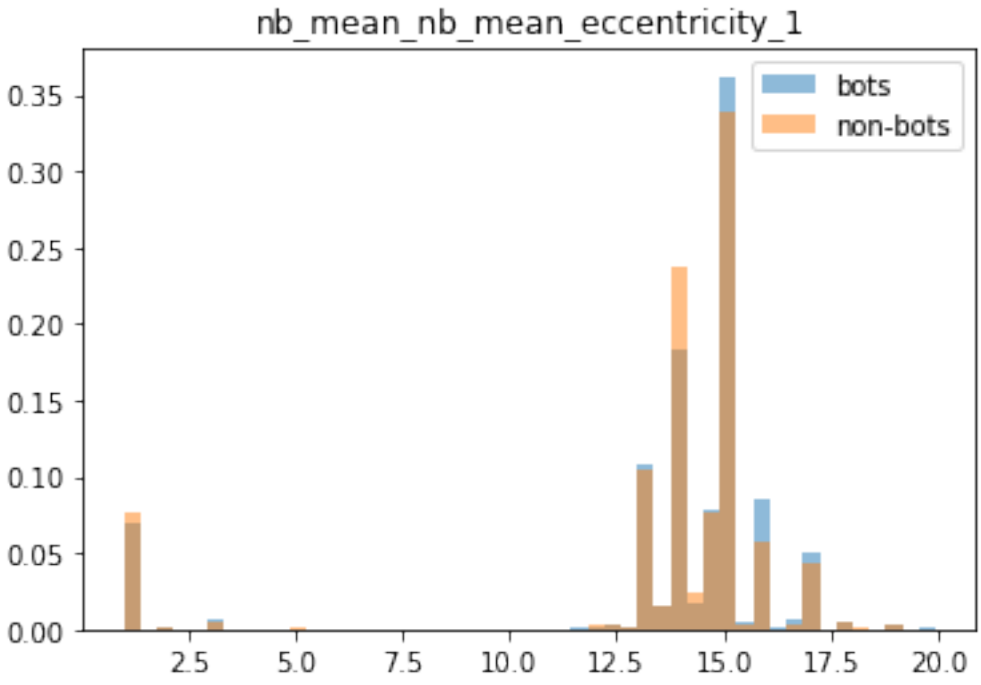
0.002
0.004
0.006
0.008
0.010
0.012


nb_mean_nb_mean_eccentricity_1
bots
non-bots
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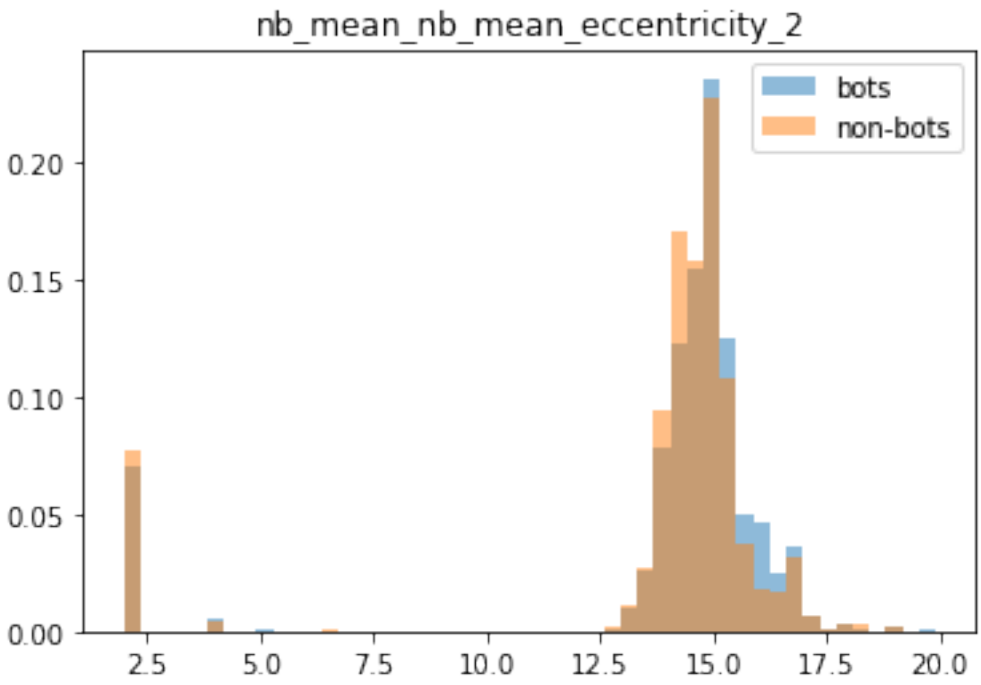
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


nb_mean_nb_mean_eccentricity_2
bots
non-bots
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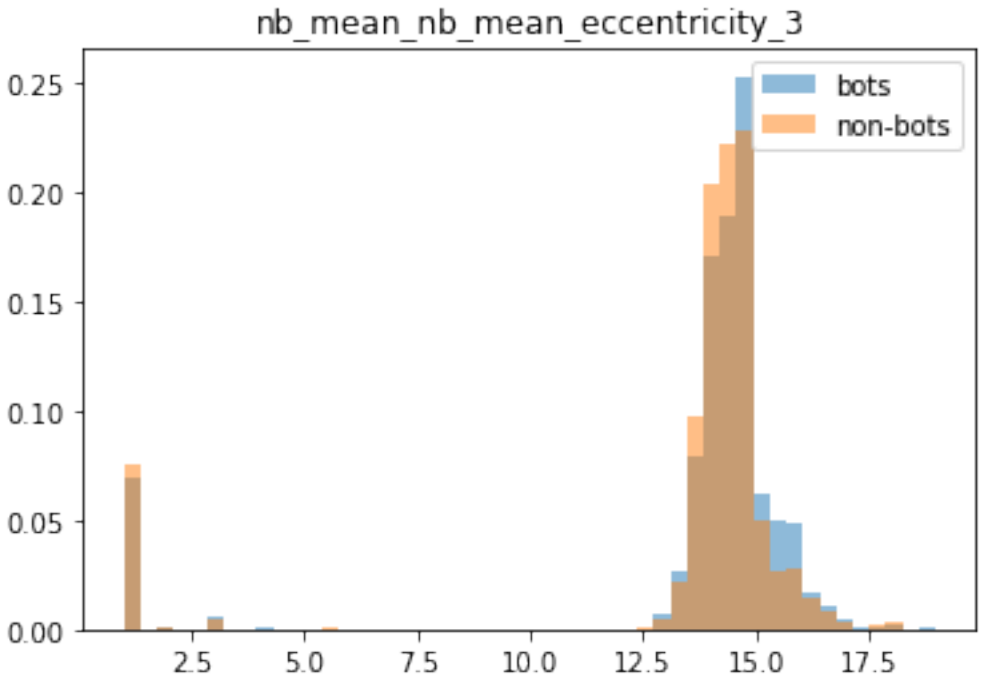
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


nb_mean_nb_mean_eccentricity_3
bots
non-bots
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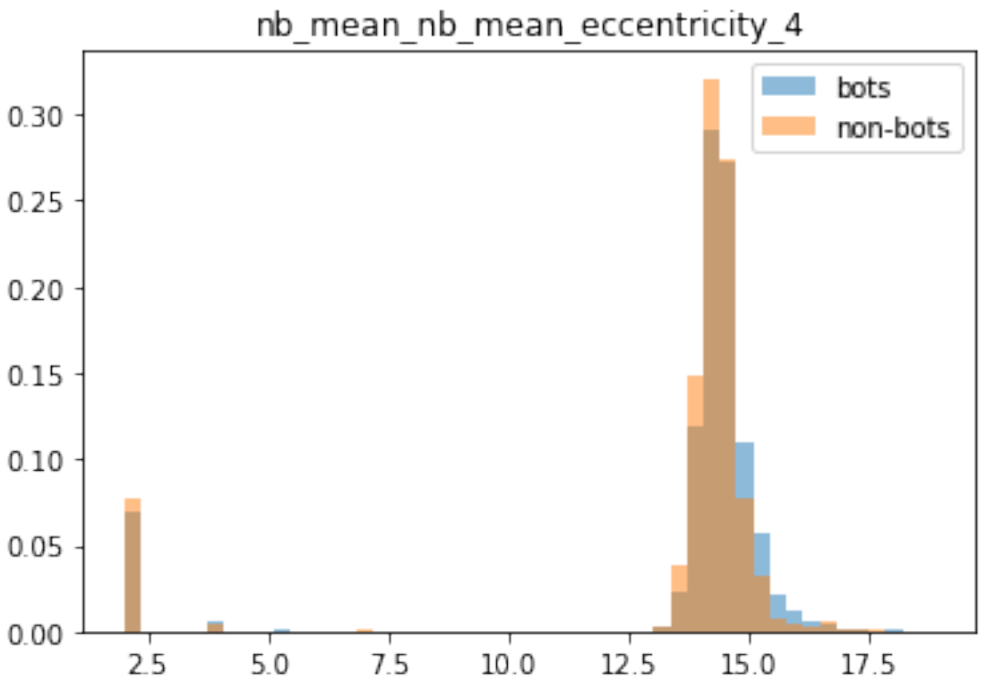
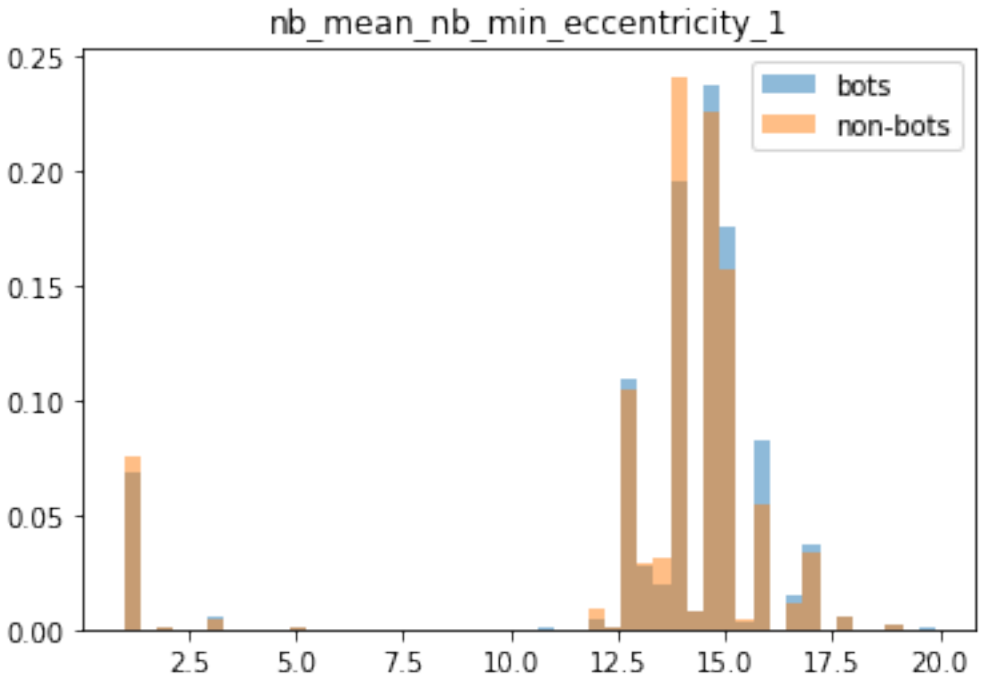
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5


nb_mean_nb_mean_eccentricity_4
bots
non-bots
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5


nb_mean_nb_min_eccentricity_1
bots
non-bots
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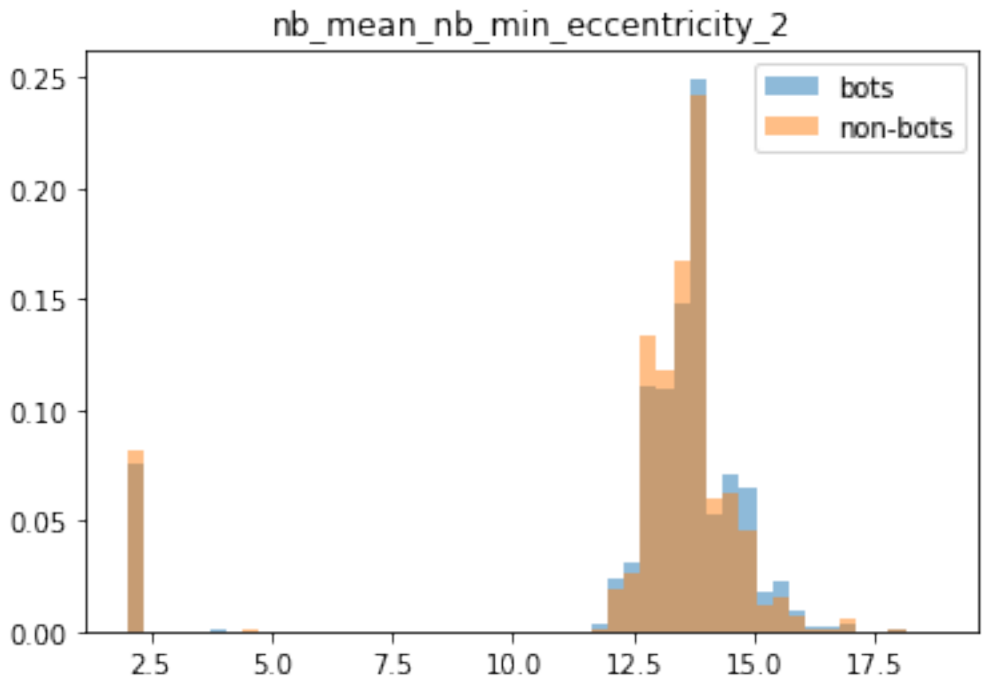
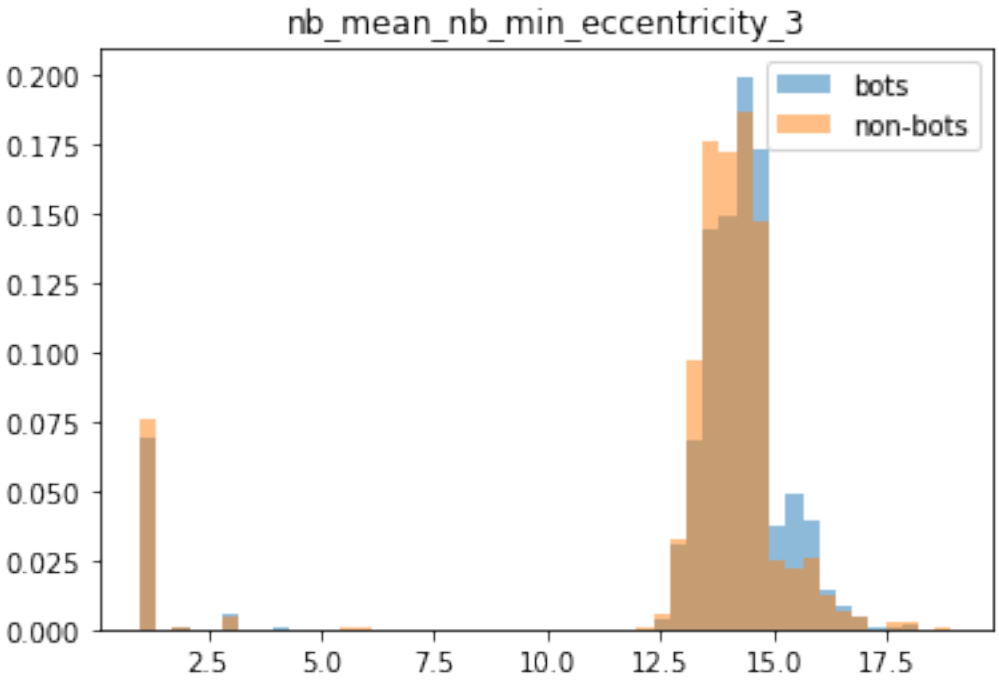
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


nb_mean_nb_min_eccentricity_2
bots
non-bots
0.25
0.20
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
12.5
15.0
17.5


nb_mean_nb_min_eccentricity_3
bots
non-bots
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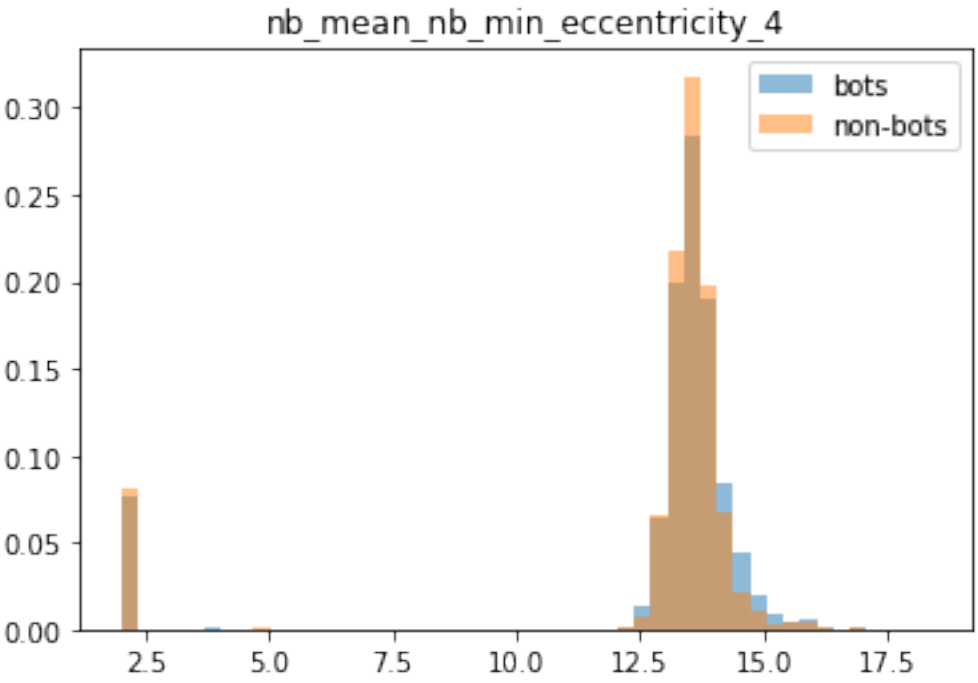
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
2.5
5.0
7.5
10.0
12.5
15.0
17.5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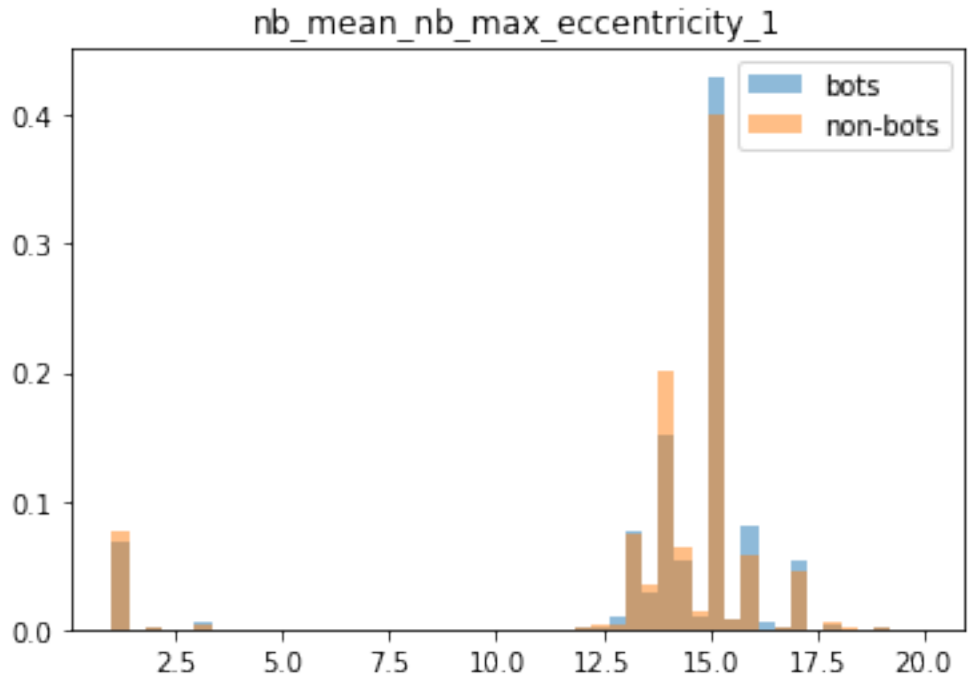
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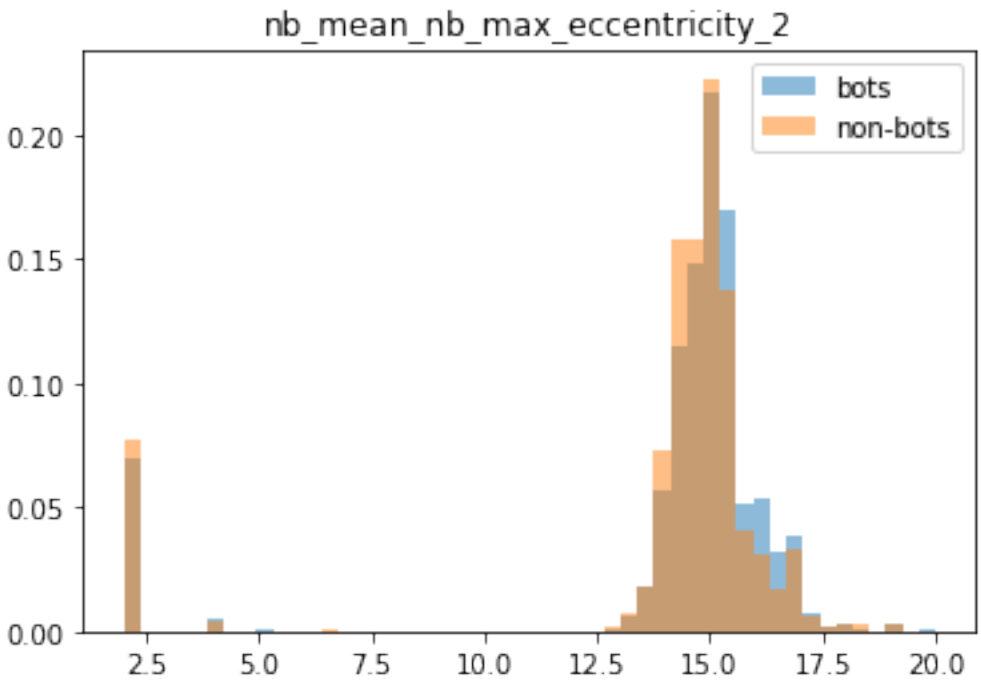
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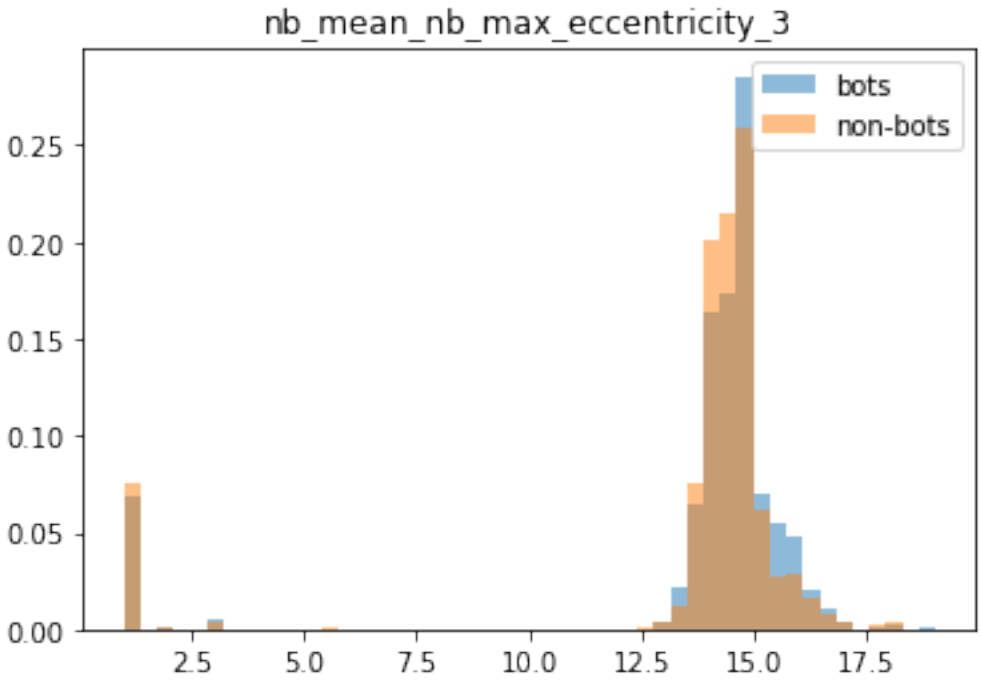
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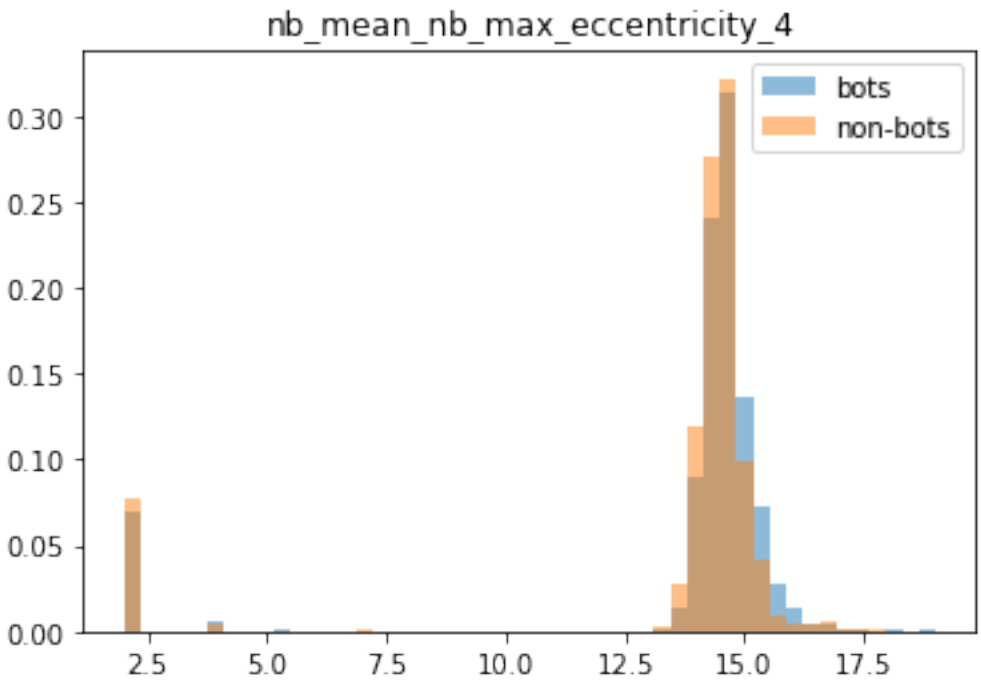
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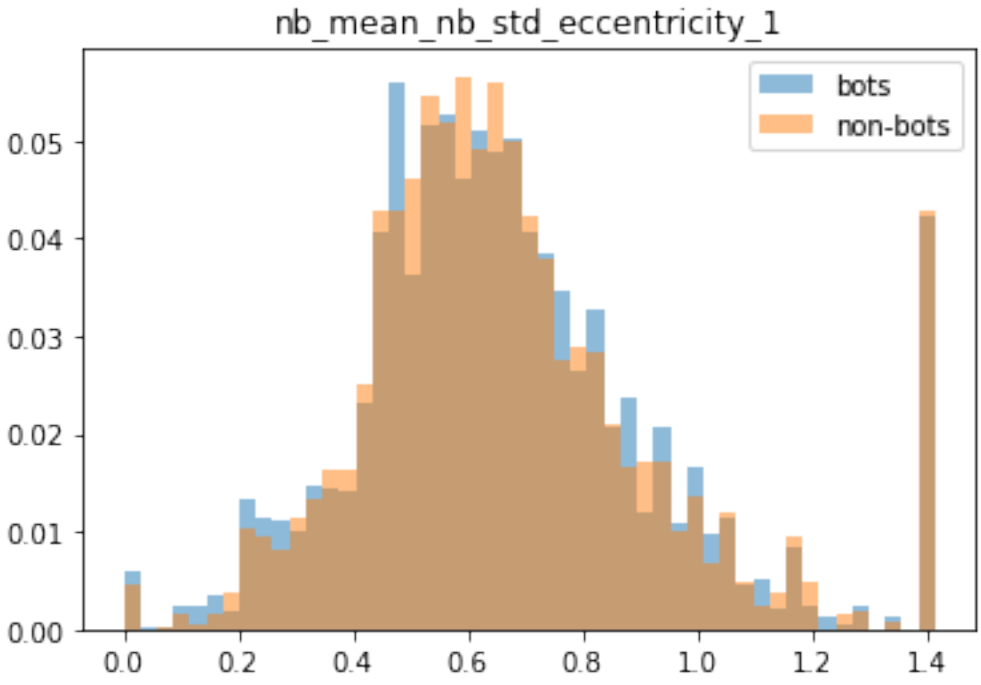
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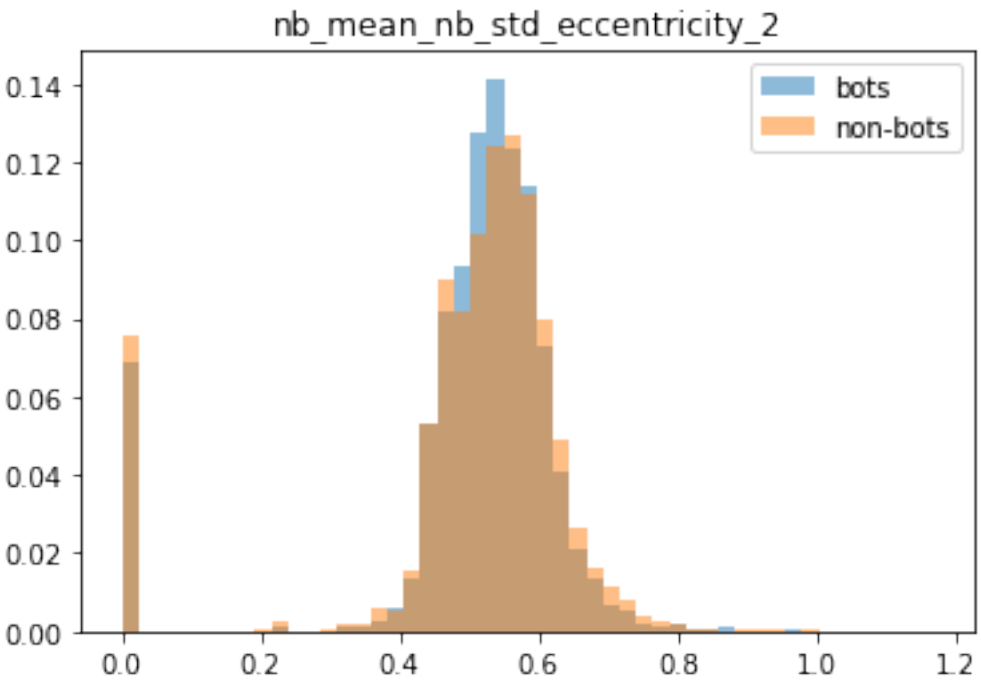
1.2
1.4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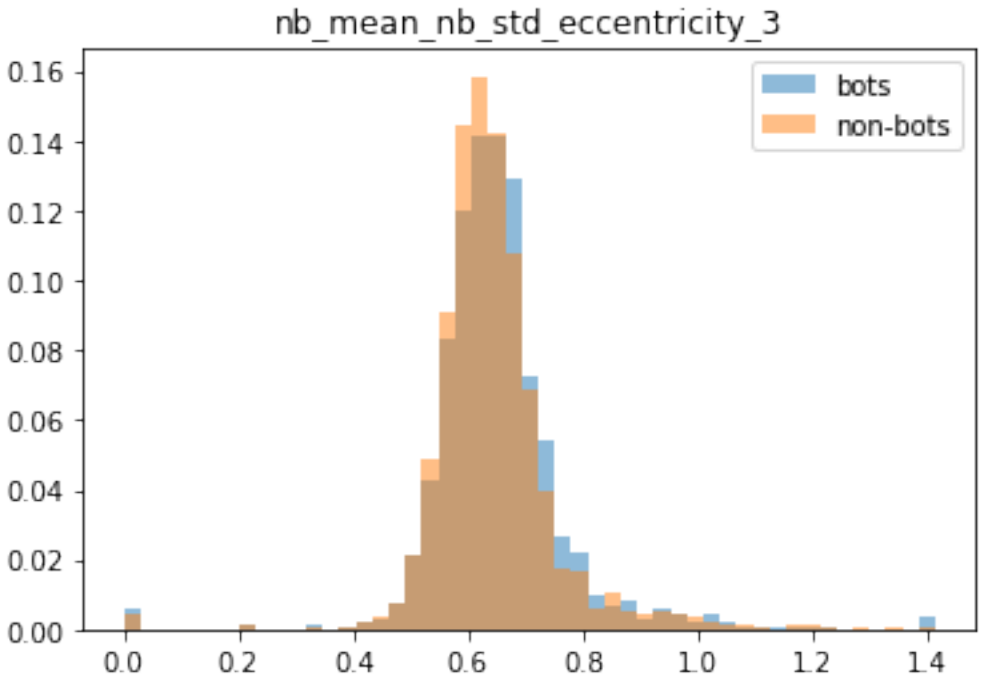
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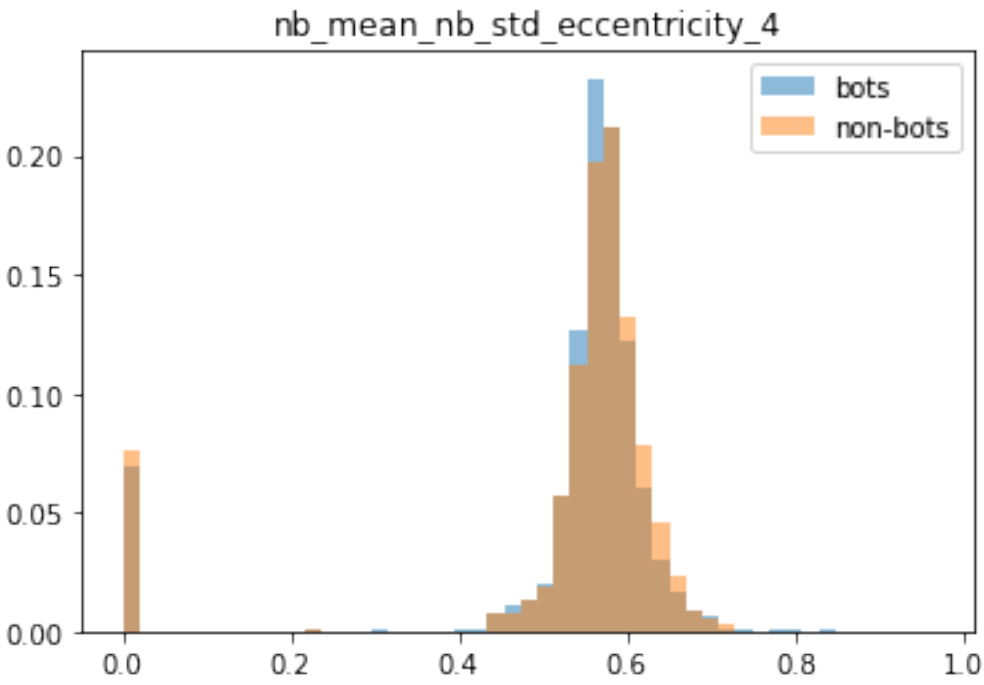
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0.8
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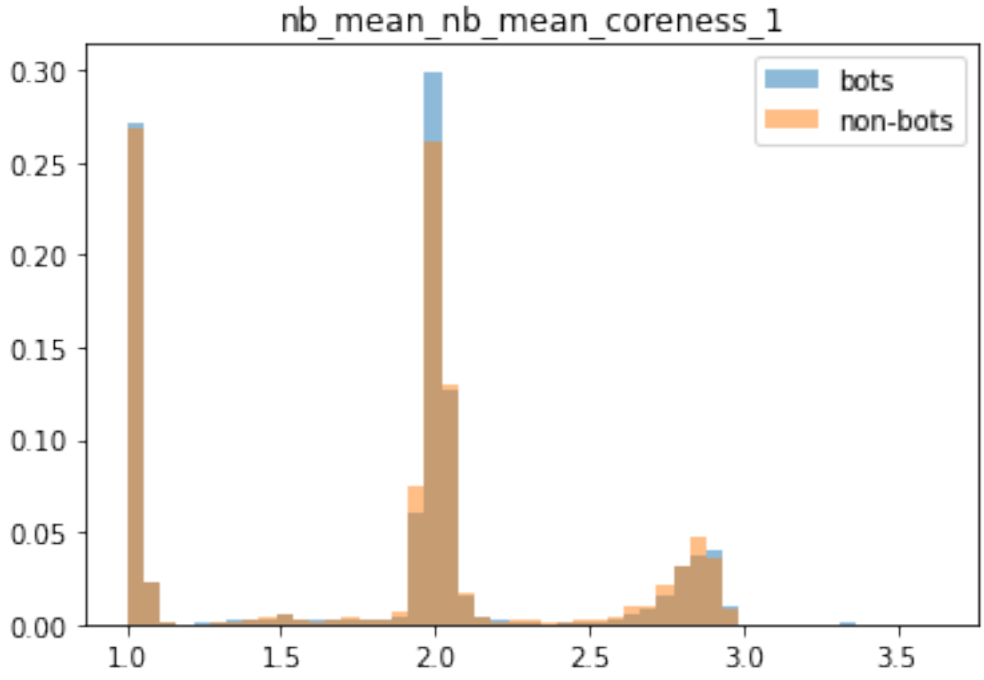
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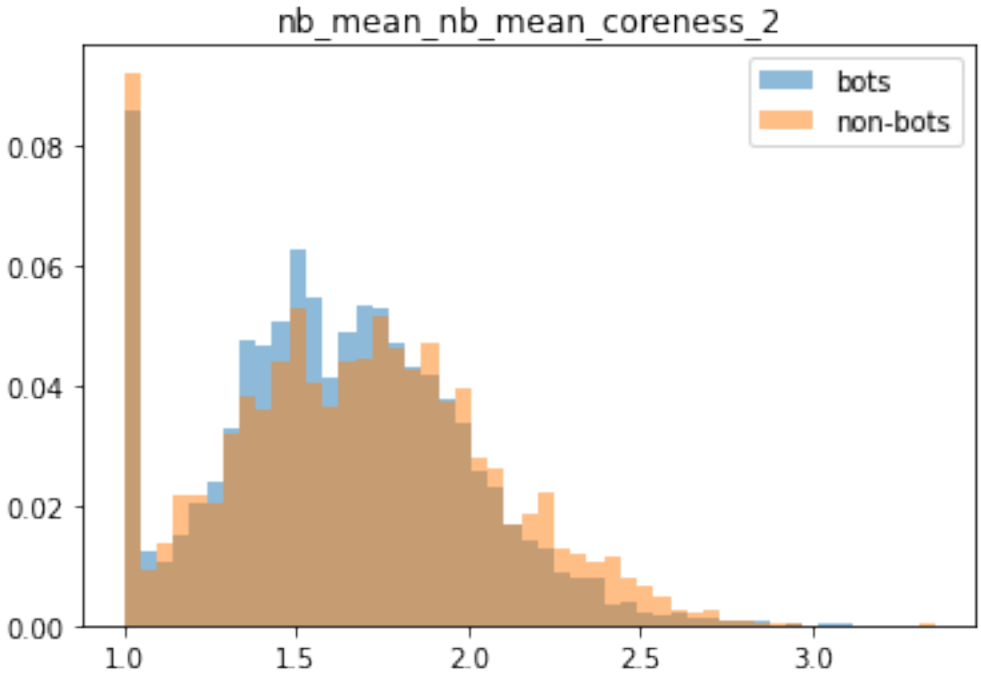
3.5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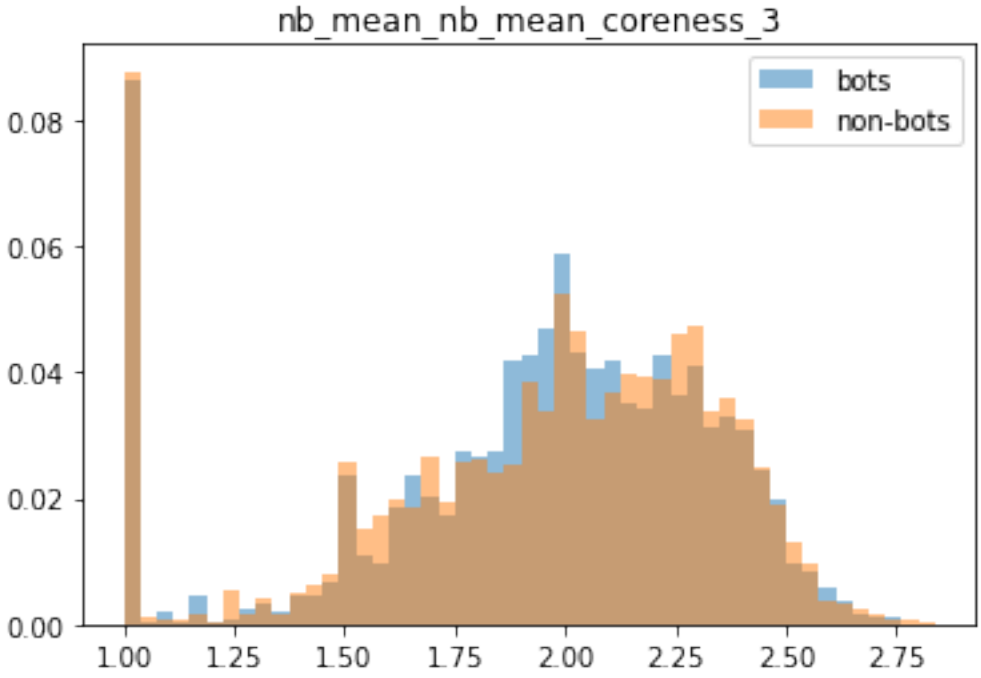
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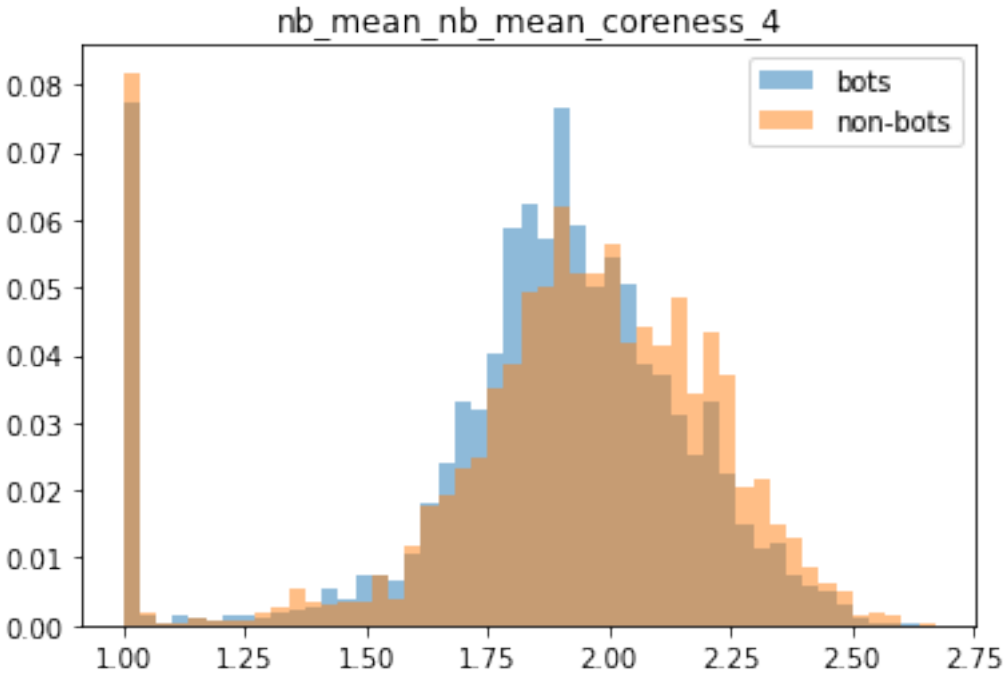
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2.00
2.25
2.50
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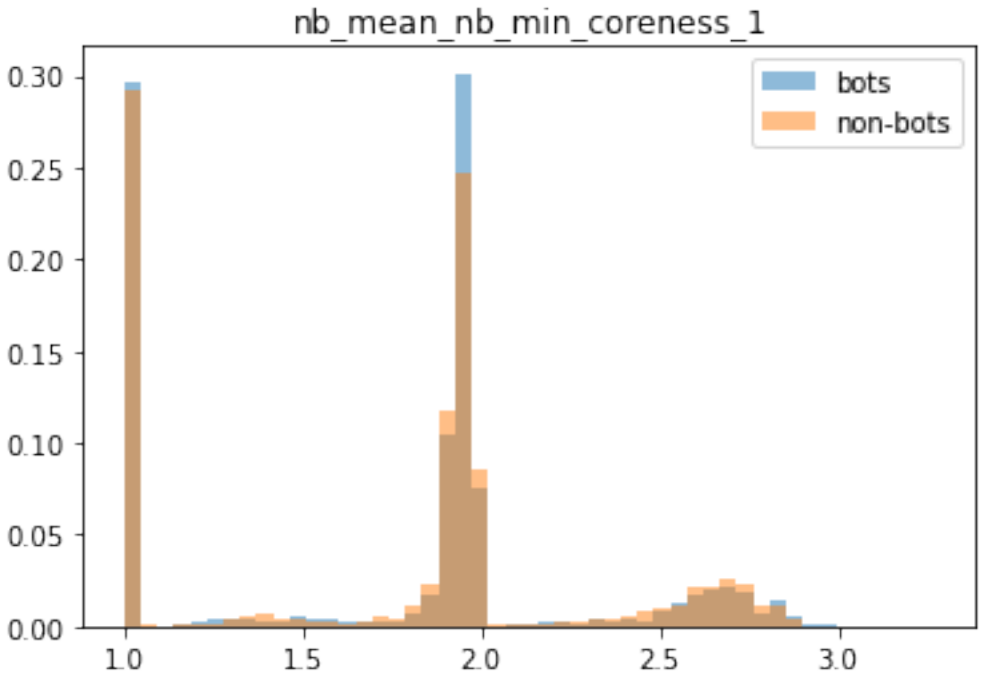
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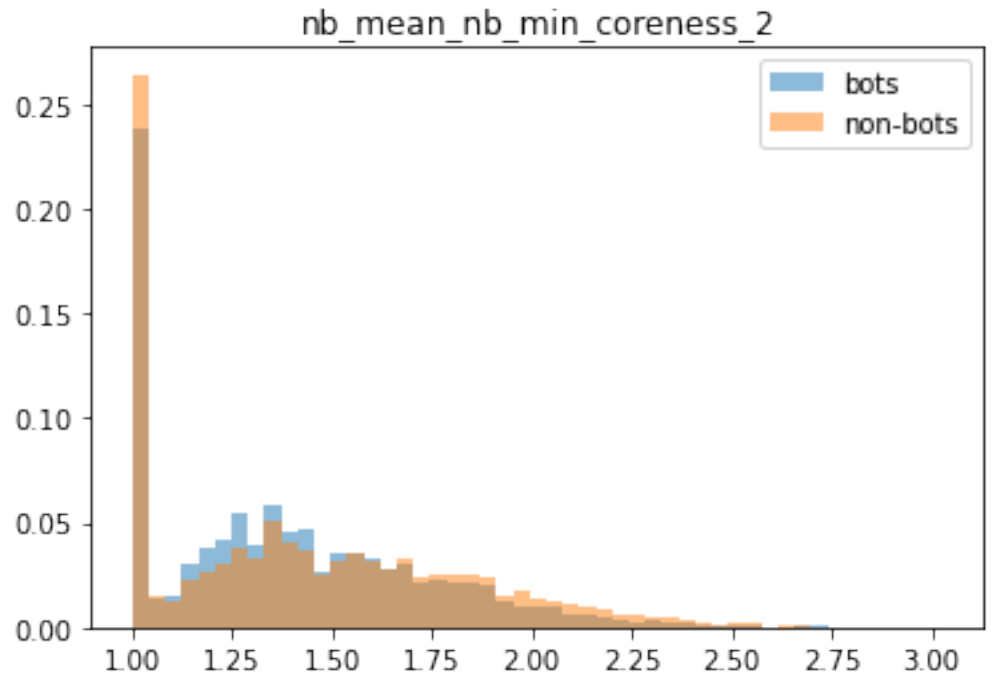
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2.50
2.75
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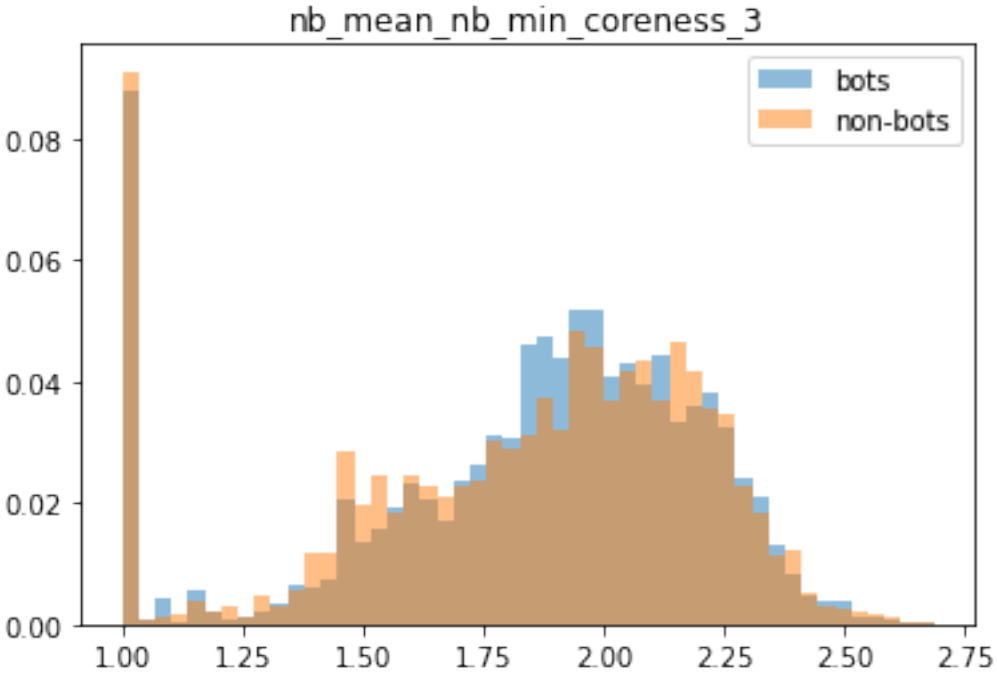
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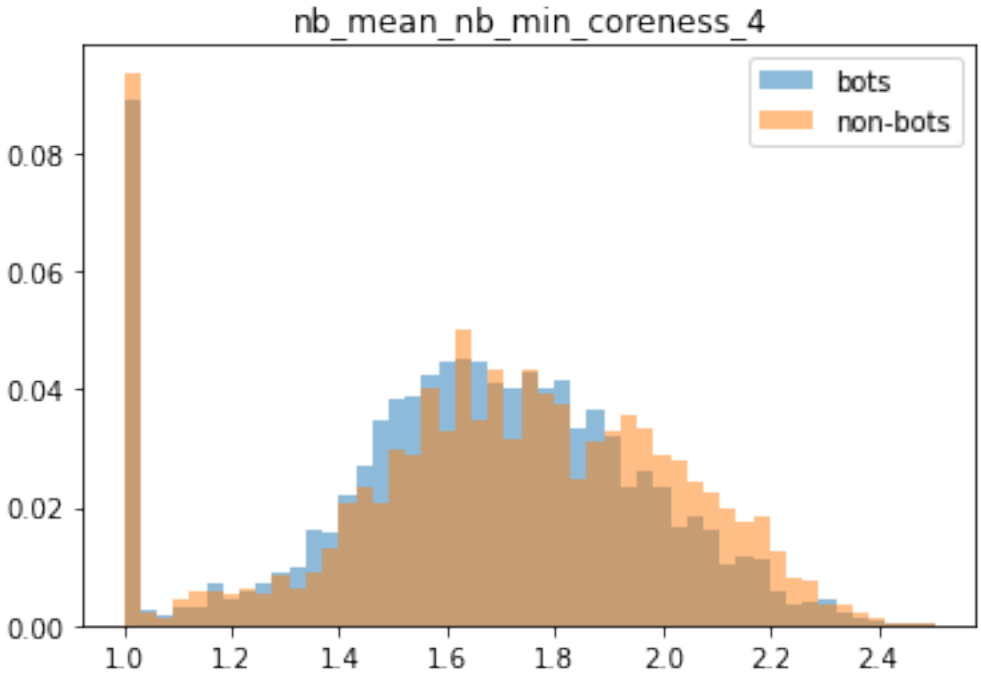
2.75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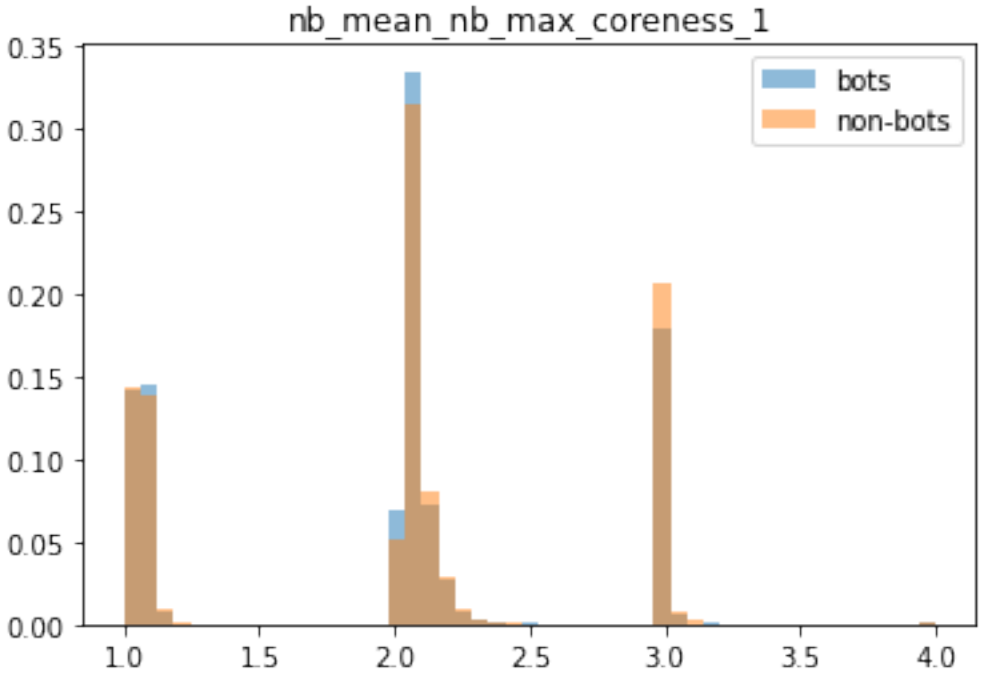
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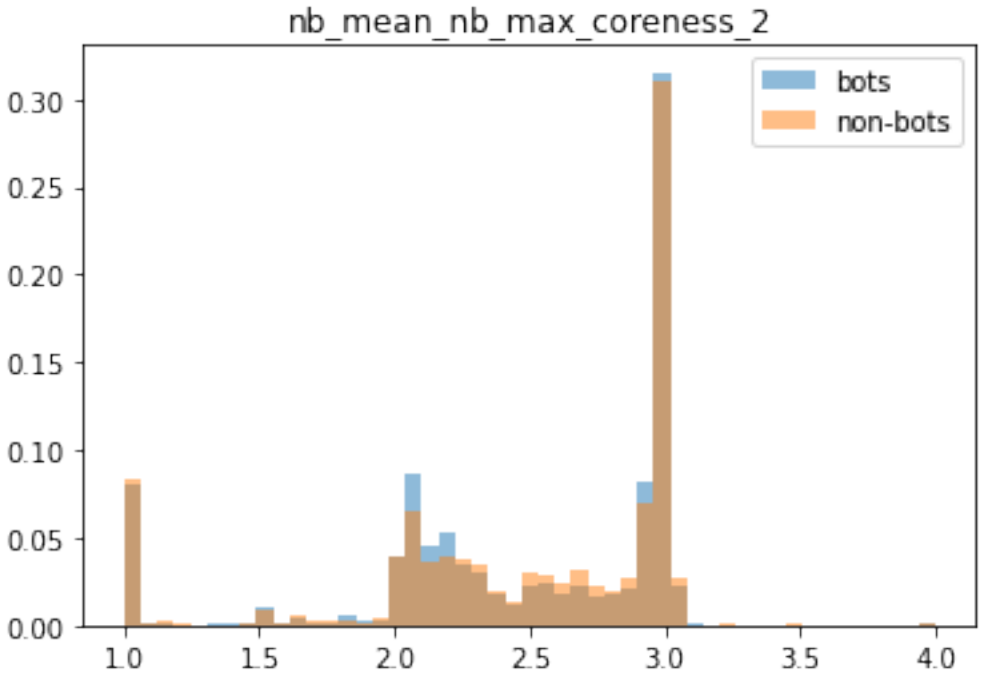
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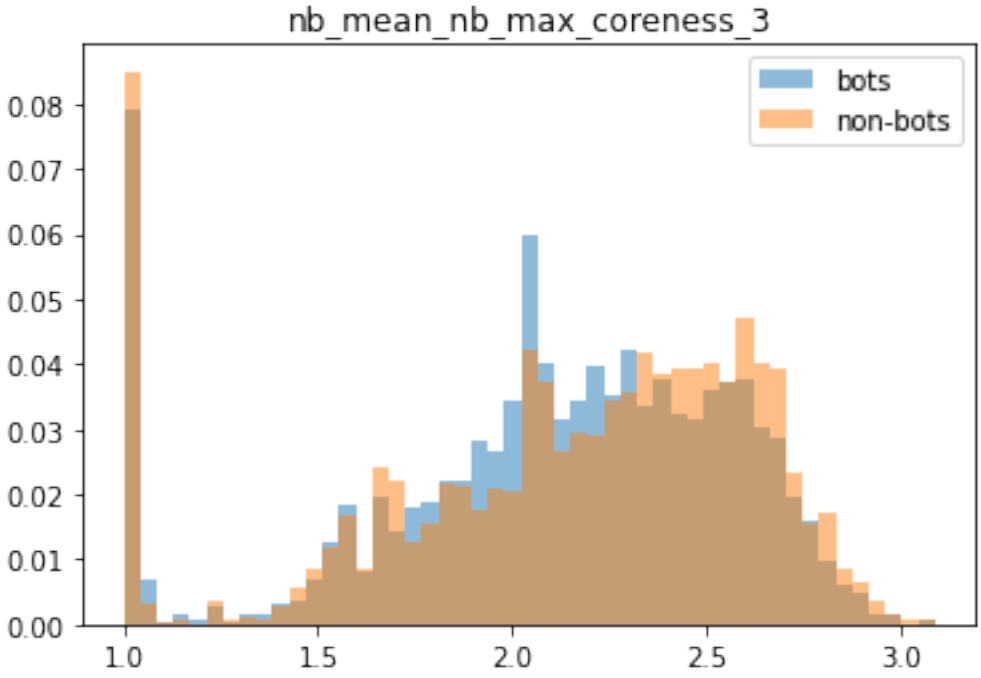
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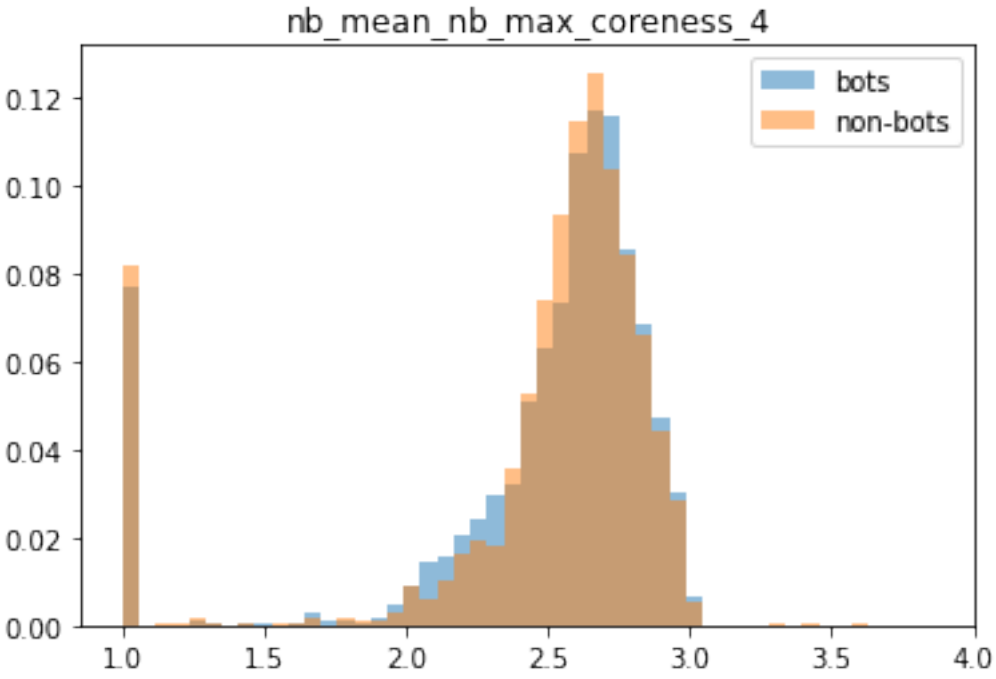
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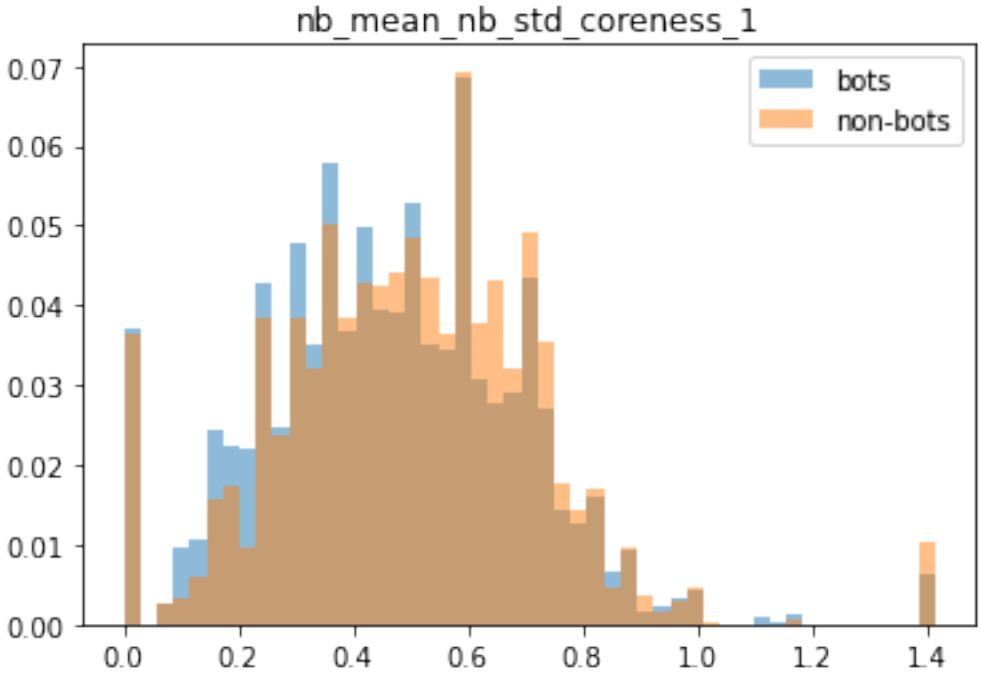
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0.6
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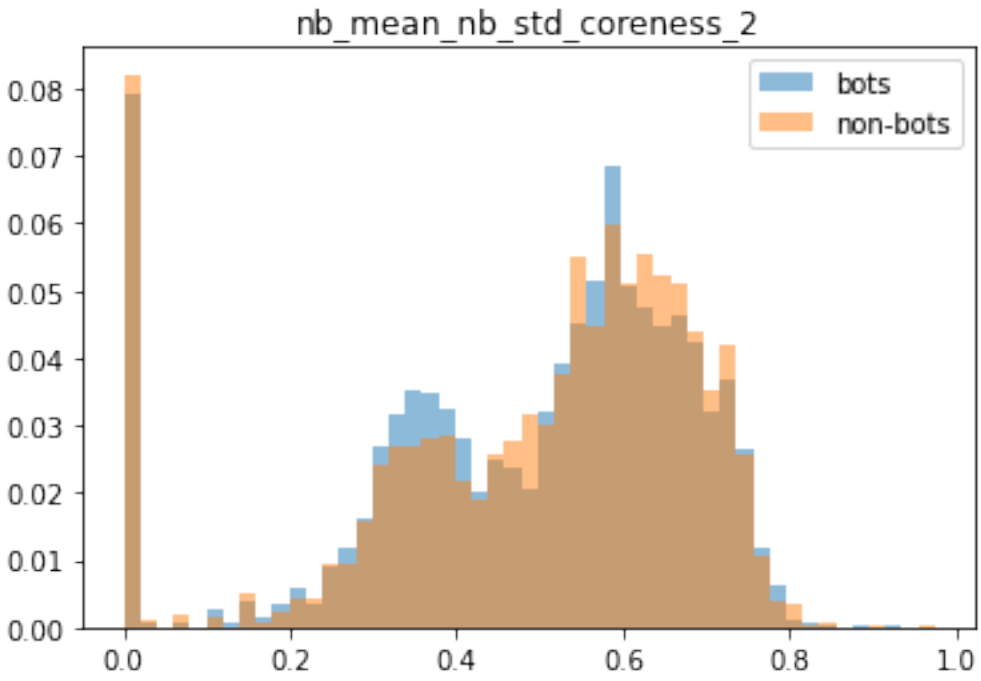
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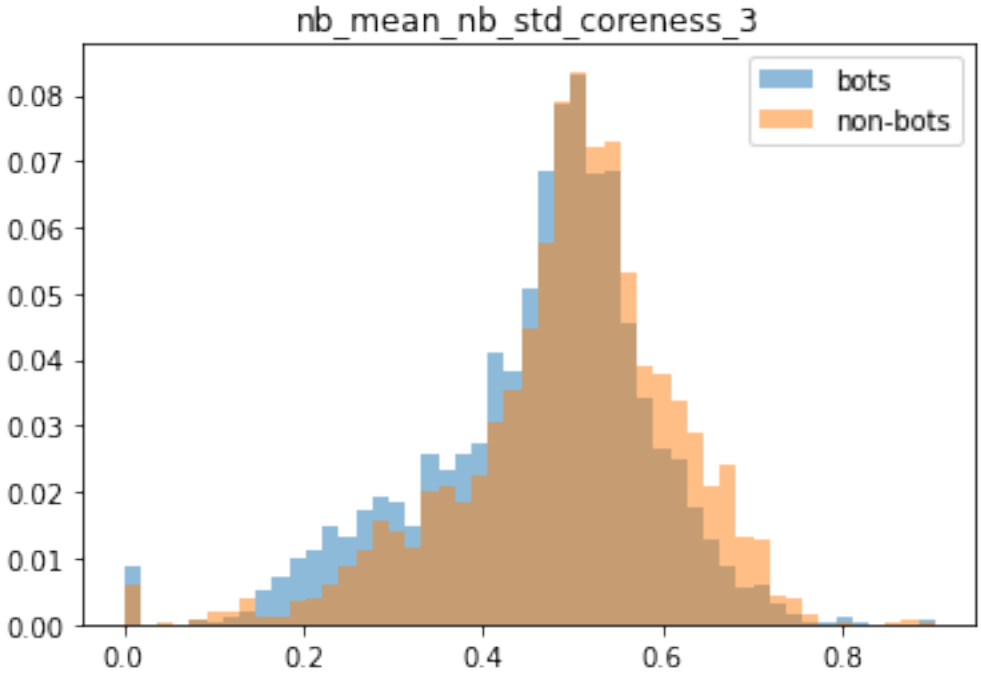
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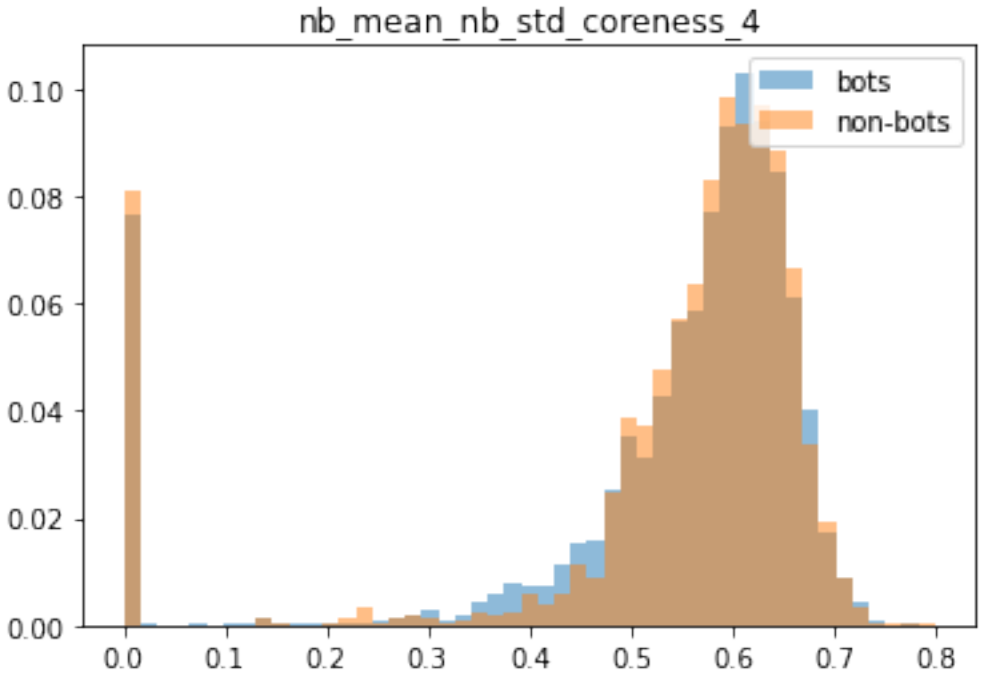
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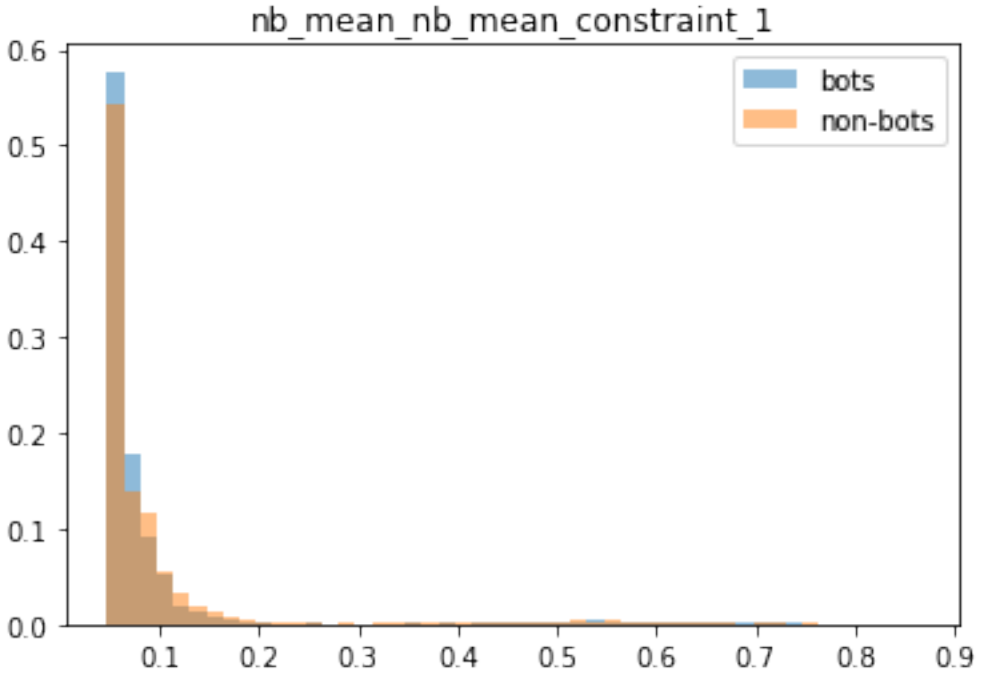
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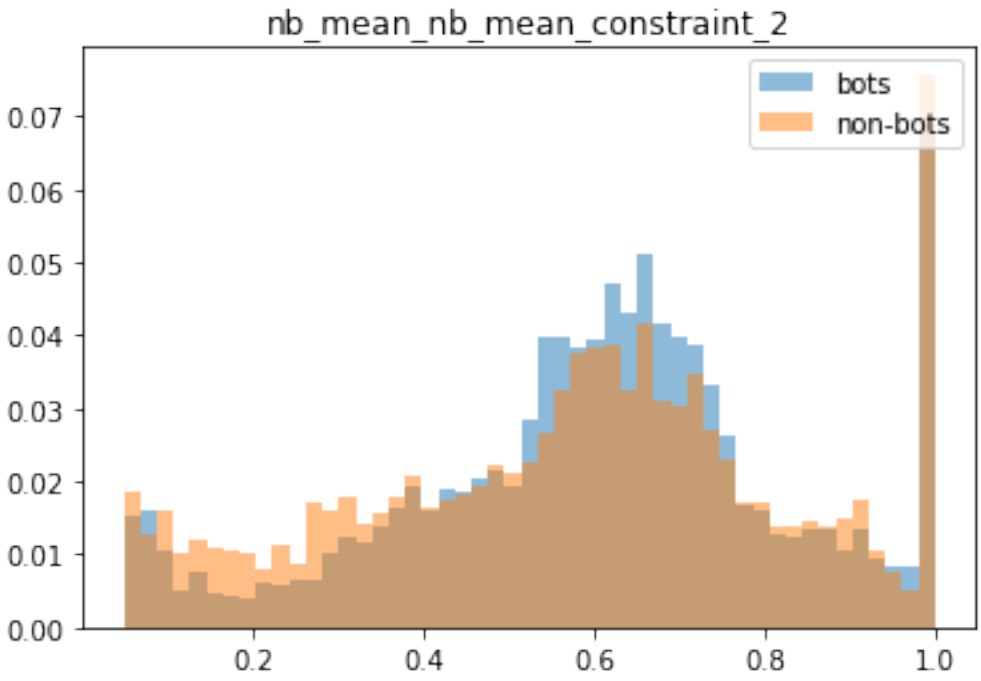
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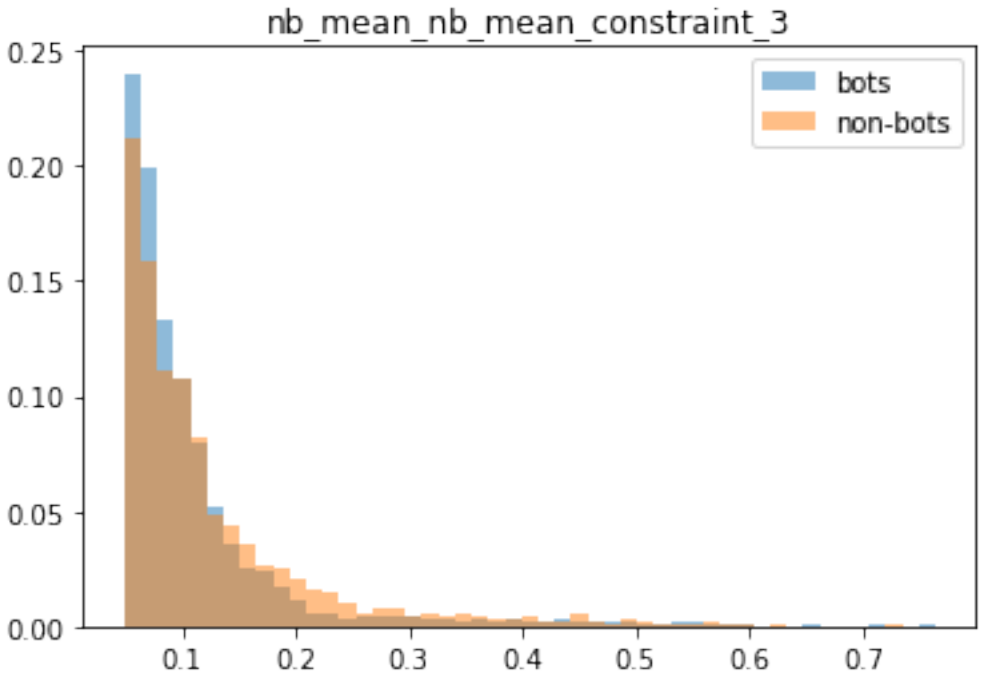
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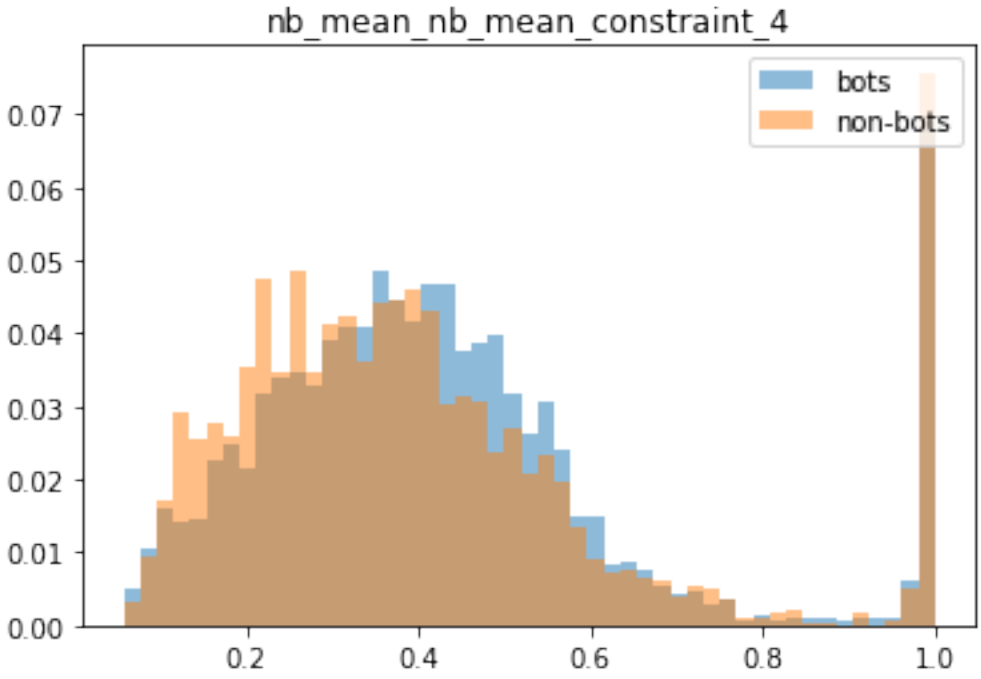
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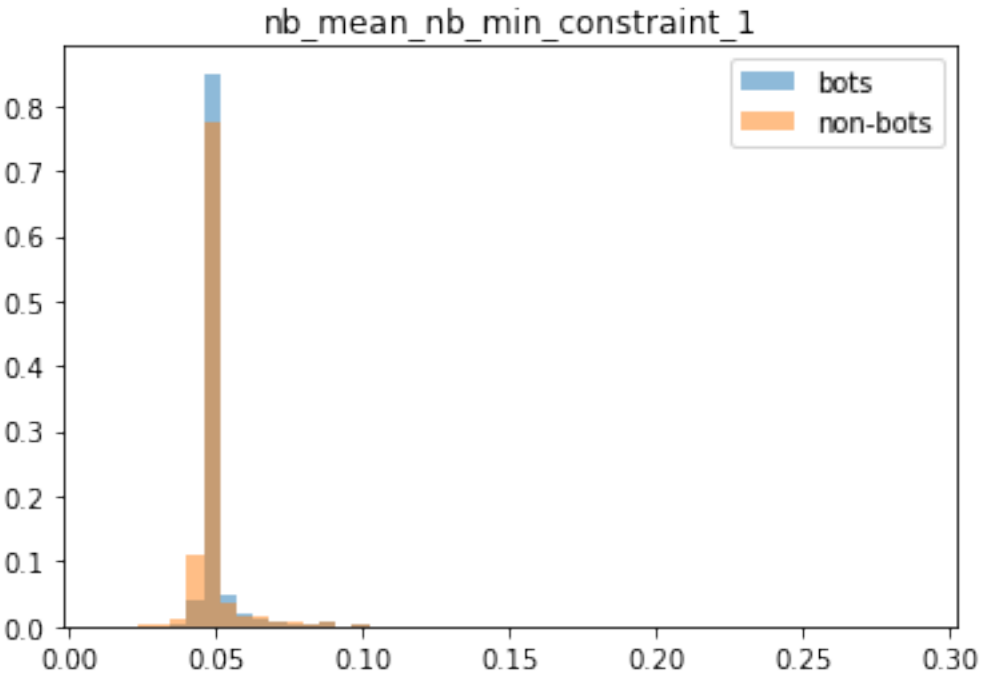
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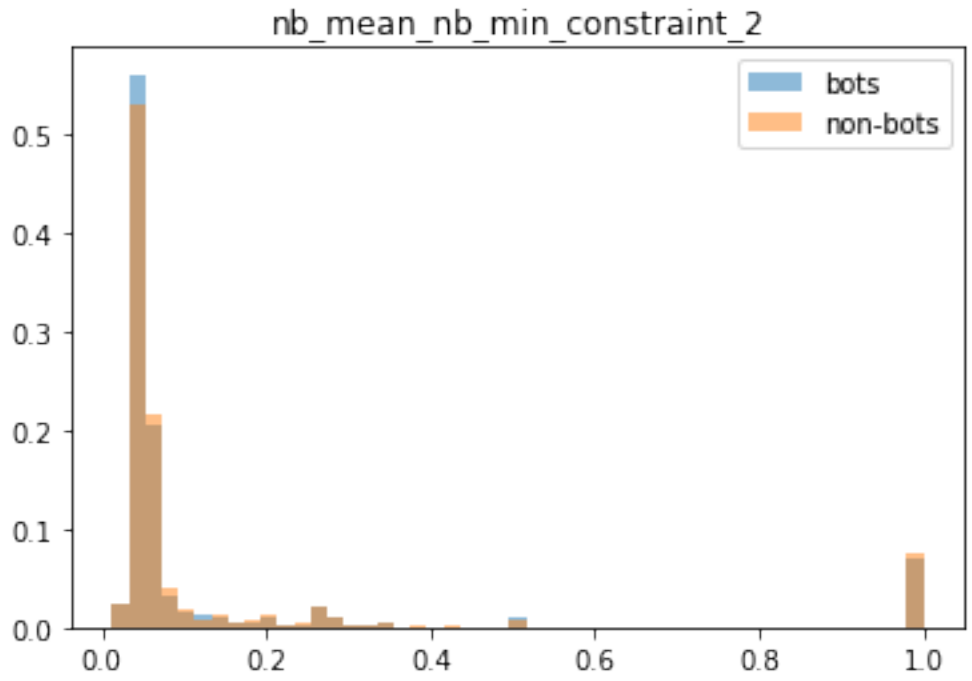
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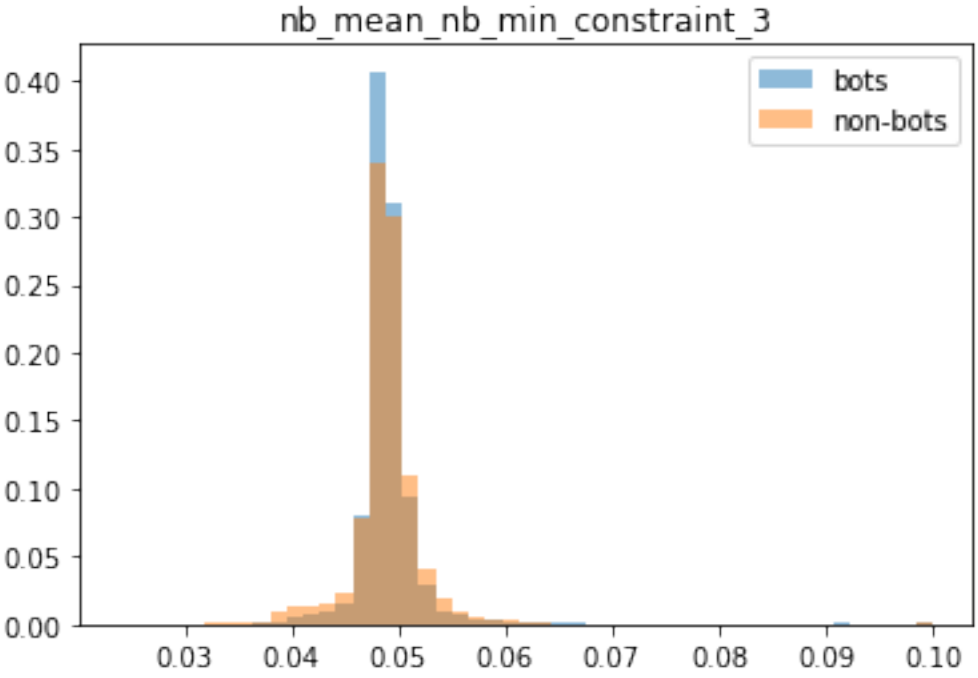
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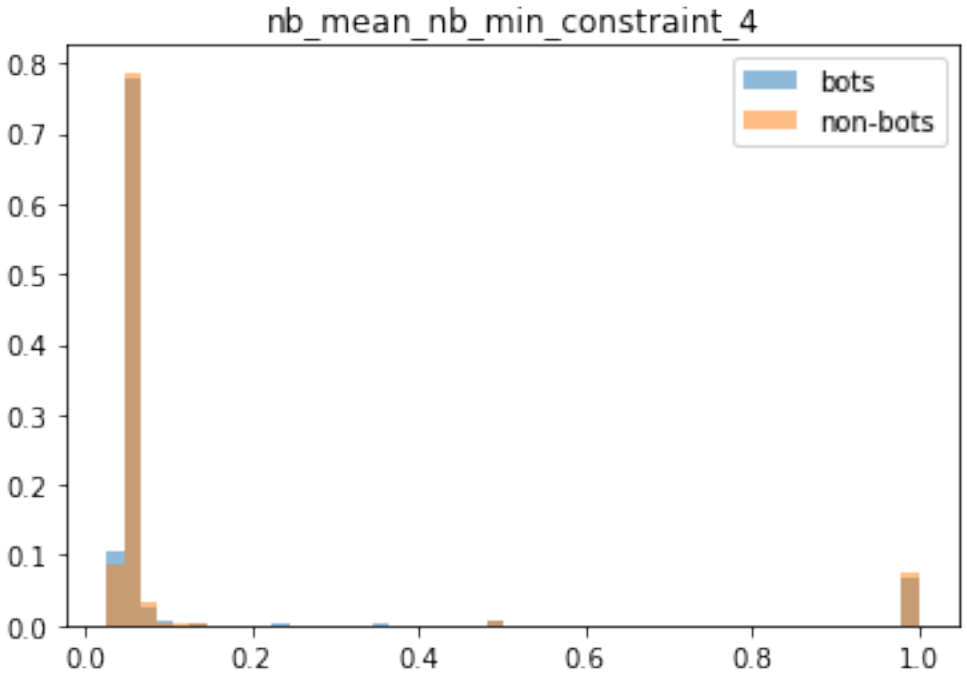
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non-bots
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0.2
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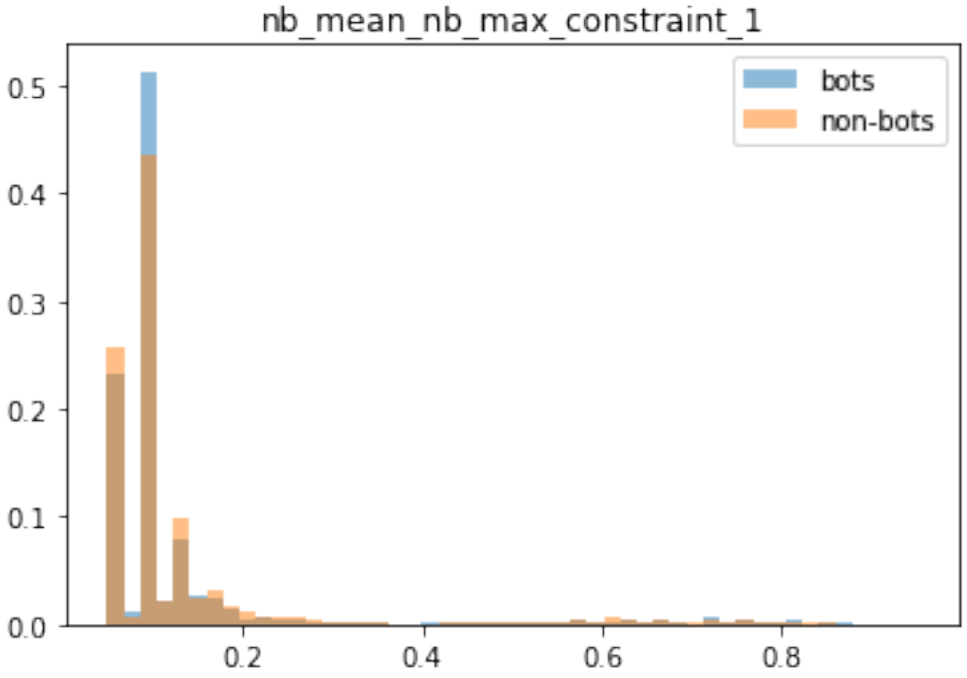
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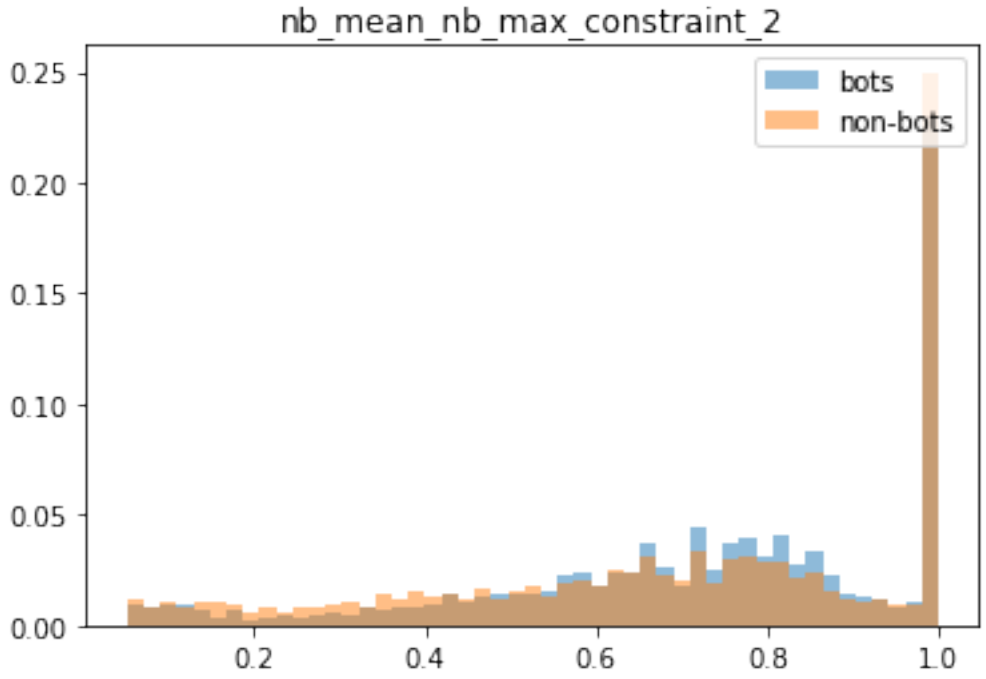
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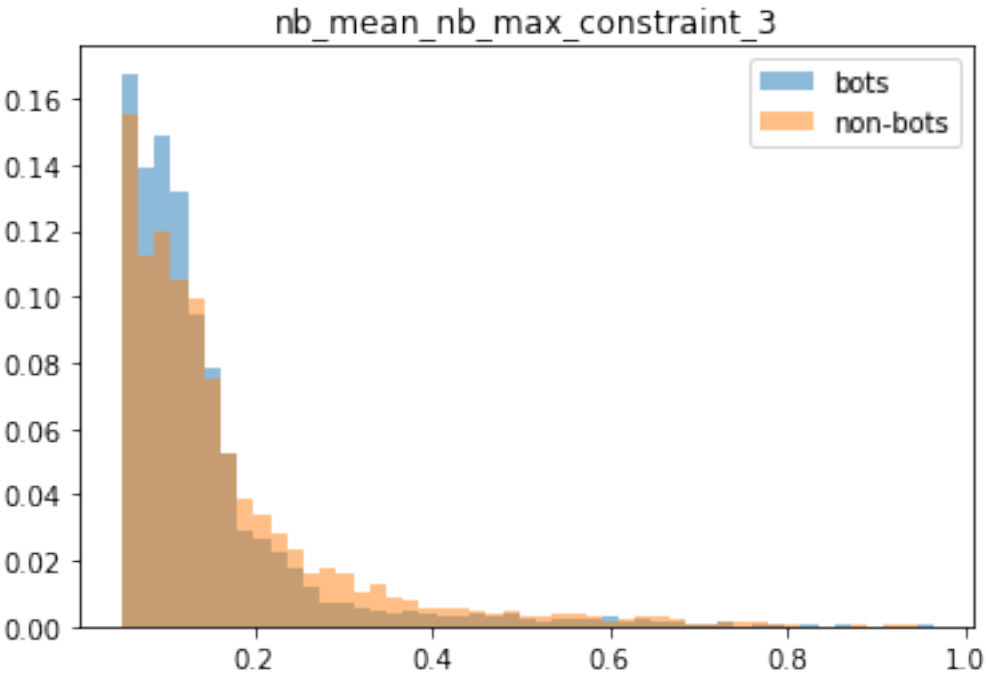
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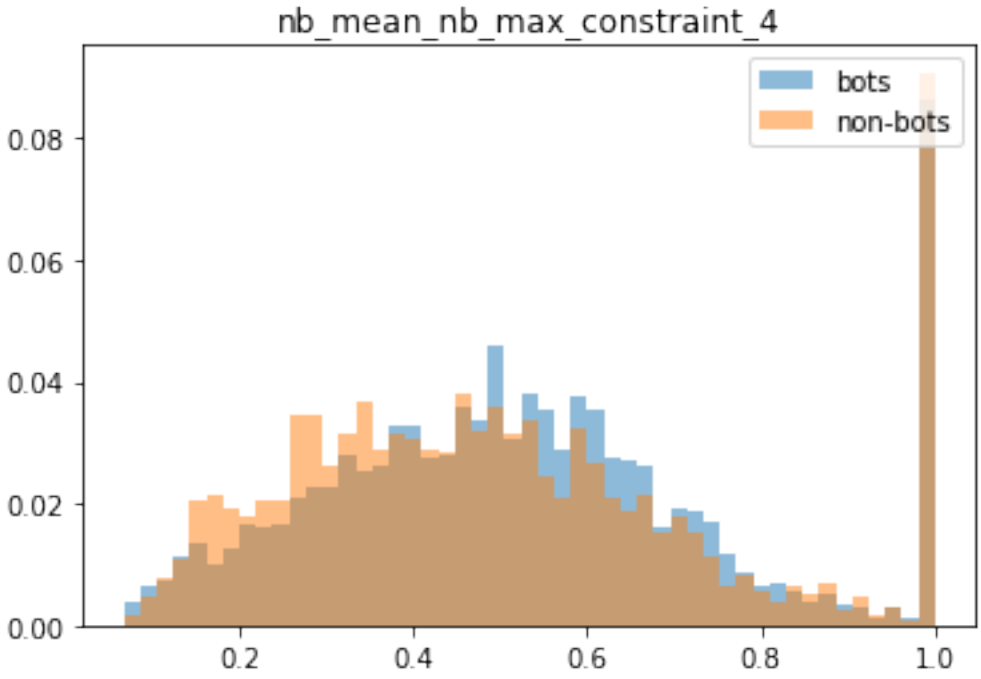
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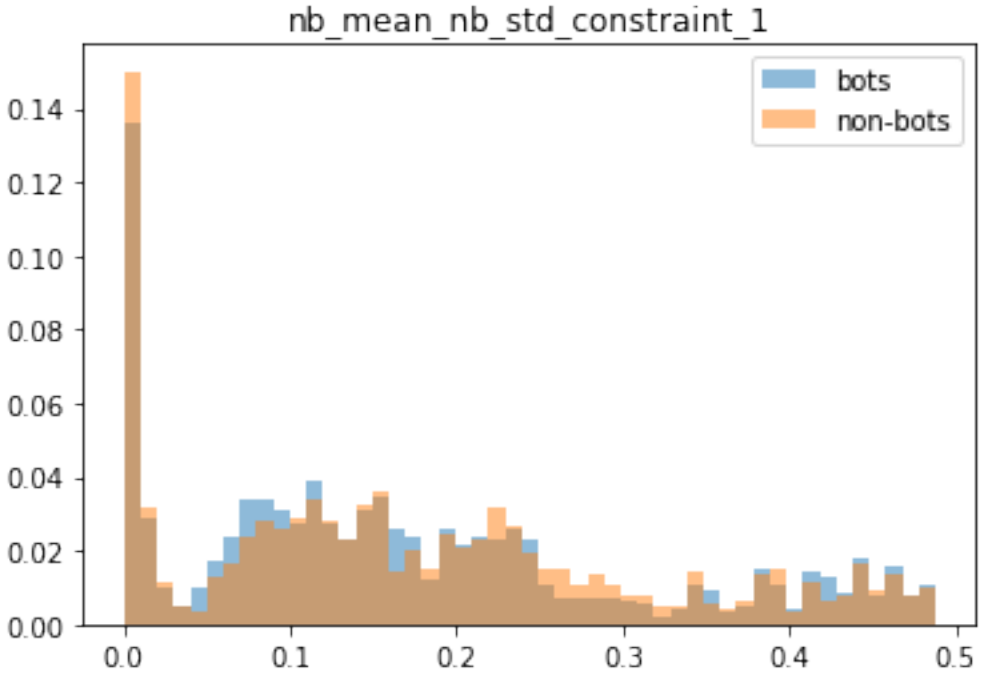
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non-bots
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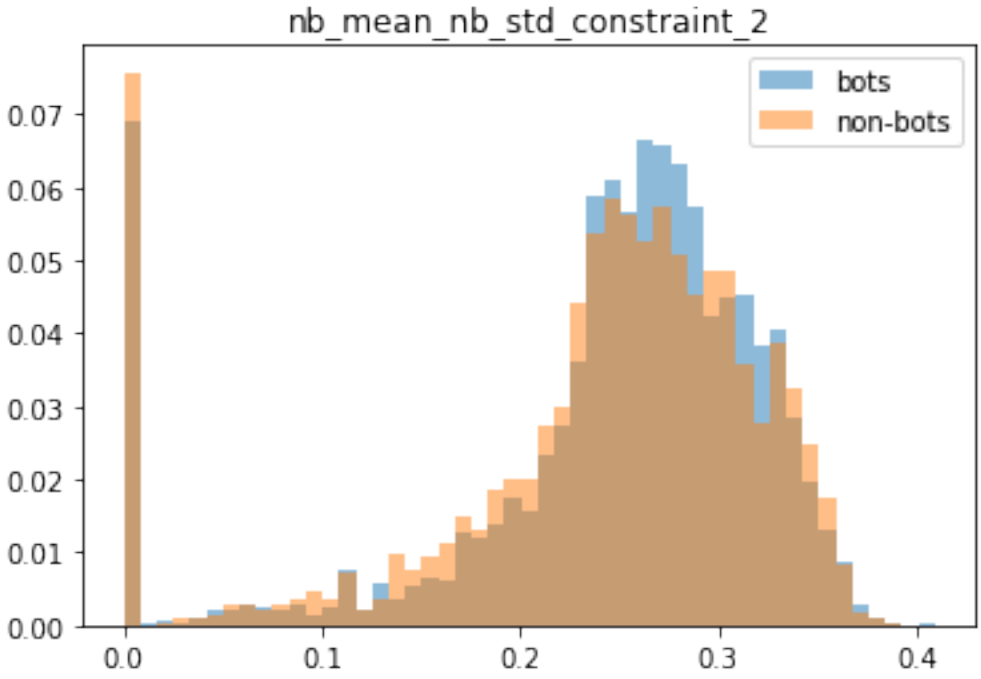
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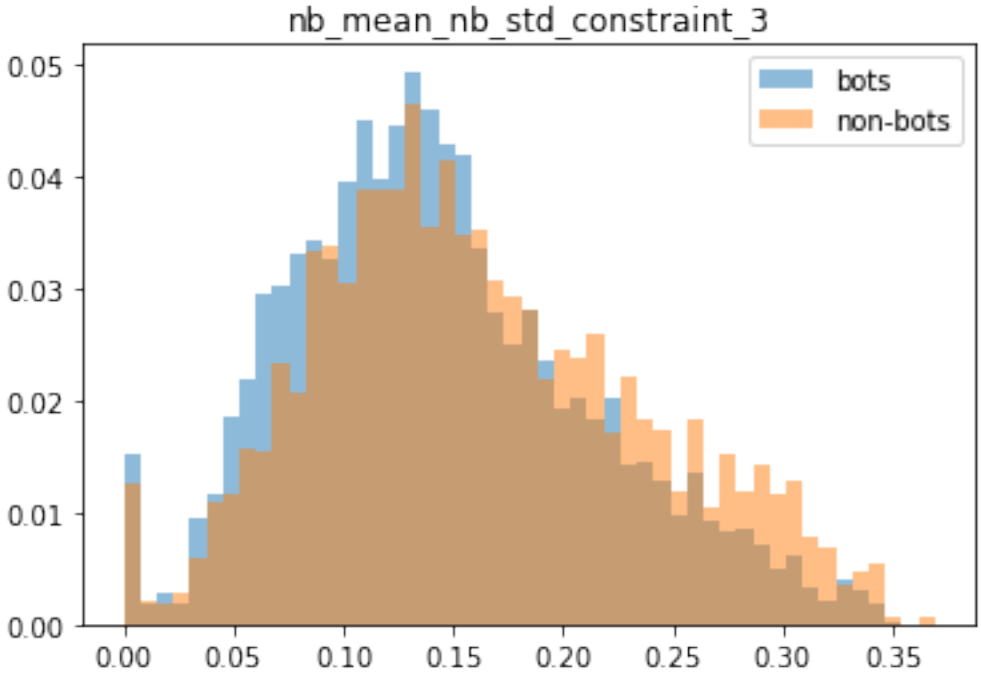
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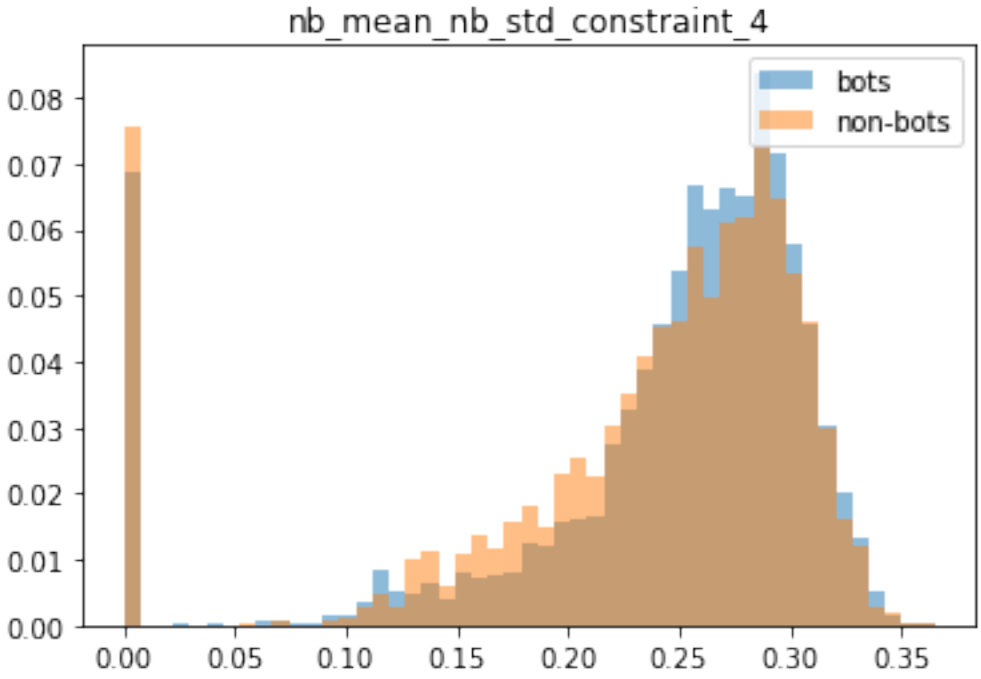
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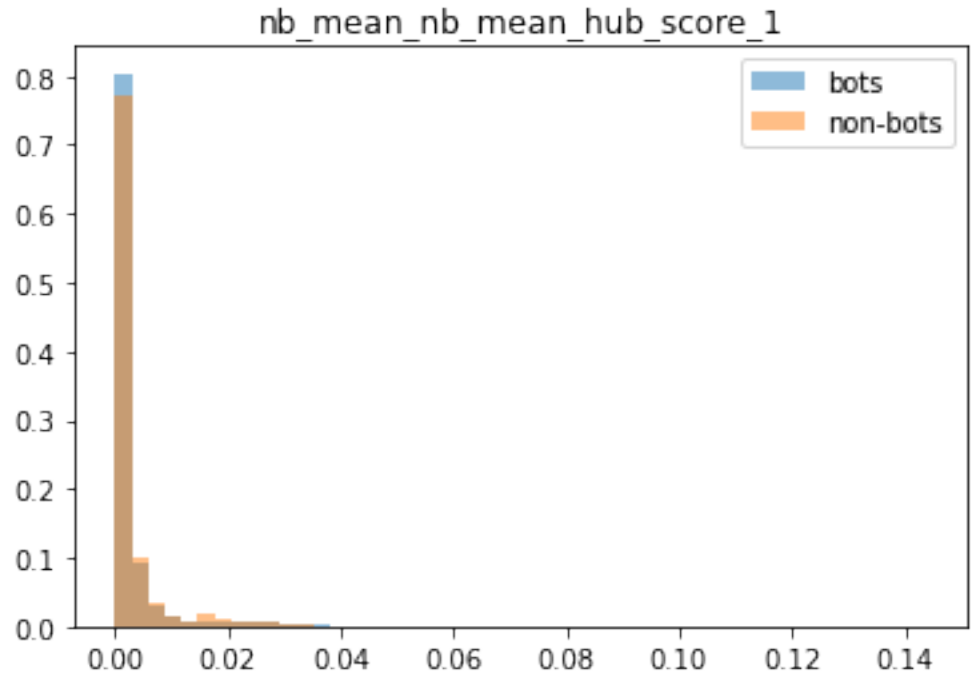
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0.06
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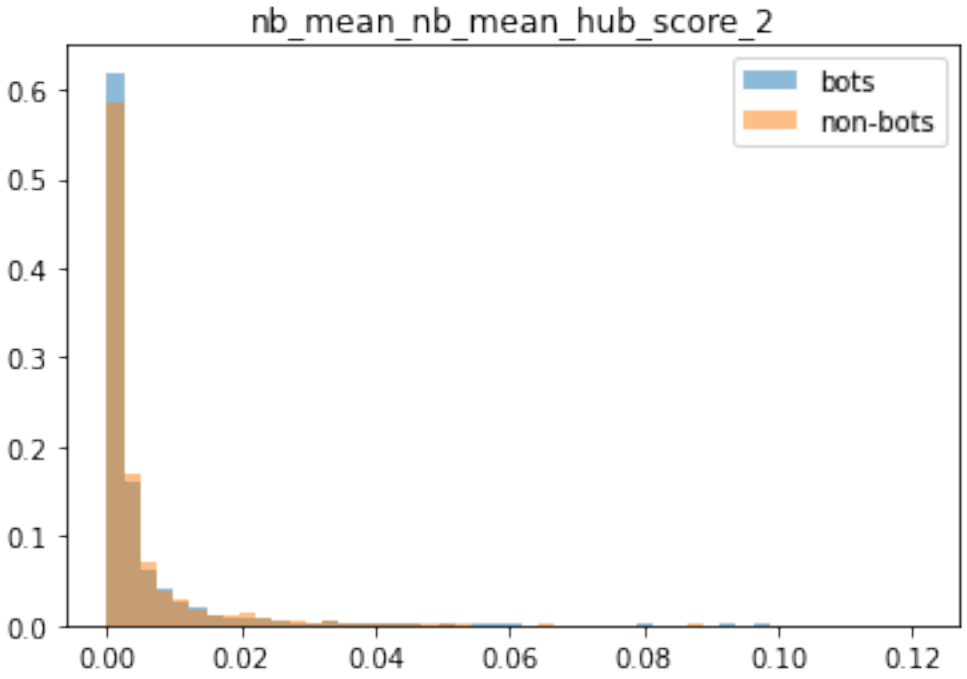
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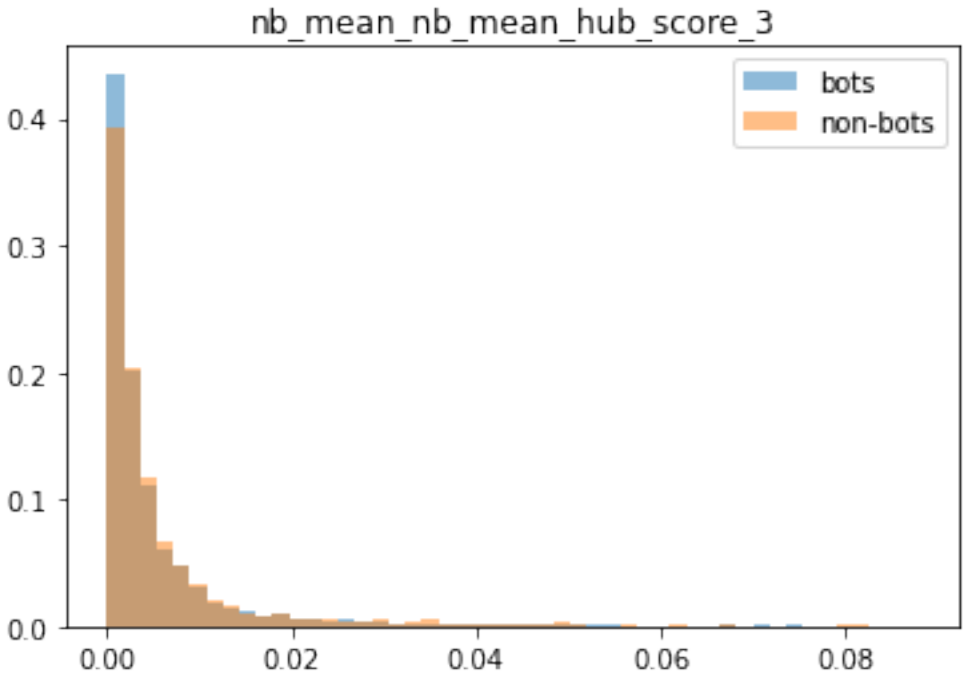
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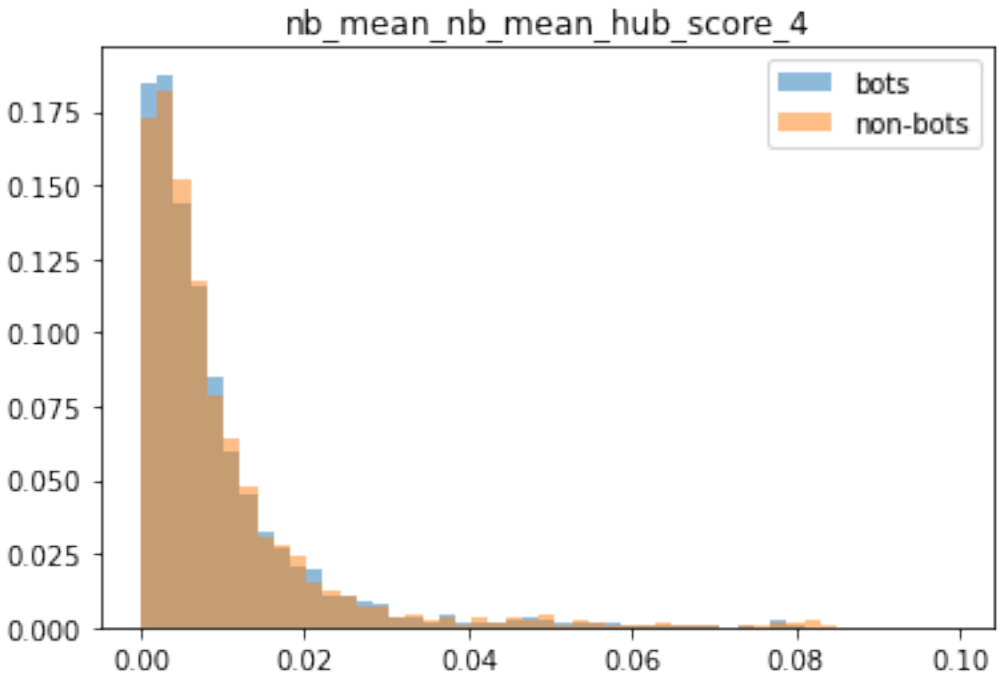
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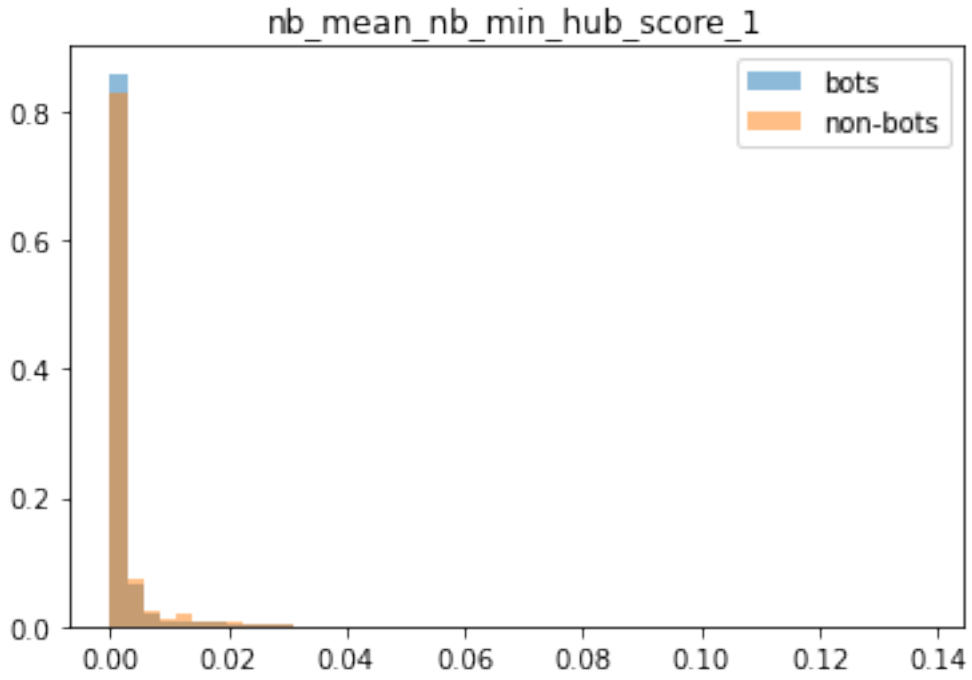
nb_mean_nb_min_hub_score_1
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non-bots
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0.06
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0.12
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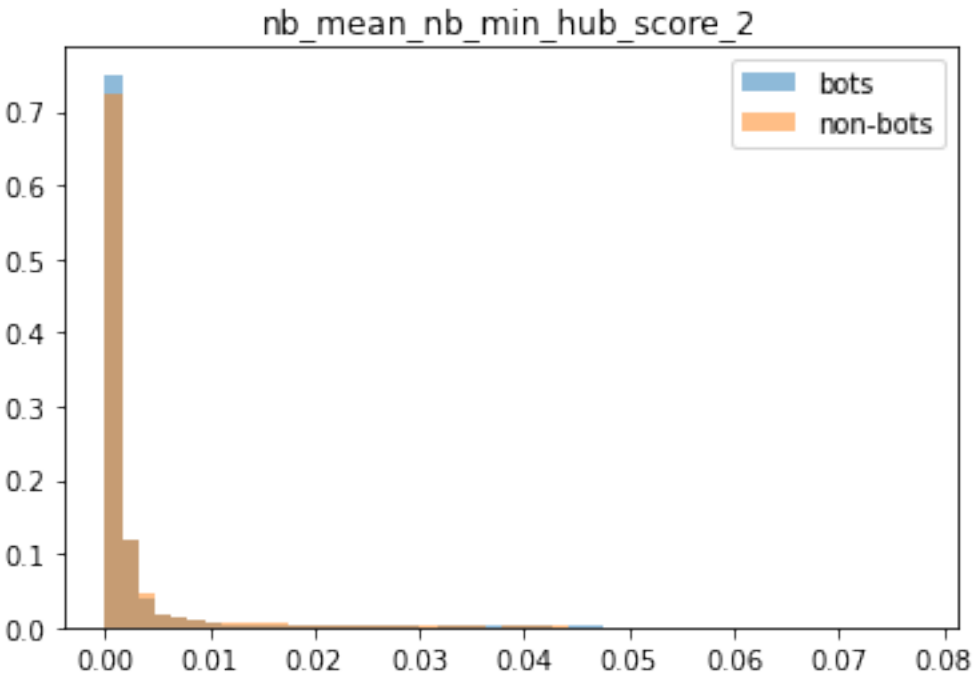
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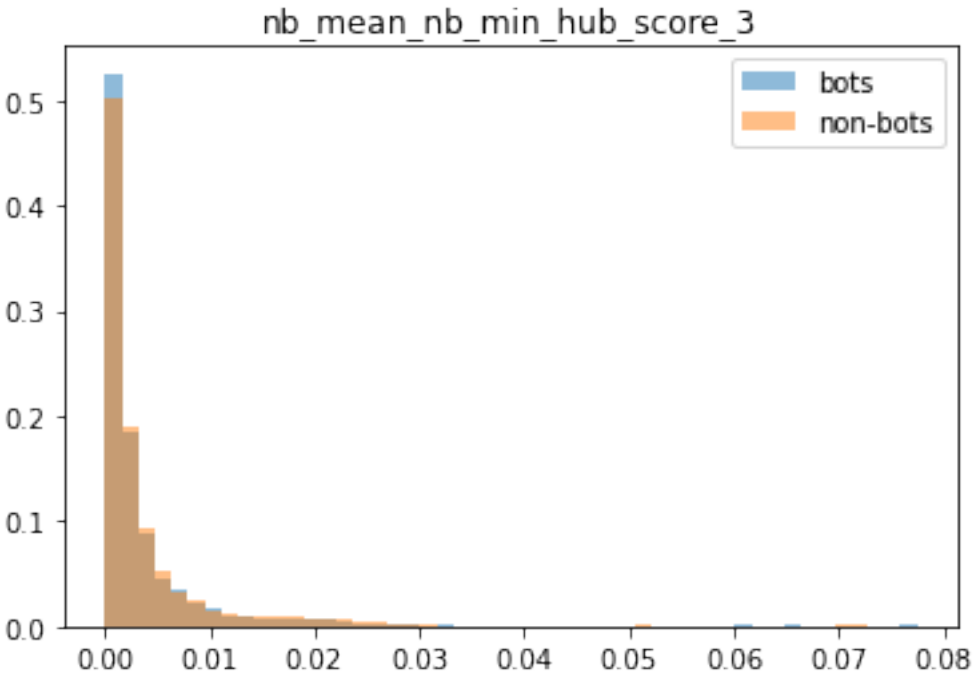
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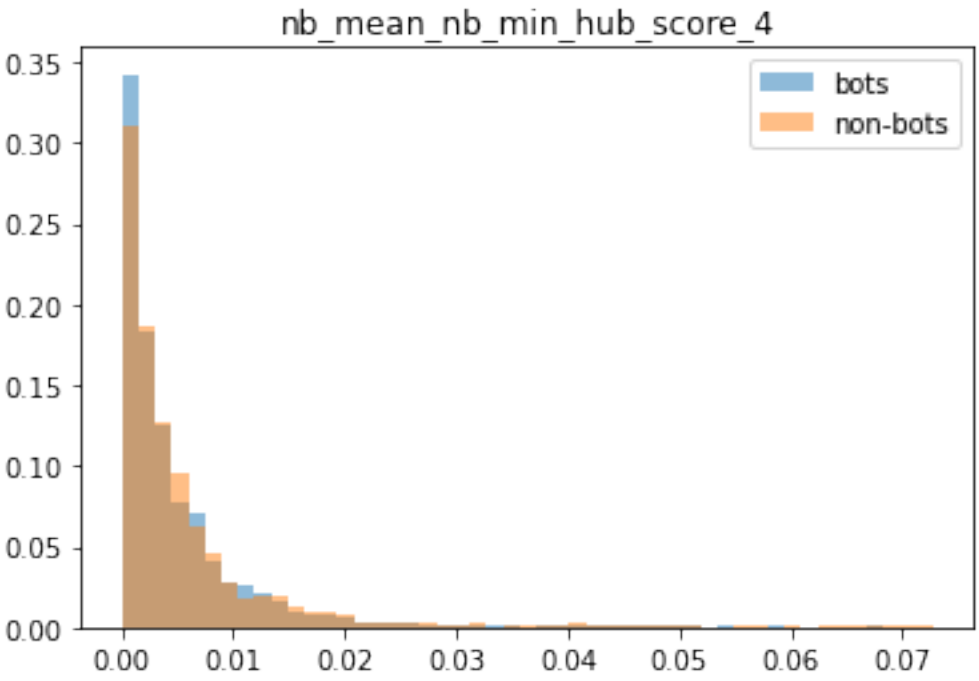
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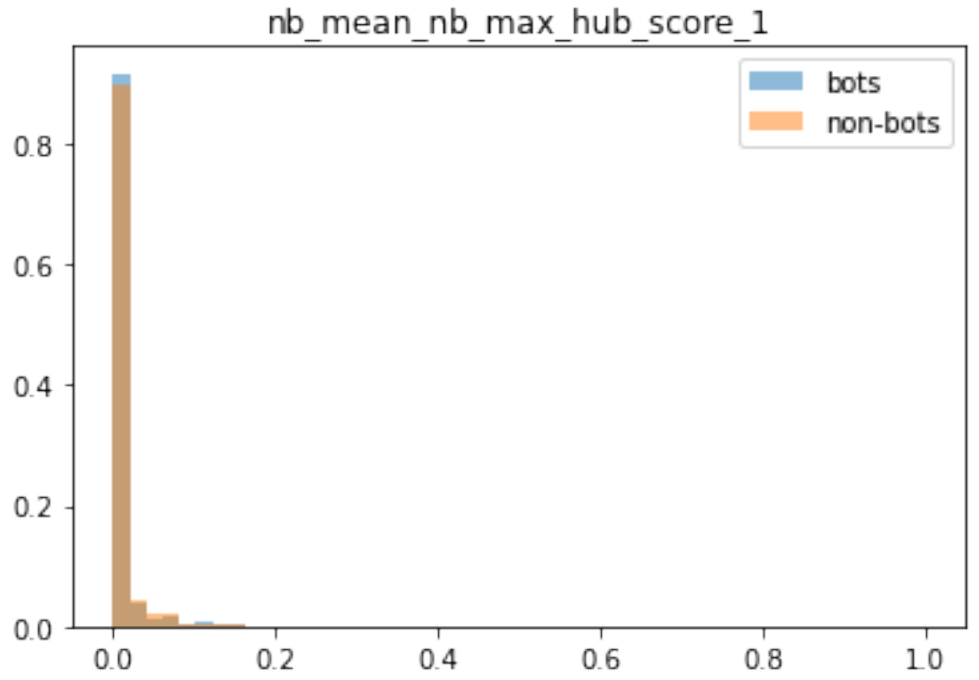
nb_mean_nb_max_hub_score_1
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non-bots
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0.4
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0.8
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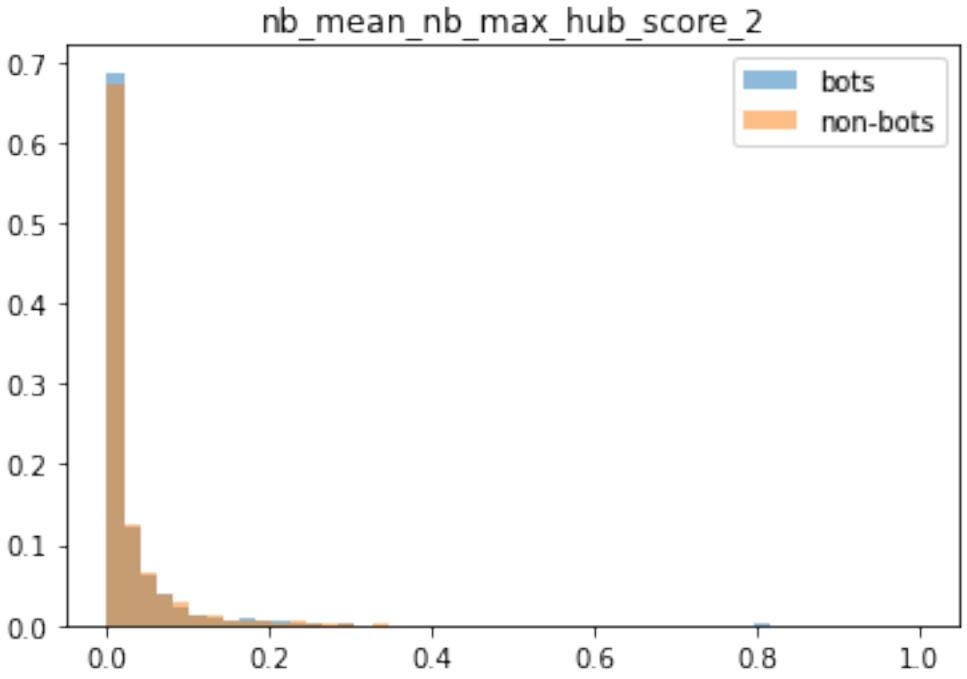
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0.6
0.8
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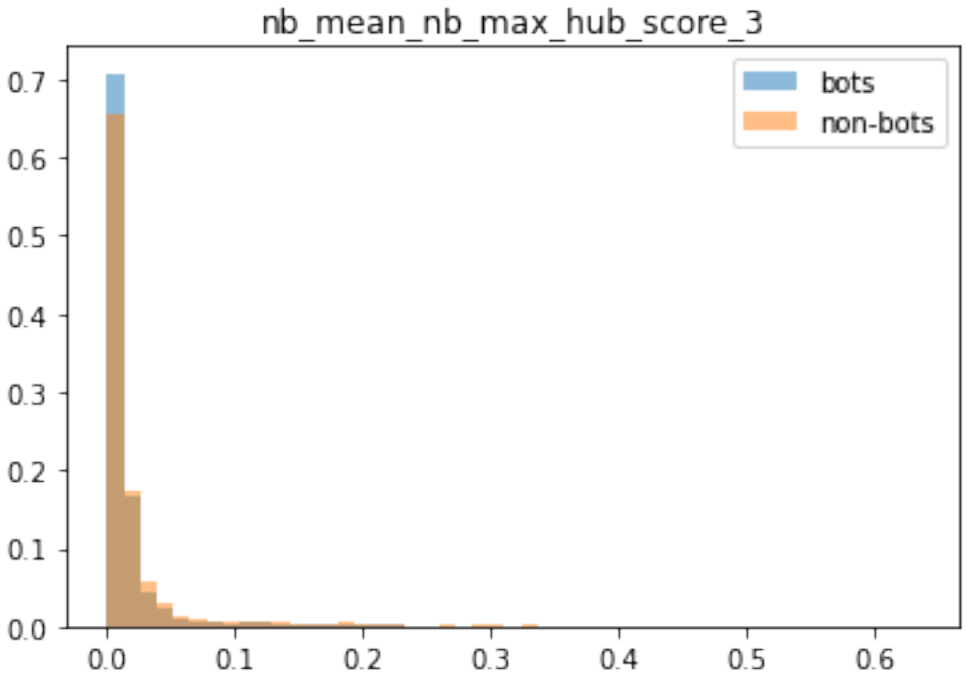
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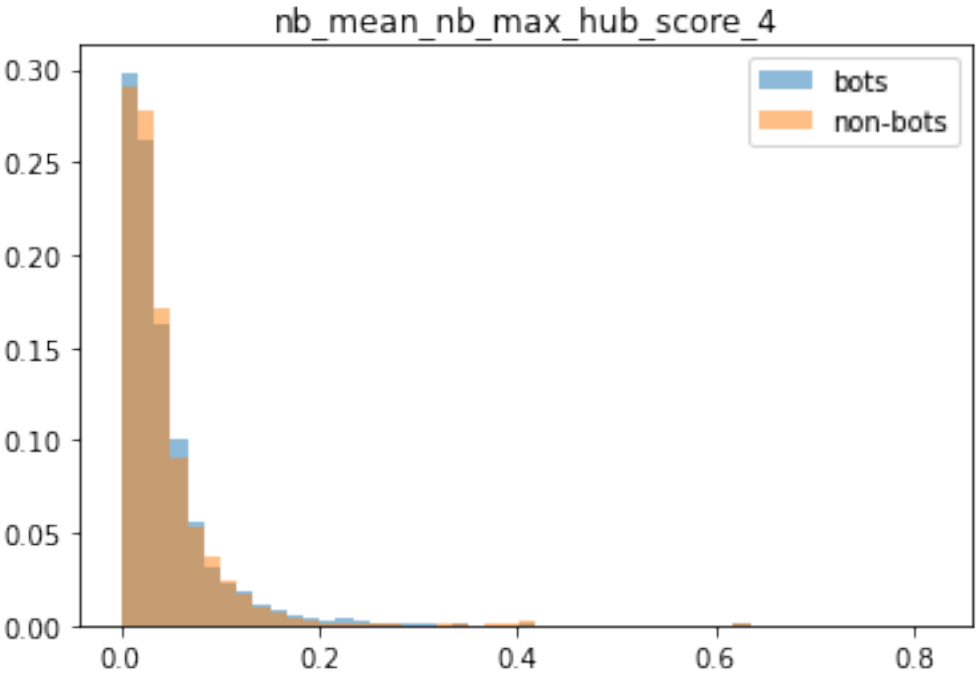
0.2
0.3
0.4
0.5
0.6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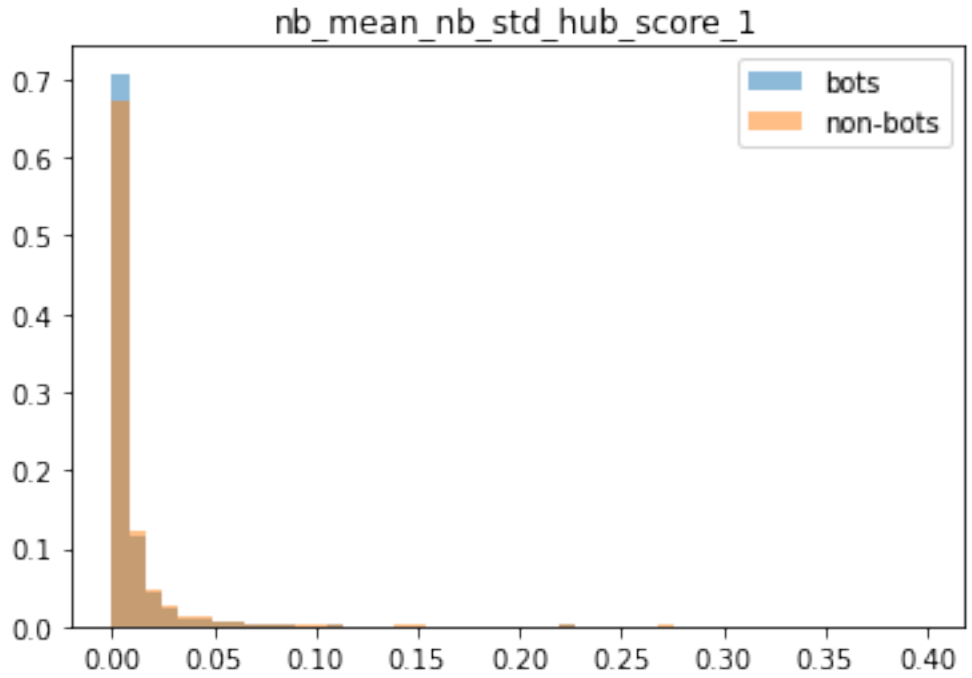
nb_mean_nb_std_hub_score_1
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0.3
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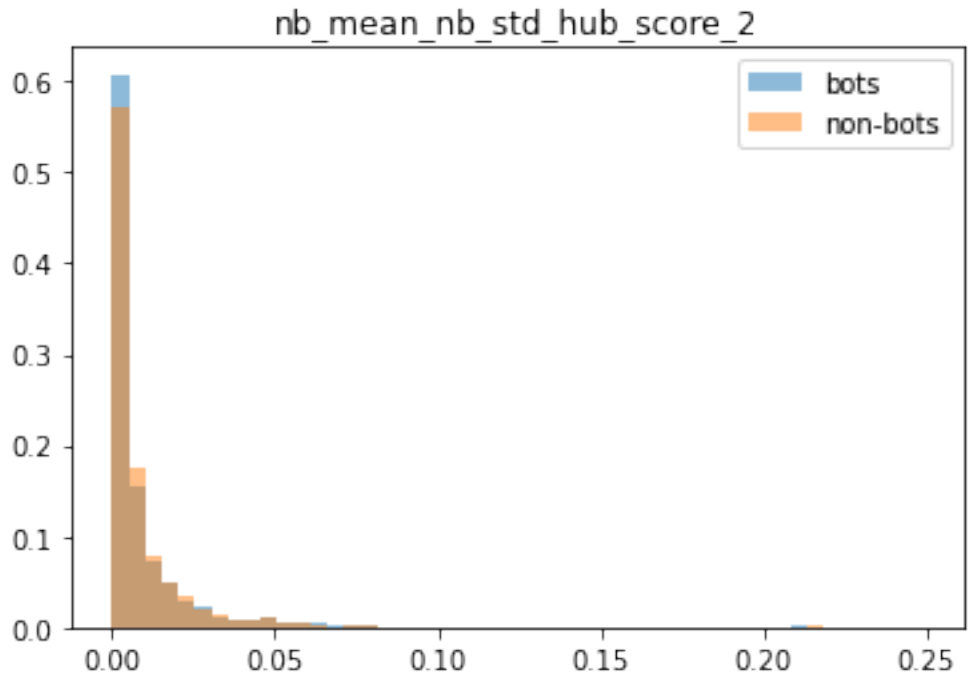
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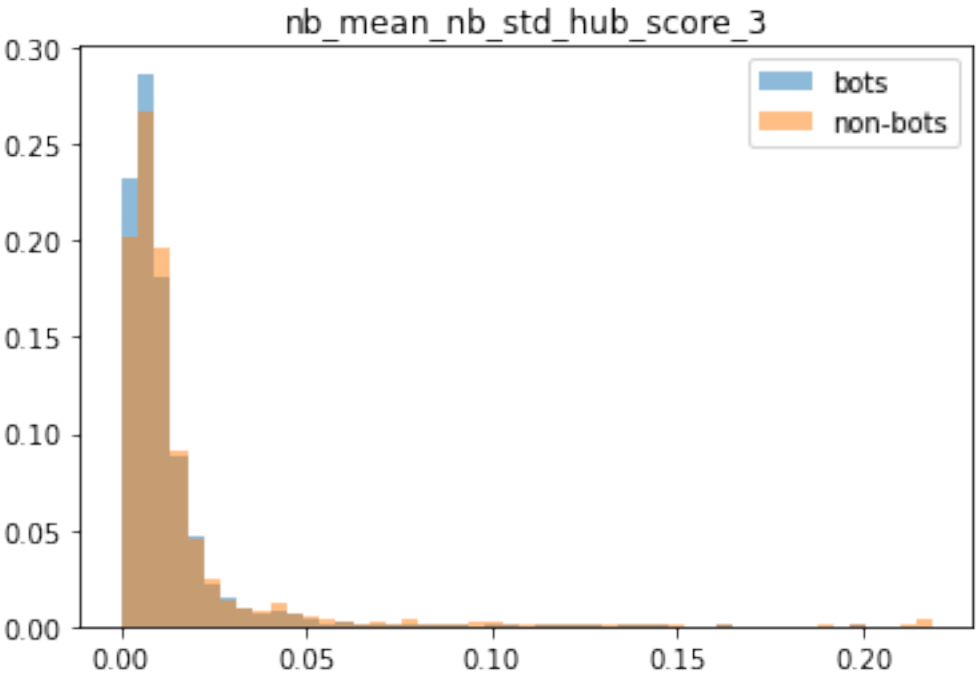
0.25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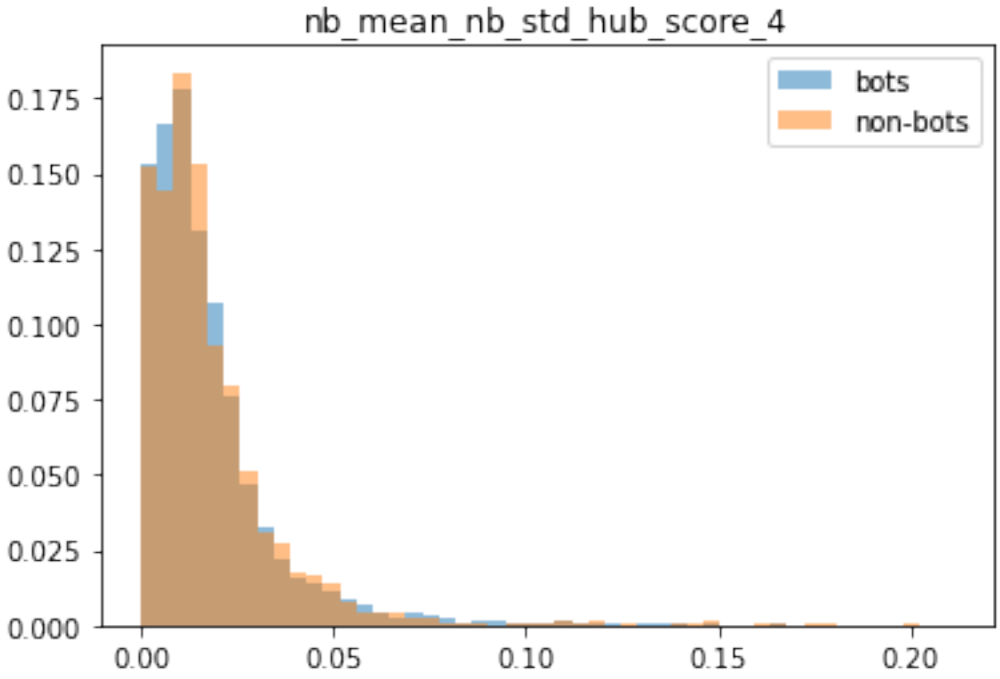
0.20


nb_mean_nb_std_hub_score_4
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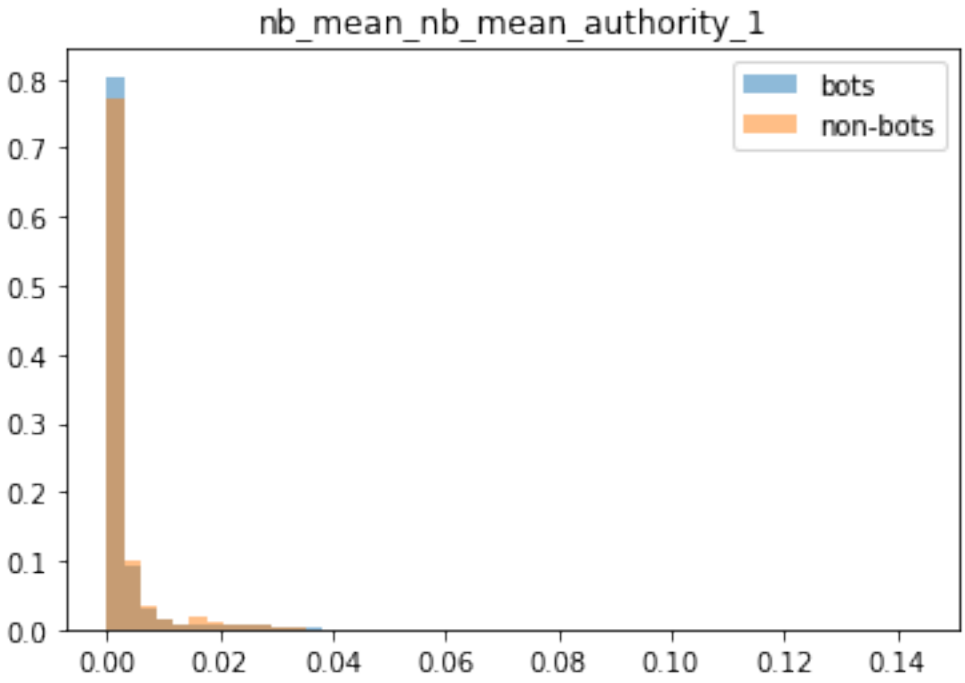
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0.4
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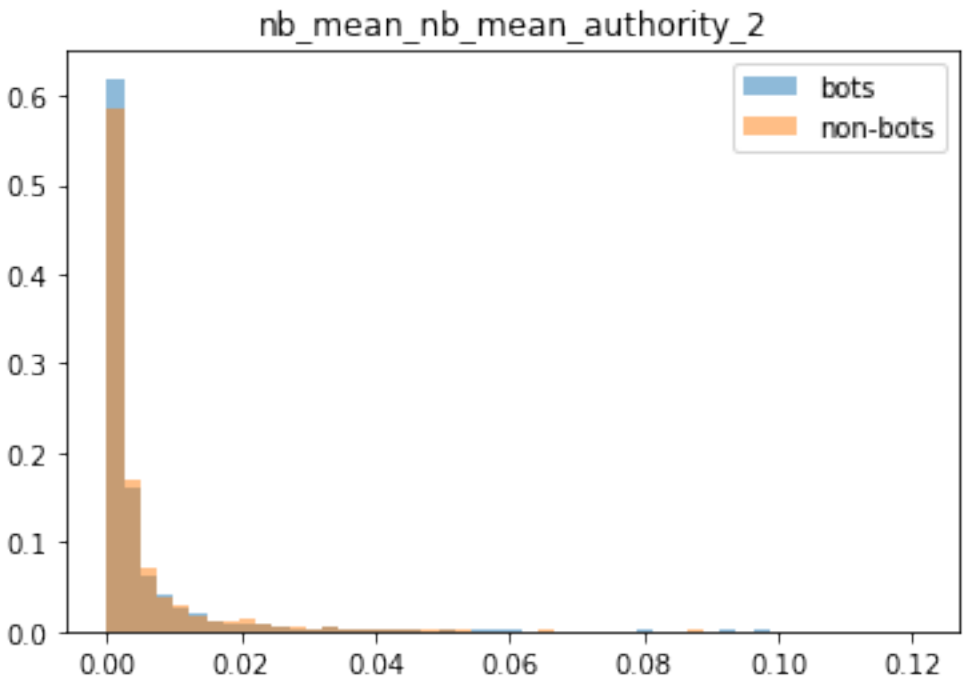
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non-bots
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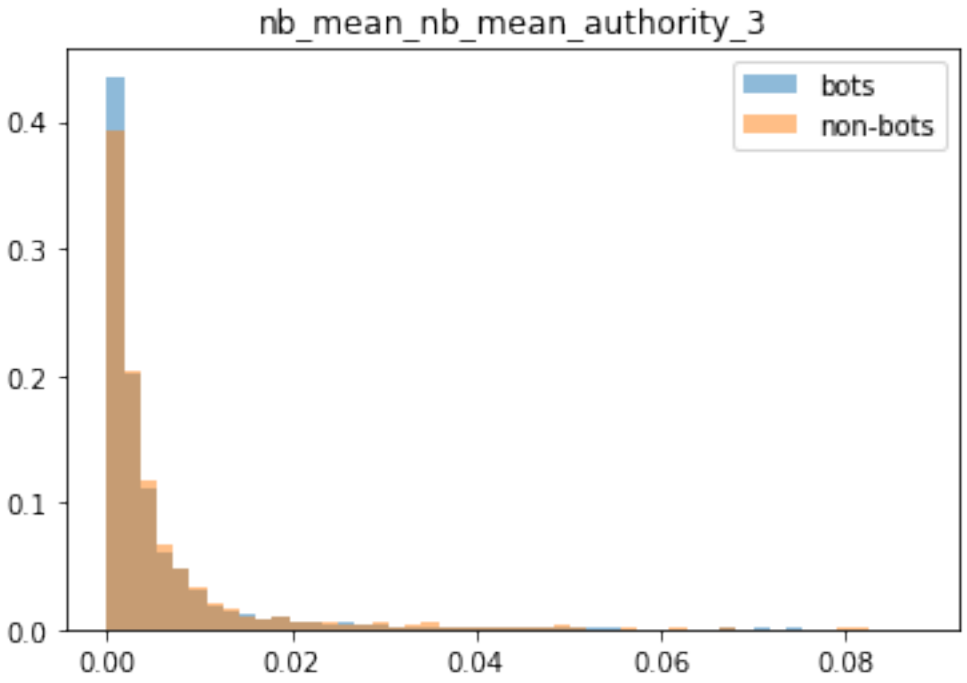
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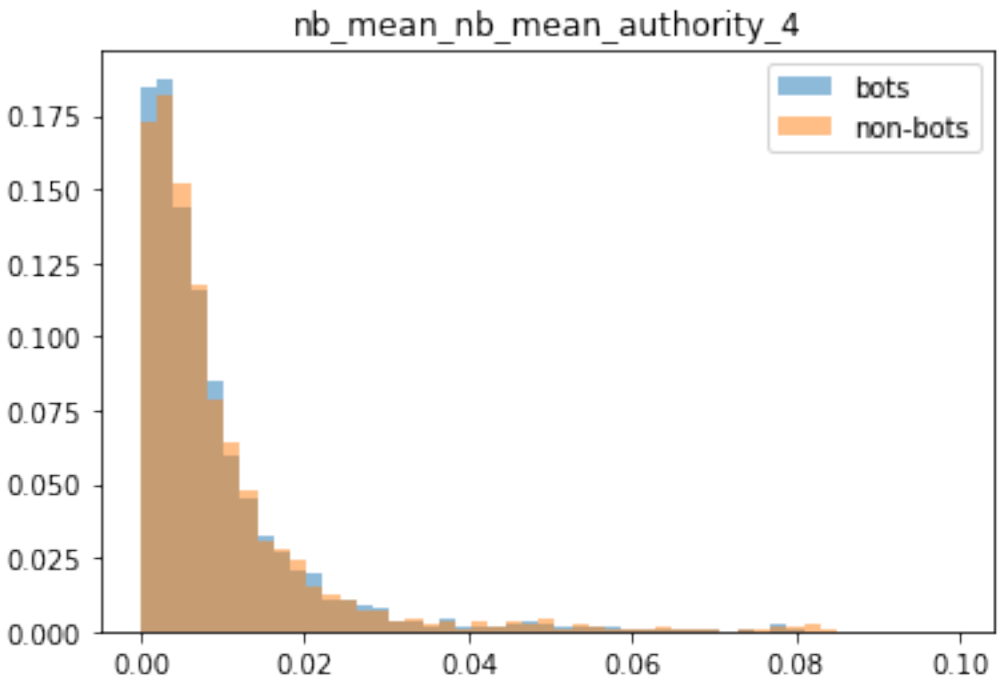
nb_mean_nb_mean_authority_4
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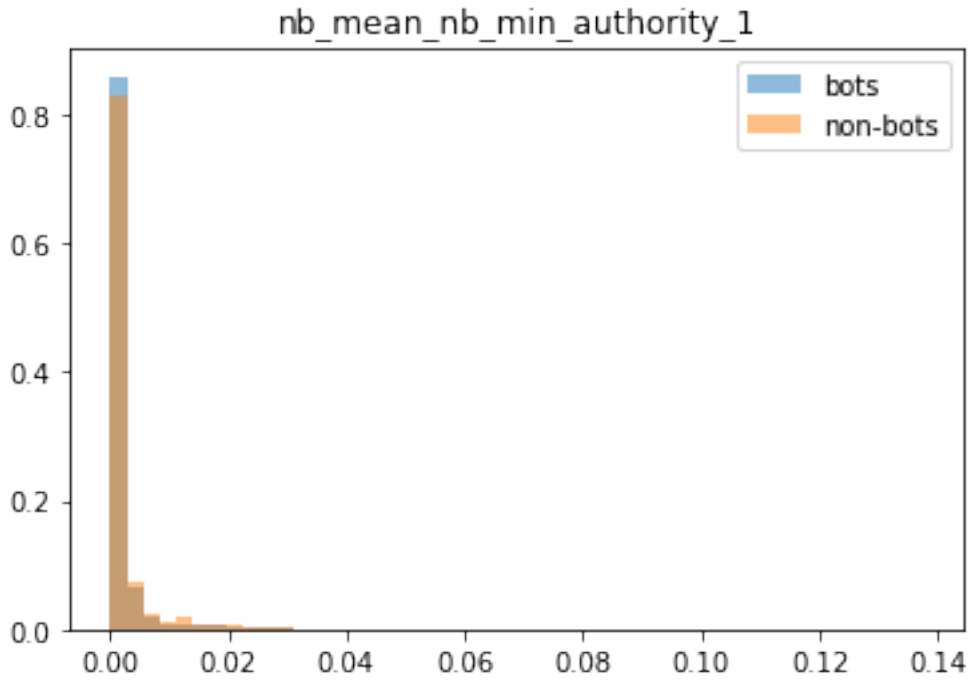
0.08
0.10


nb_mean_nb_min_authority_1
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non-bots
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0.06
0.08
0.10
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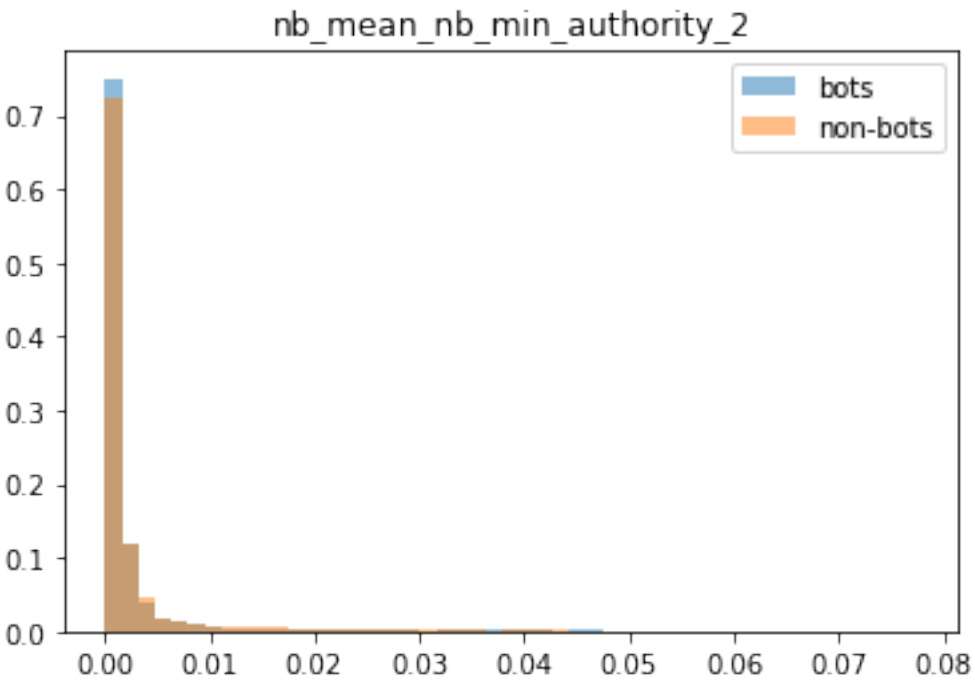
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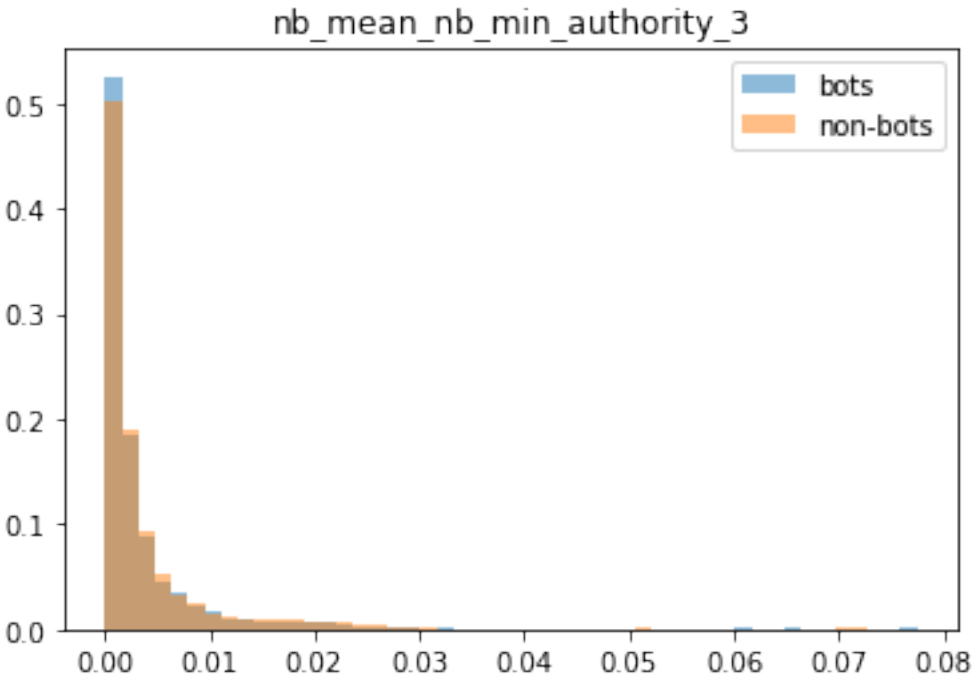
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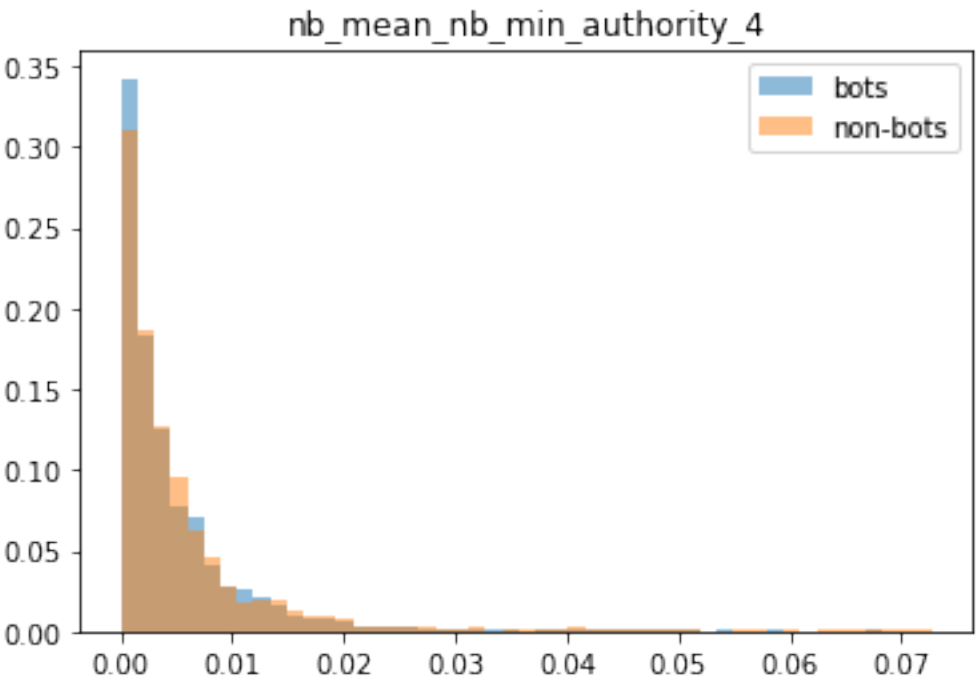
0.05
0.06
0.07
0.08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non-bots
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0.06
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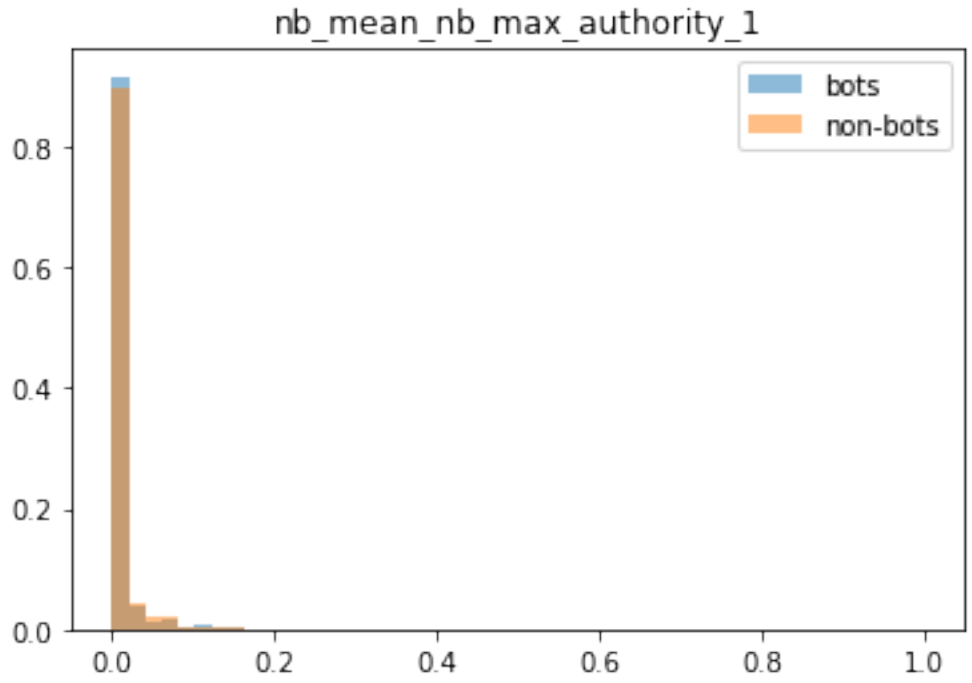
nb_mean_nb_max_authority_1
bots
non-bots
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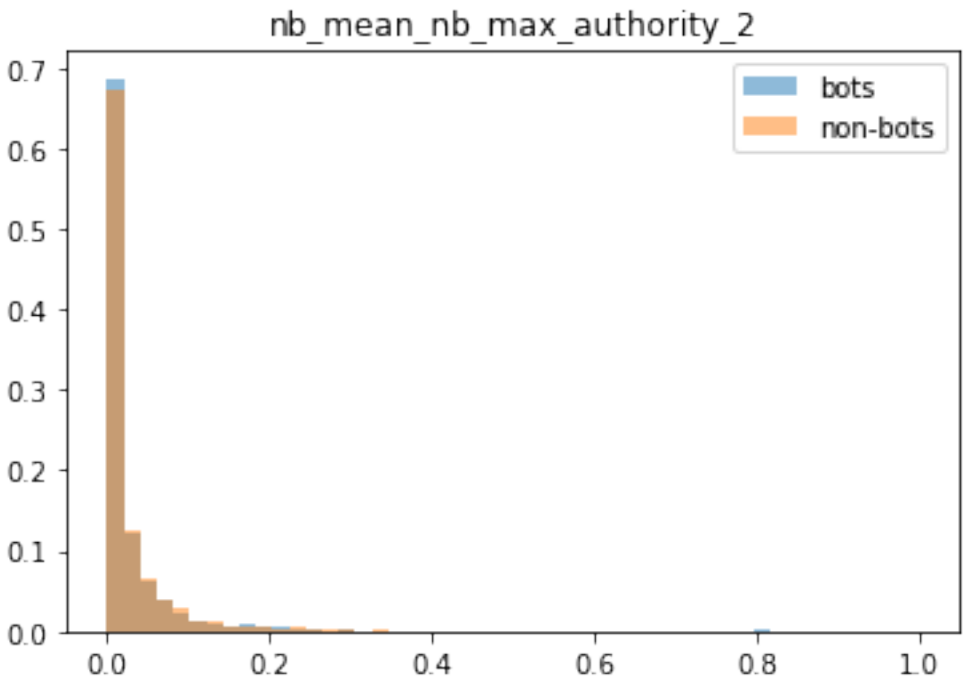
0.0
0.0
0.2
0.4
0.6
0.8
1.0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0.8
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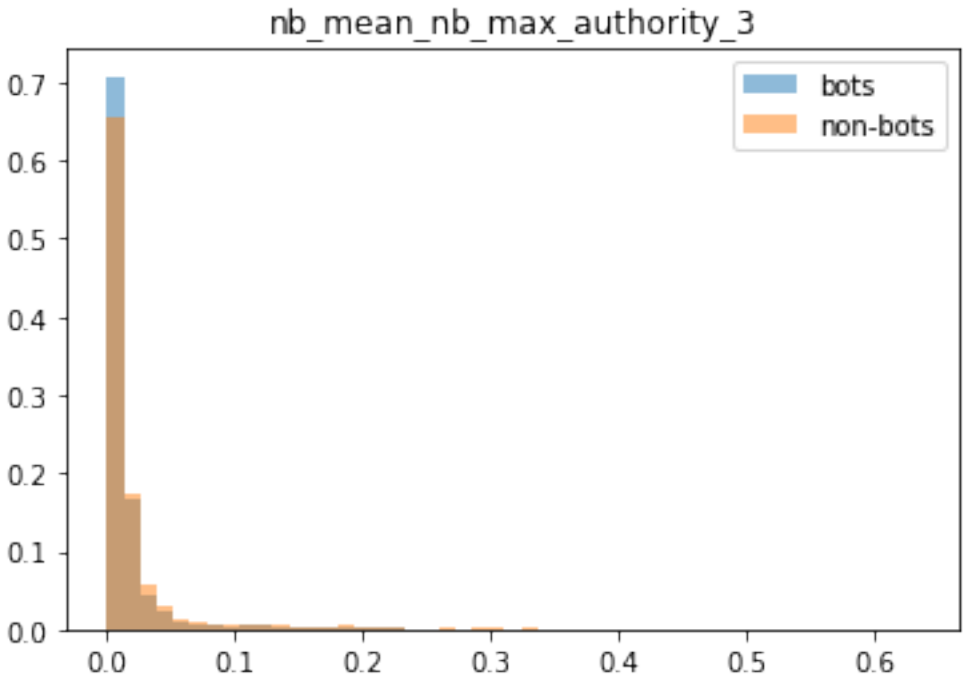
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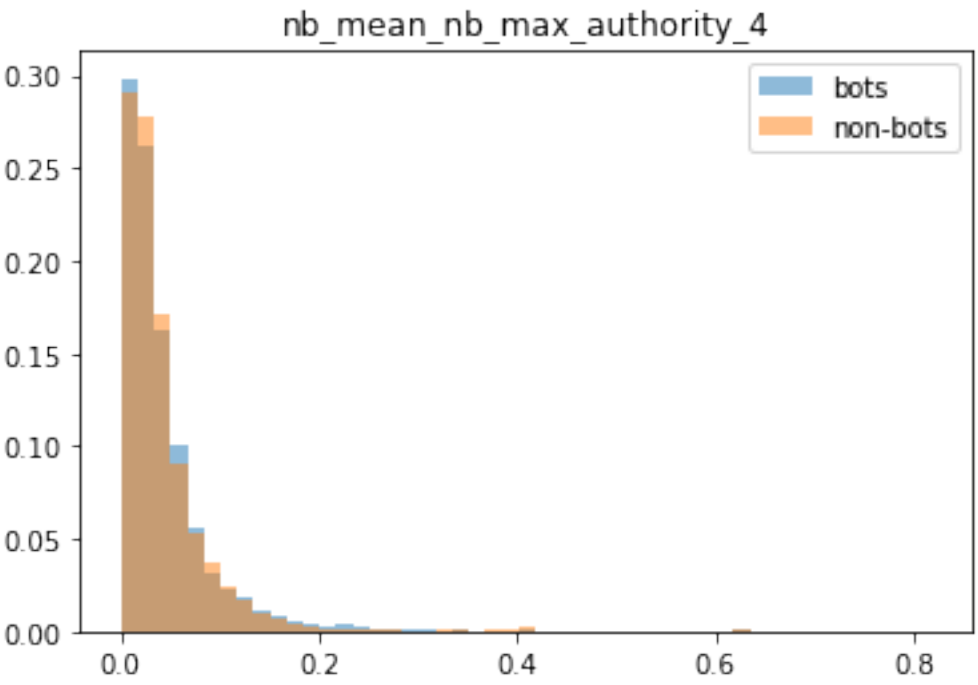
0.4
0.5
0.6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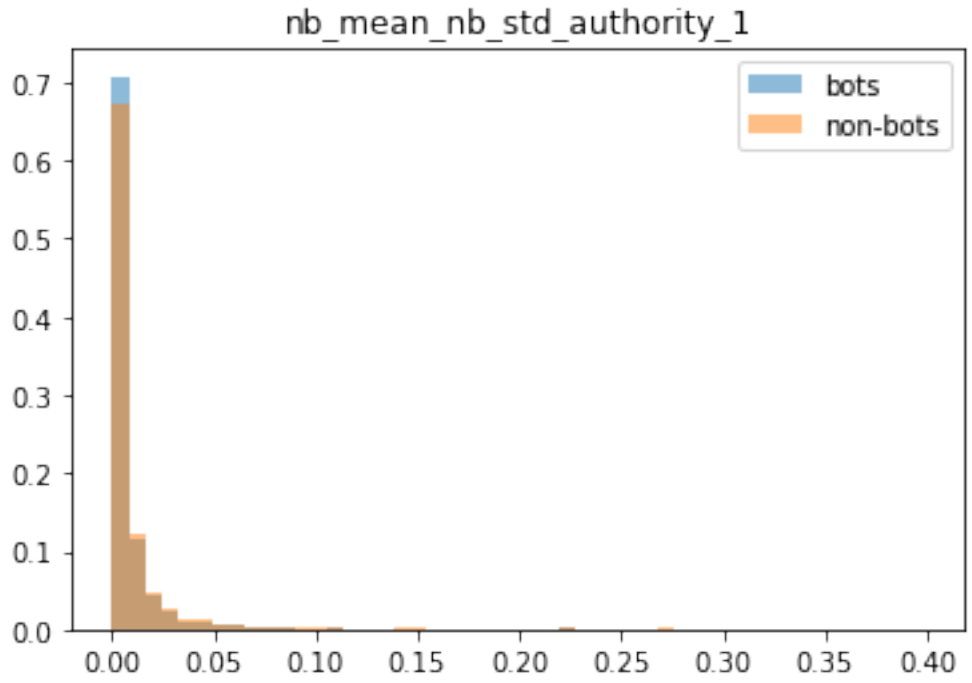
0.6
0.8


nb_mean_nb_std_authority_1
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non-bots
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0.5
0.4
0.3
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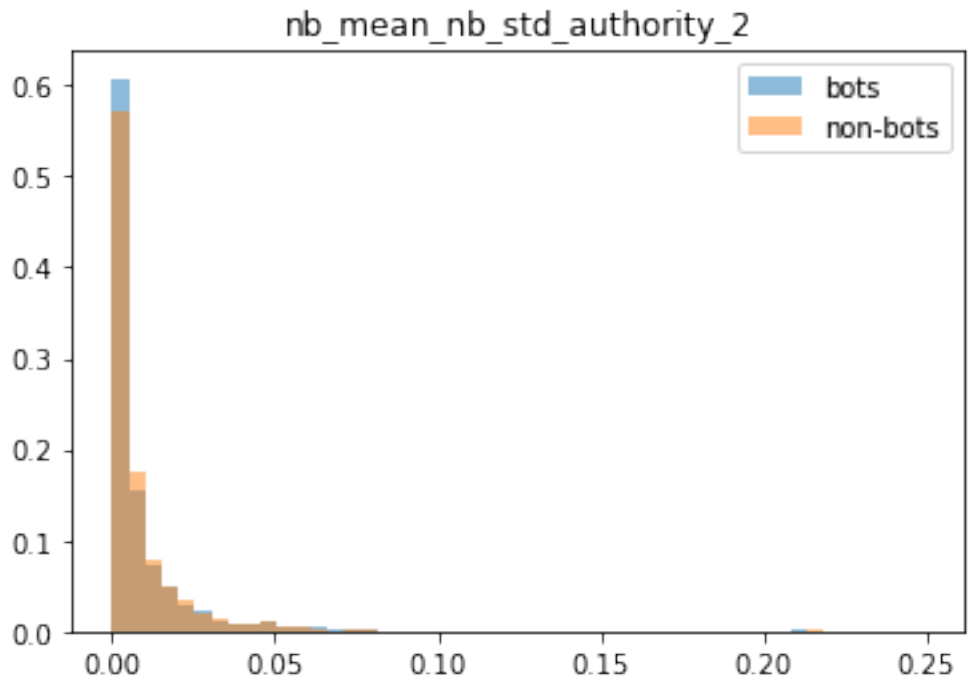
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40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non-bots
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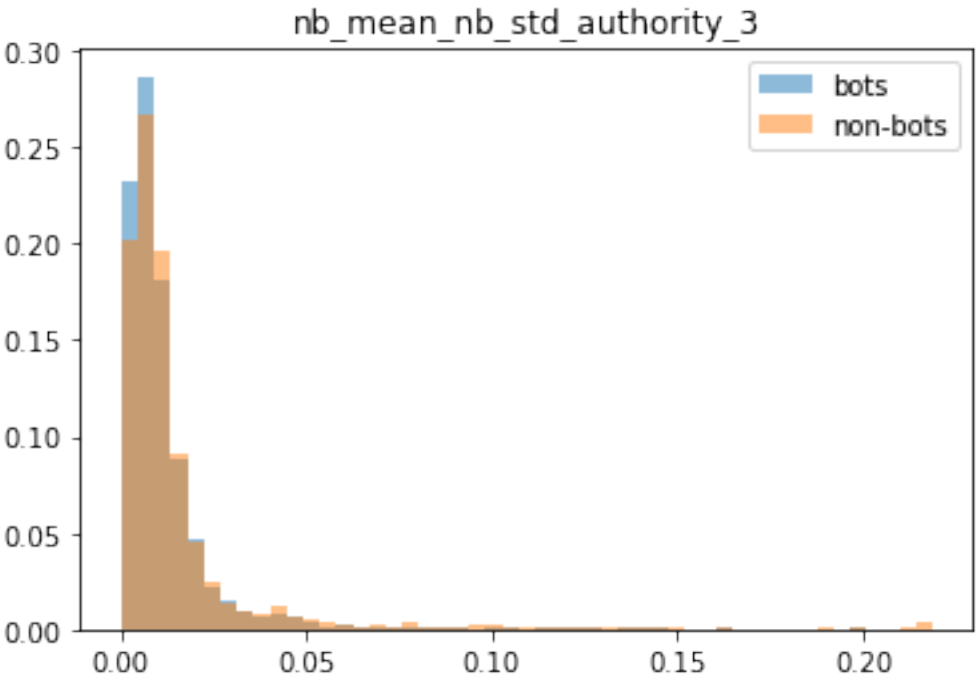
0.2
0.1
0.0
0.00
0.05
0.10
0.15
0.20
0.25


nb_mean_nb_std_authority_3
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non-bots
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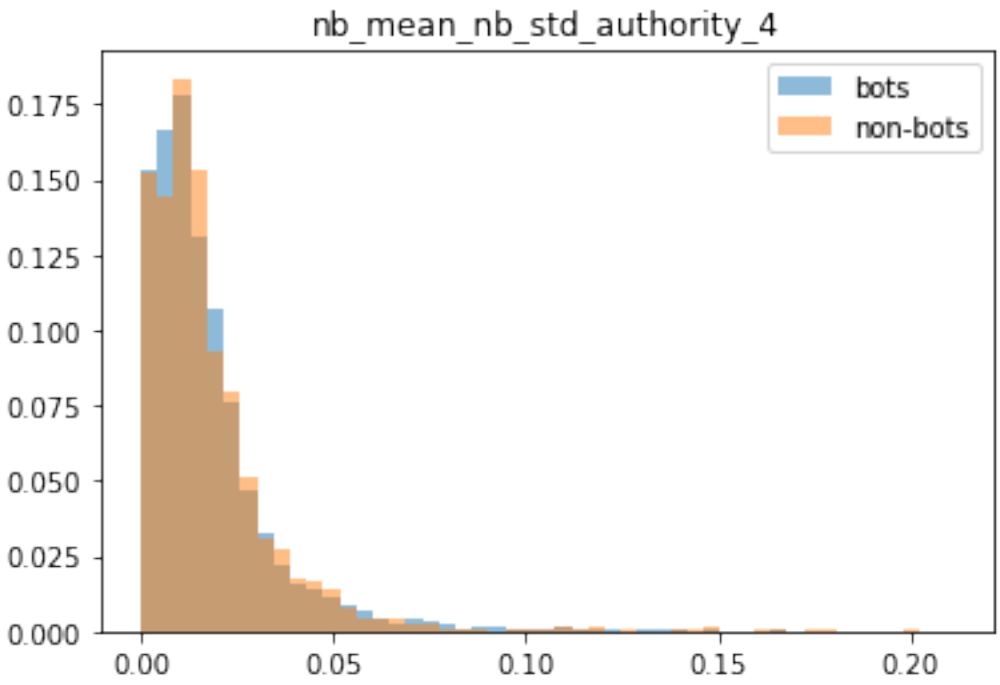
0.20
0.15
0.10
0.05
0.00
0.00
0.05
0.10
0.15
0.20


nb_mean_nb_std_authority_4
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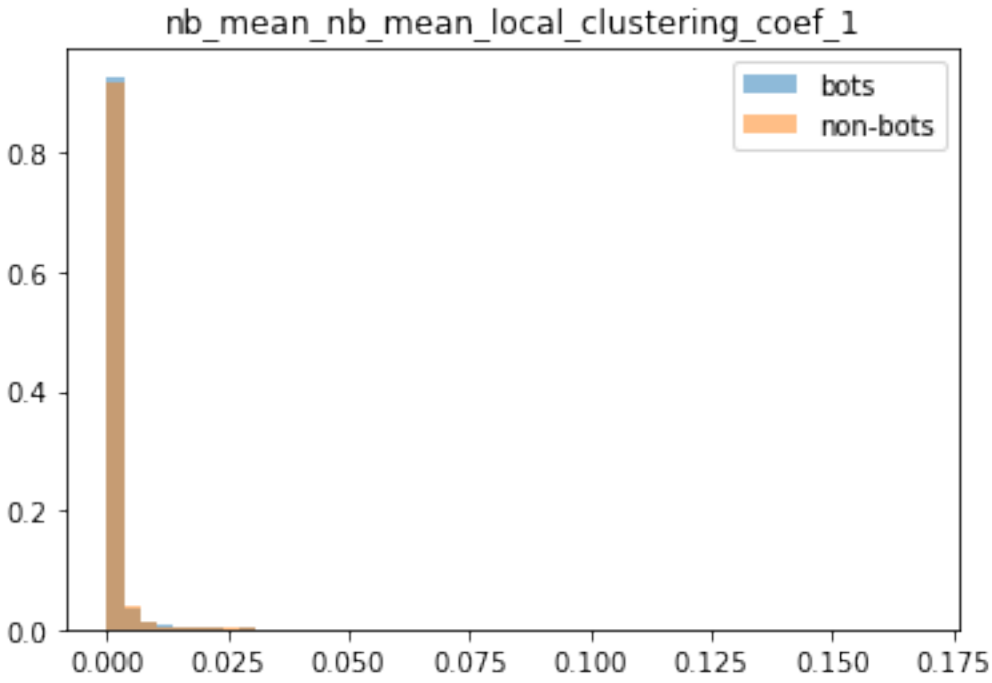
0.075
0.050
0.025
0.000
0.00
0.05
0.10
0.15
0.20


nb_mean_nb_mean_local_clustering_coef_1
bots
non-bots
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0.6
0.4
0.2
0.0
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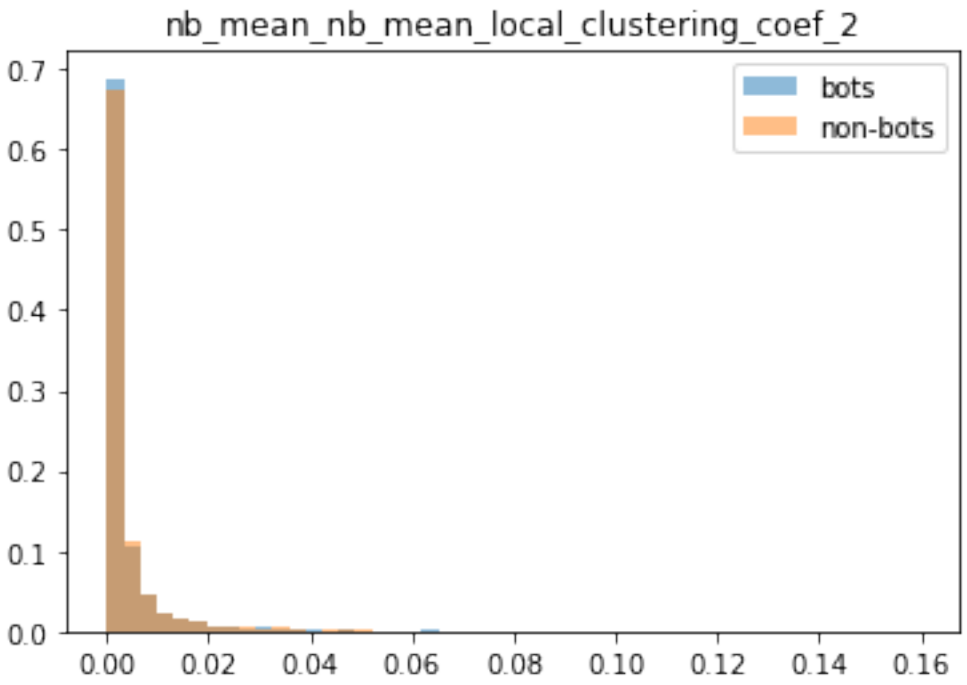
0.025
0.050
0.075
0.100
0.125
0.150
0.175


nb_mean_nb_mean_local_clustering_coef_2
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non-bots
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0.4
0.3
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0.0
0.00
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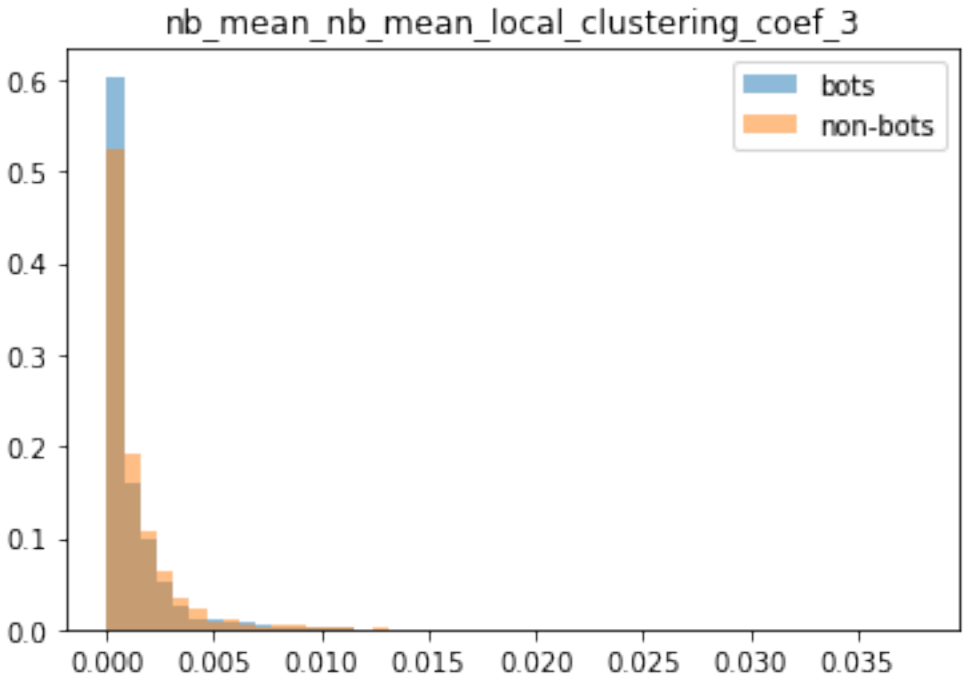
0.06
0.08
0.10
0.12
0.14
0.16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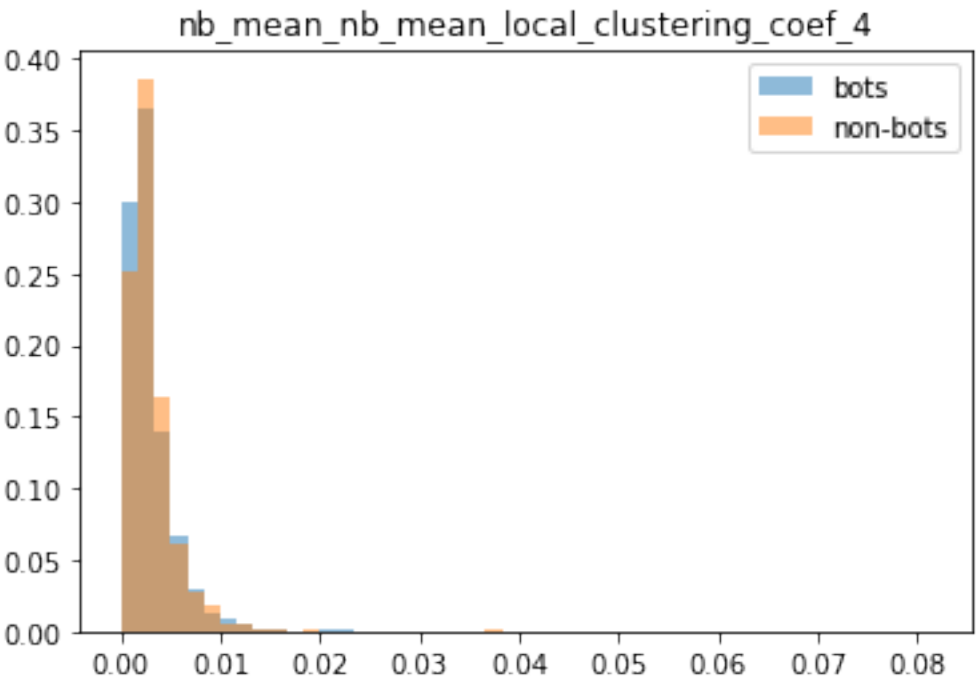
0.020
0.025
0.030
0.035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0.05
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0.00
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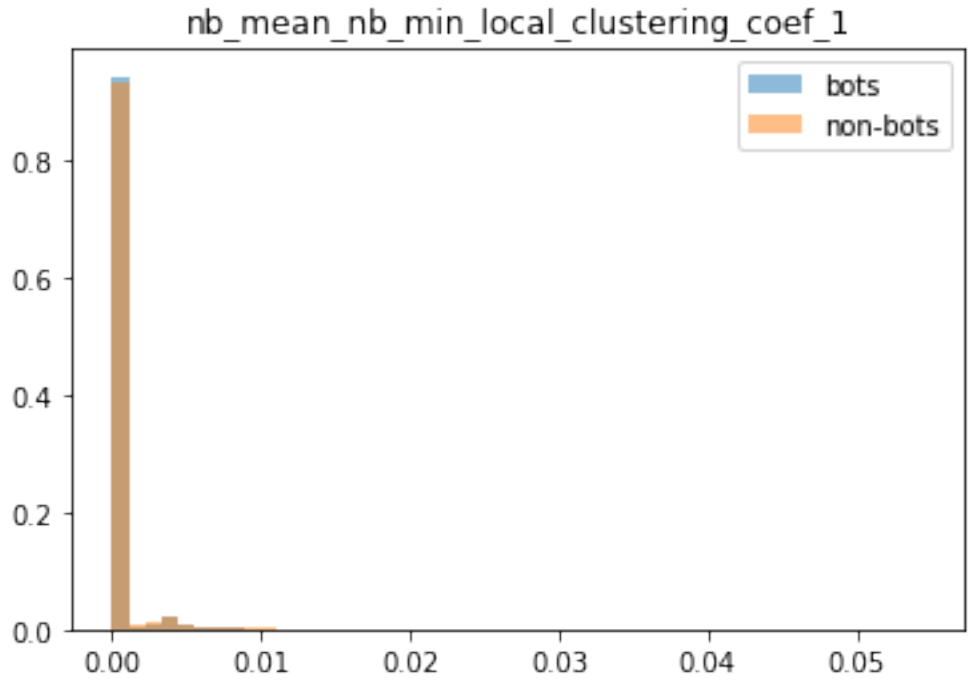
0.02
0.03
0.04
0.05
0.06
0.07
0.08


nb_mean_nb_min_local_clustering_coef_1
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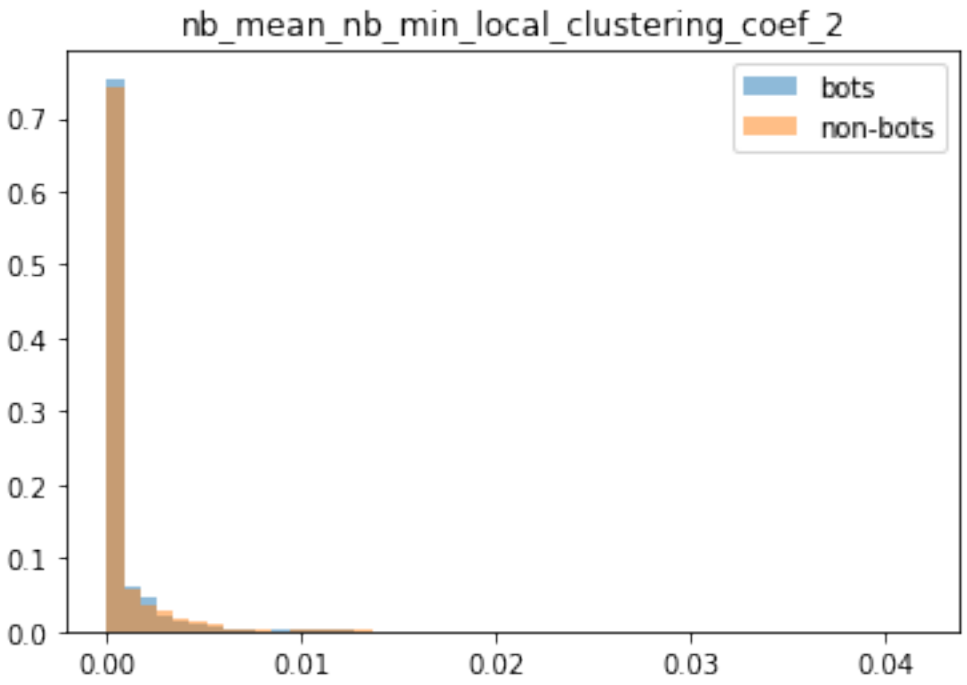
0.0
0.00
0.01
0.02
0.03
0.04
0.05


nb_mean_nb_min_local_clustering_coef_2
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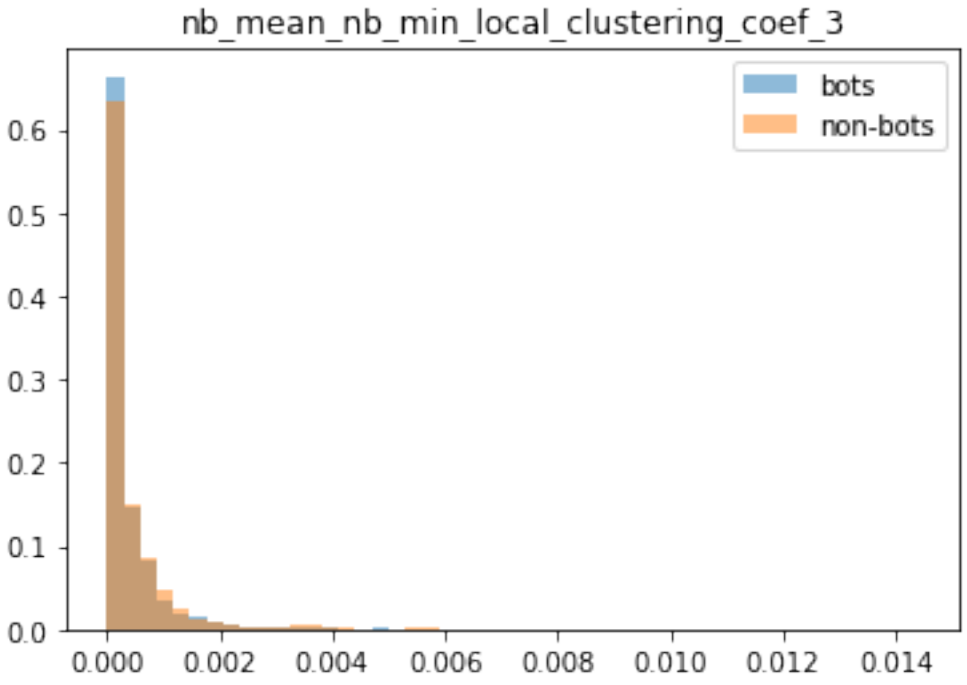
0.01
0.02
0.03
0.04


nb_mean_nb_min_local_clustering_coef_3
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0.006
0.008
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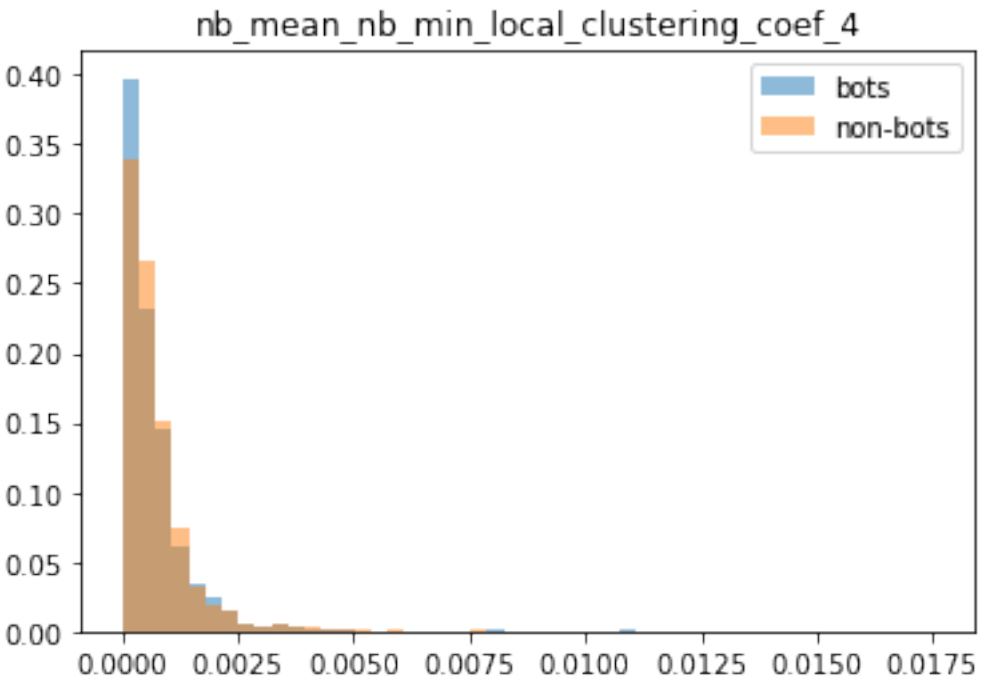
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0.0050
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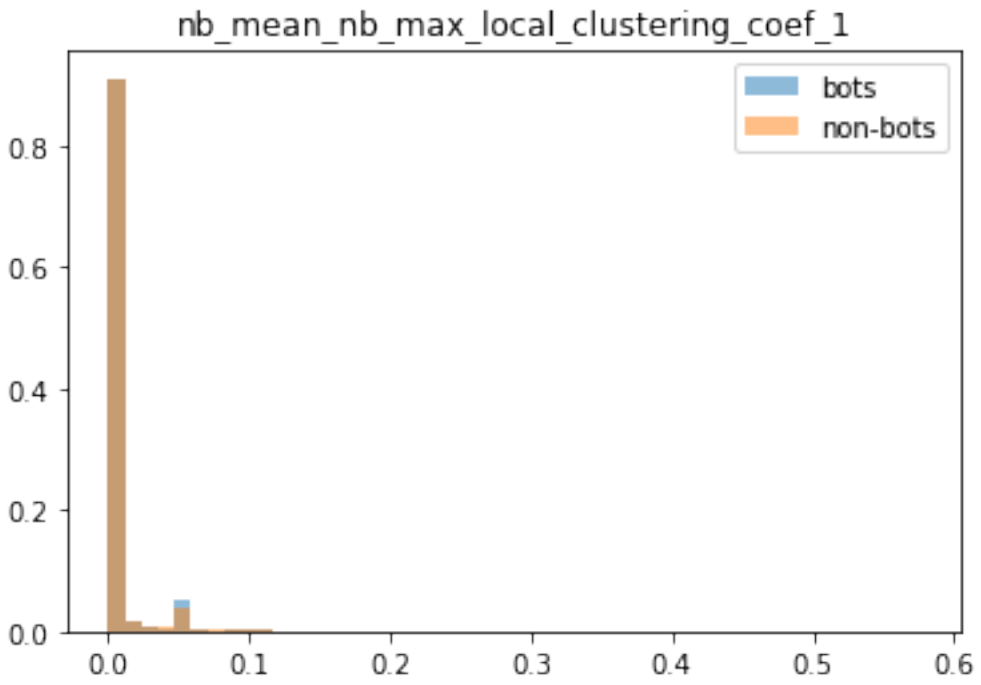
0.0150
0.0175


nb_mean_nb_max_local_clustering_coef_1
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0.1
0.2
0.3
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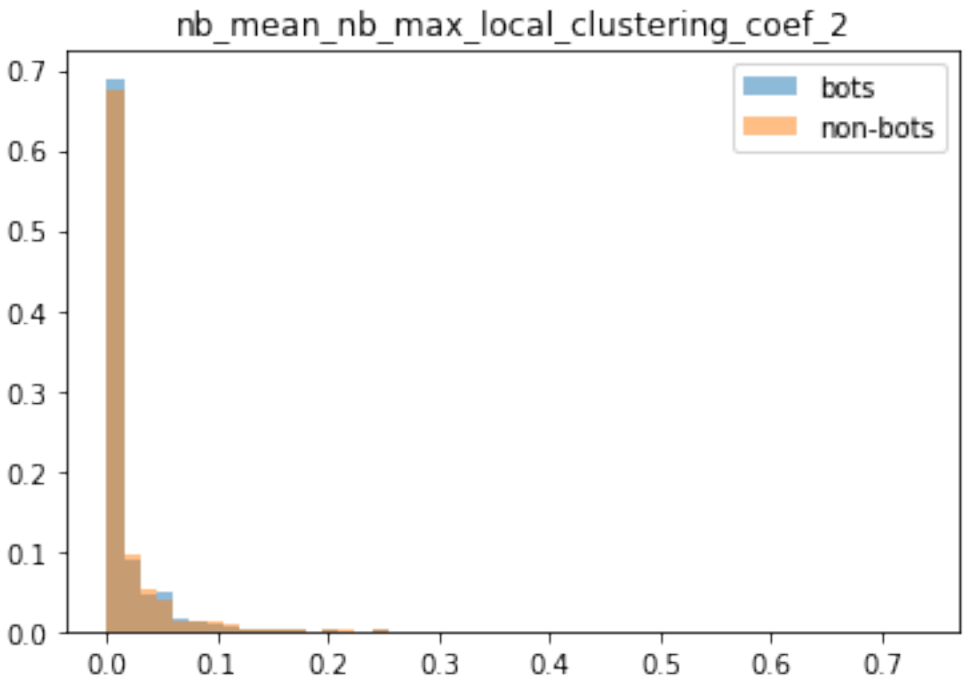
0.5
0.6


nb_mean_nb_max_local_clustering_coef_2
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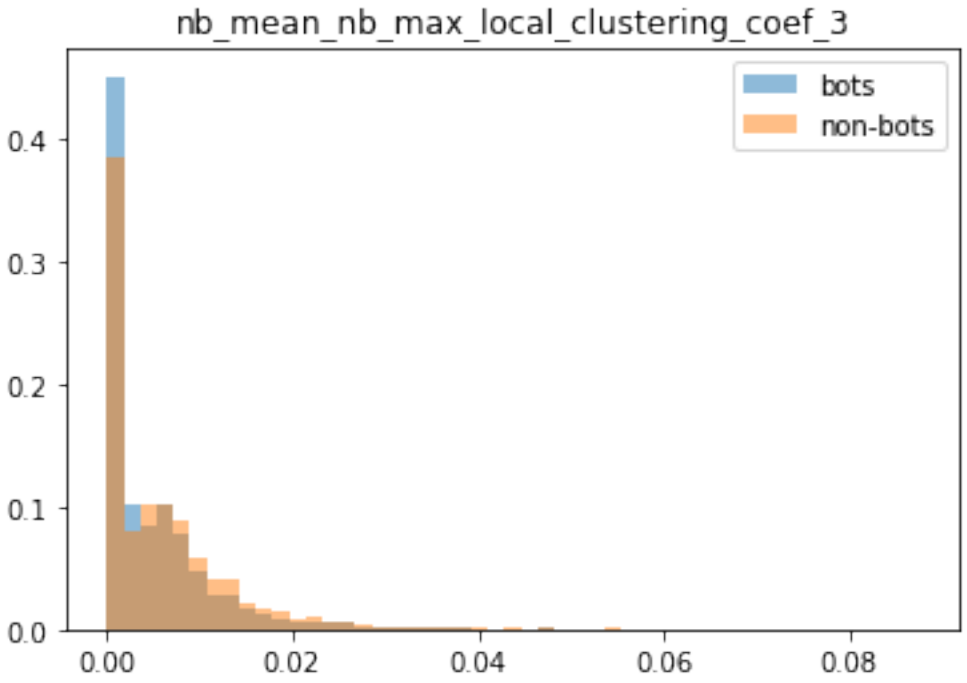
0.7


nb_mean_nb_max_local_clustering_coef_3
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0.06
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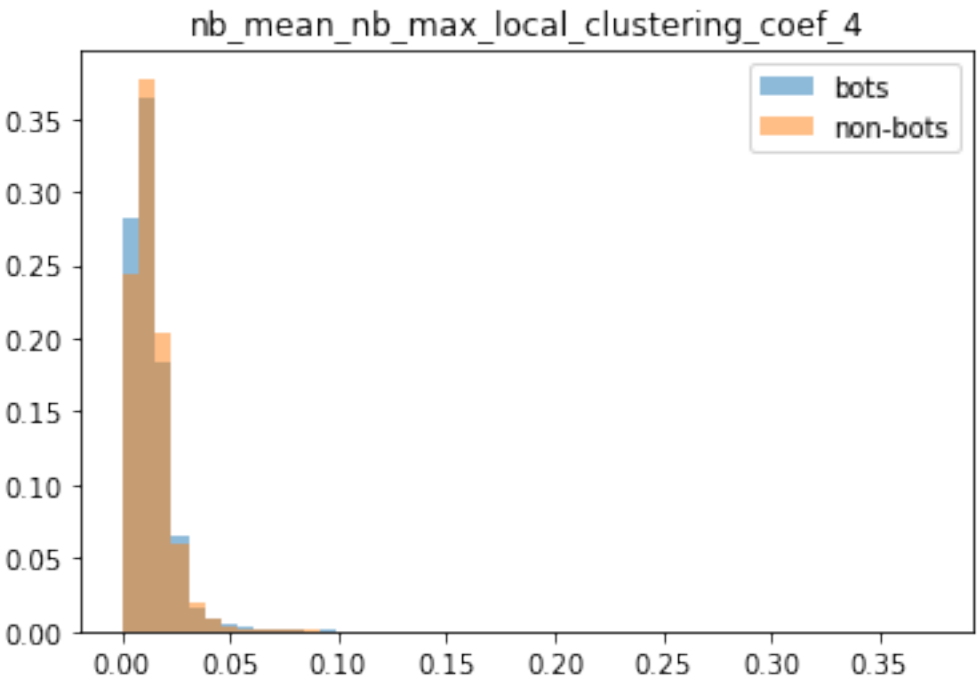
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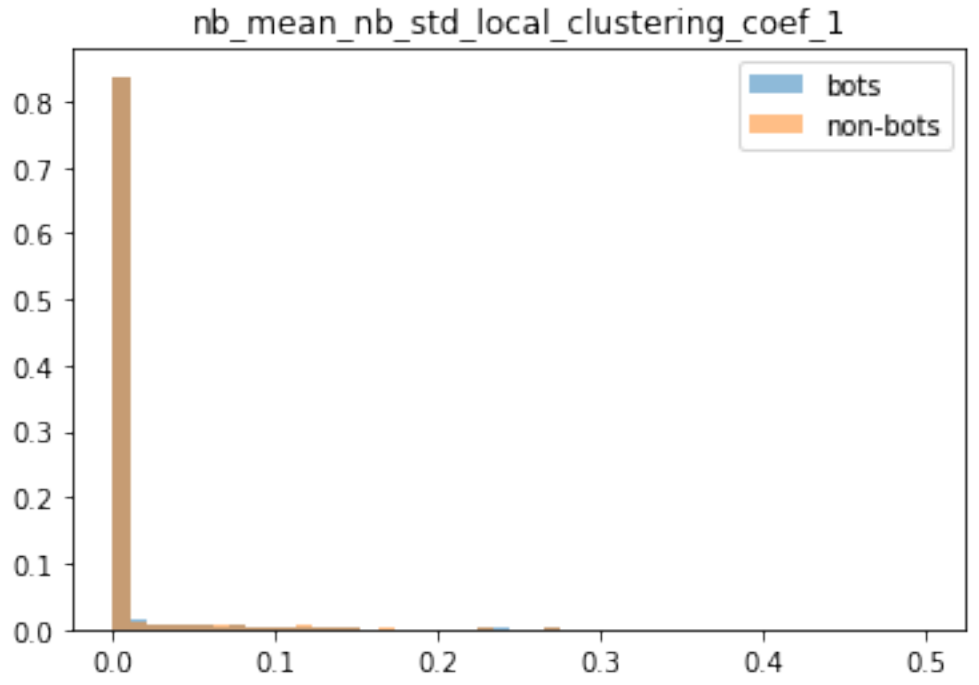
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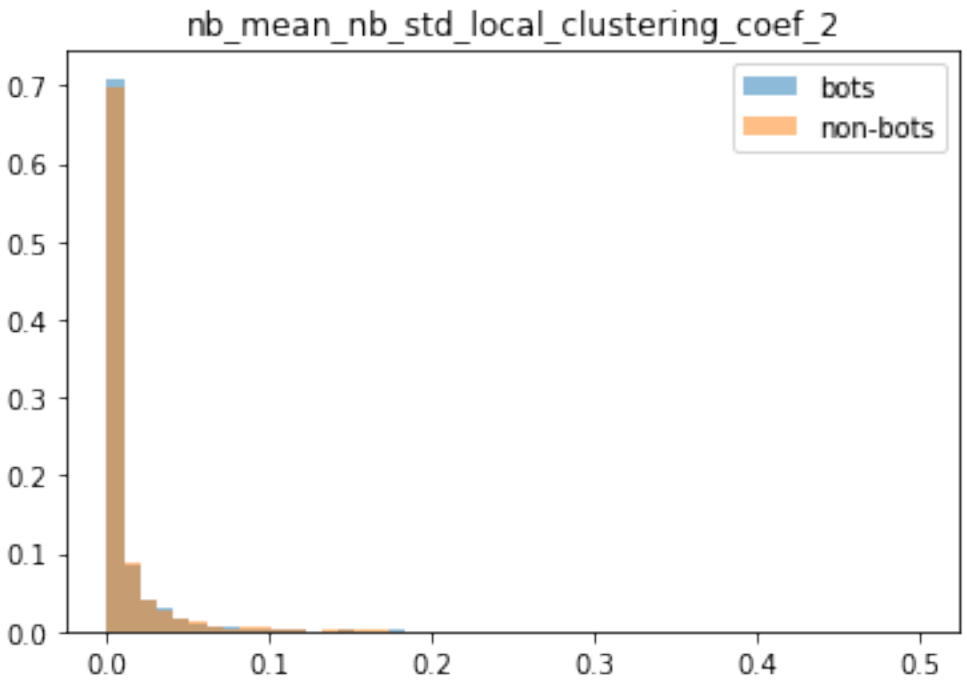
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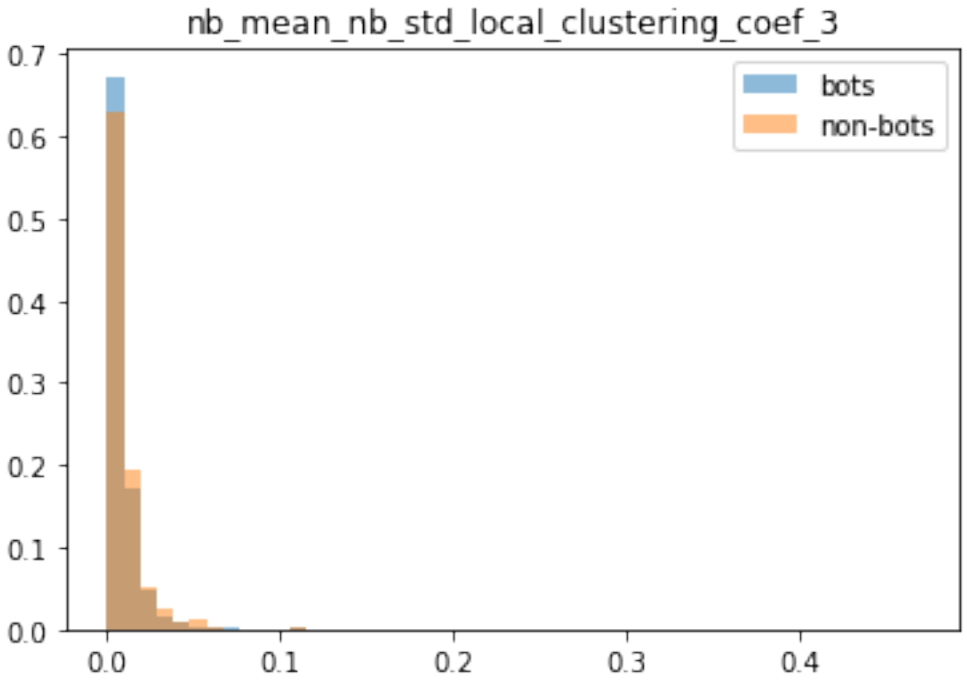
nb_mean_nb_std_local_clustering_coef_3
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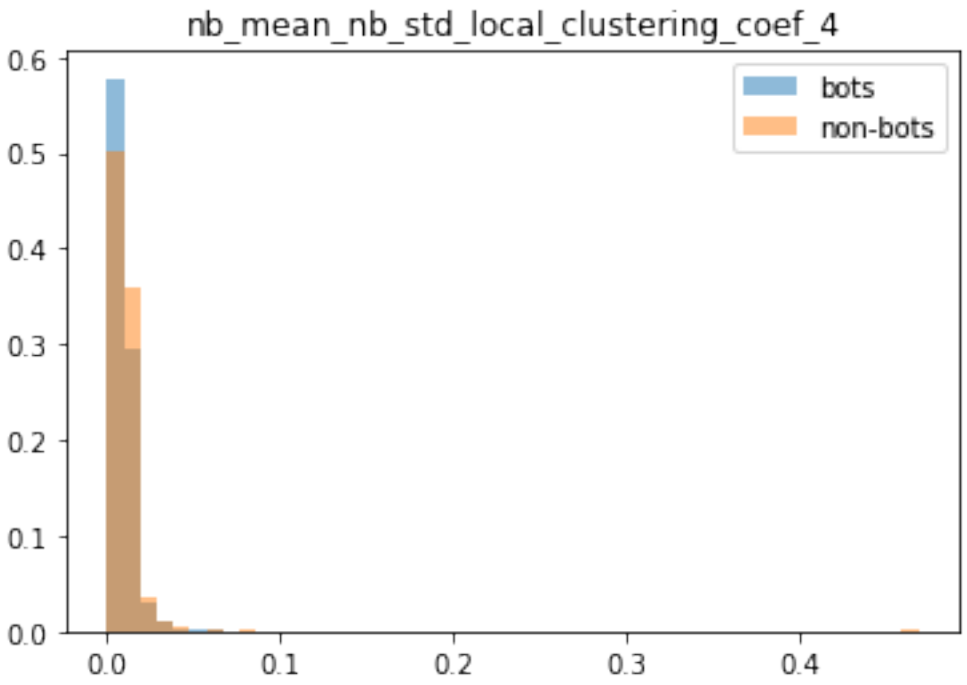
0.2
0.3
0.4


nb_mean_nb_std_local_clustering_coef_4
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0.0
0.1
0.2
0.3
0.4