Modeling Collective Anticipation and Response application on Taiwan datasets

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Proposal

With the daily page view, observe and make a model to predict the result.

Modeling Background

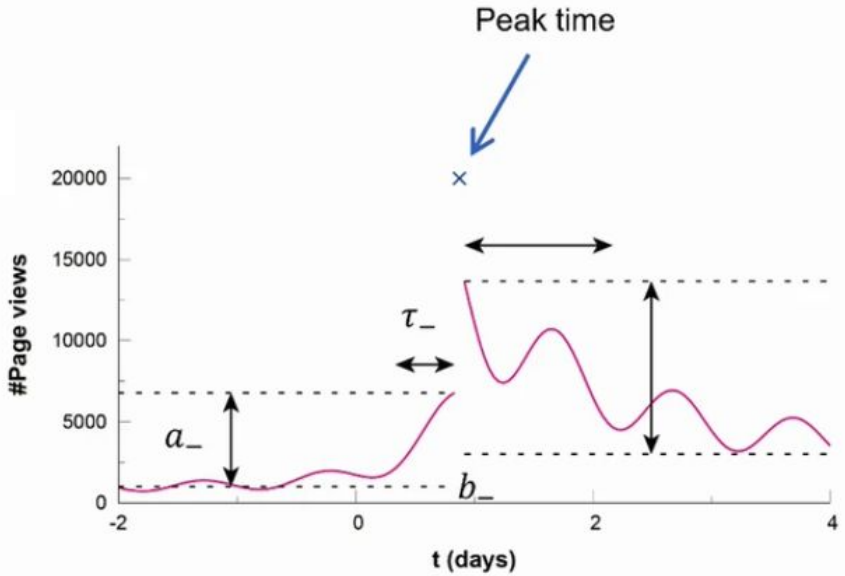
We develop a simple model for the attention dynamics that incorporates three characteristics,

1) Anticipation (before the event),
2) Response (after the event),
3) Circadian Rhythm.

$$f_{\text{peak}}(t) = C(t) D_{\text{peak}}(t)$$

where $$C(t) = 1 + \alpha_c \cos\left(\frac{2\pi}{T}(t - t_c)\right)$$

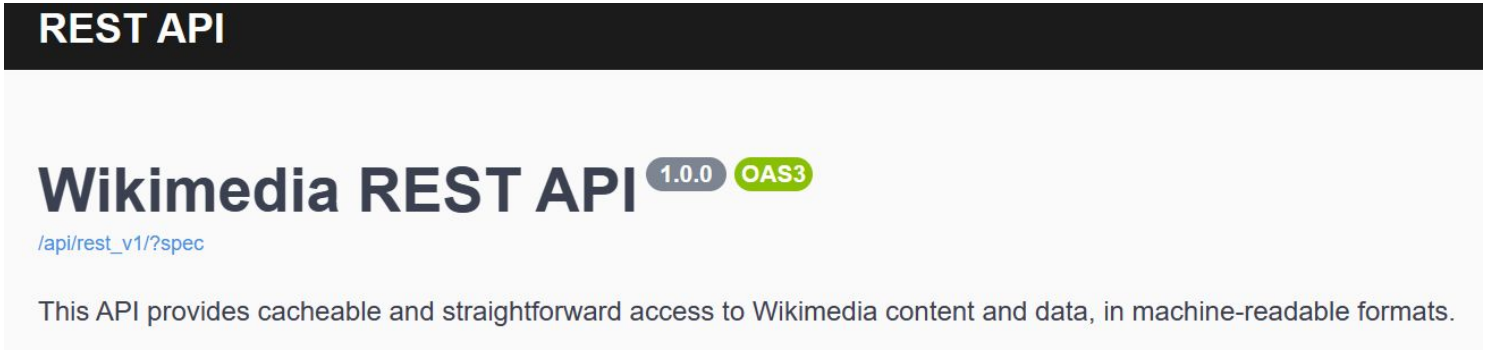
$$D_{\text{peak}}(t) = \begin{cases} a_- e^{-|t-t_p|/\tau_-} + b_- & (t < t_p) \\ a_+ e^{-|t-t_p|/\tau_+} + b_+ & (t > t_p) \end{cases}$$



Data Collection

Data:

Wikipedia daily page view (from wikimedia REST API)

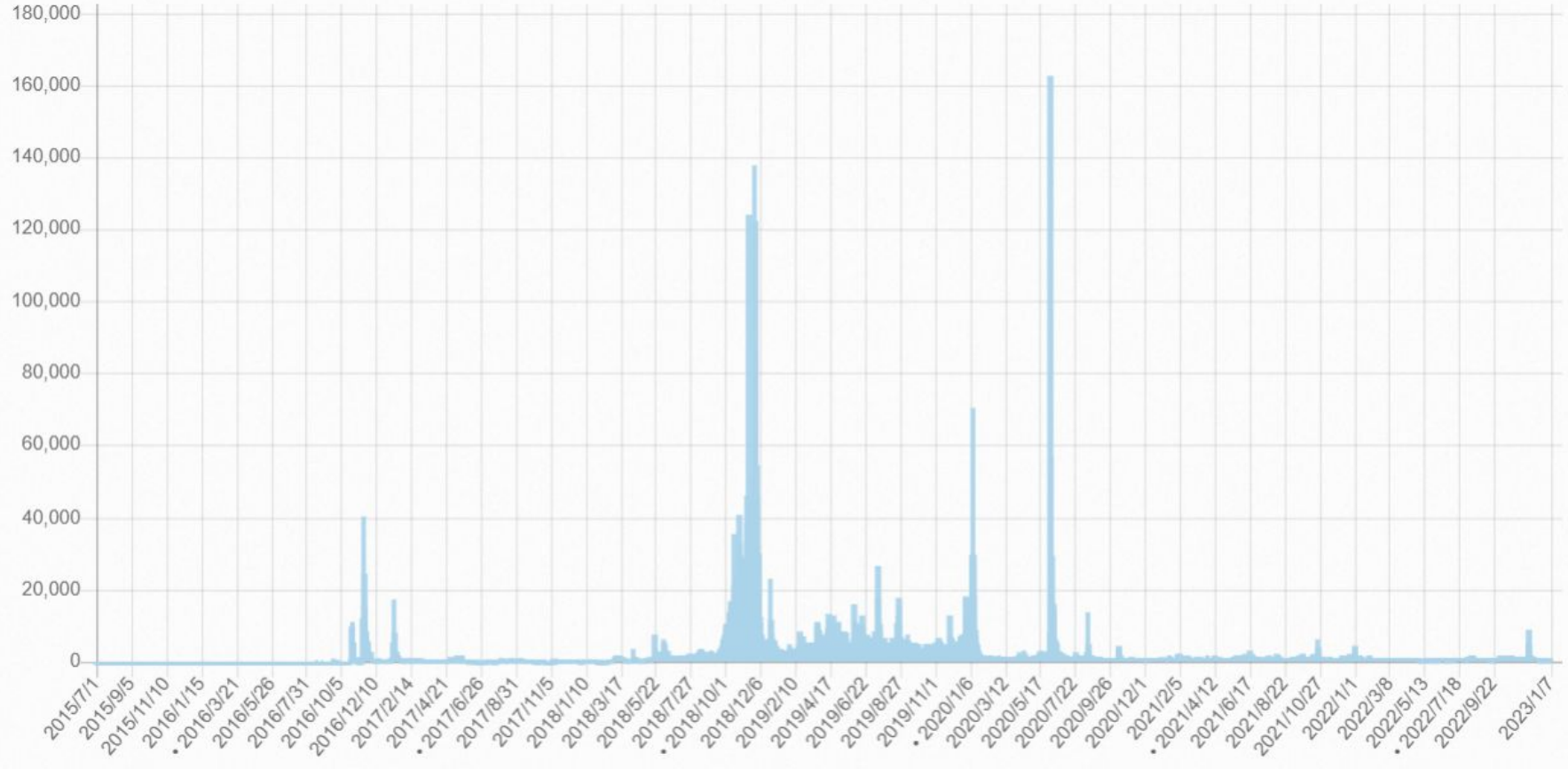


REST API Documentation (wikimedia.org)

頁面 可輸入 10 個頁面 ✕ 清除

× 韓國瑜

圖表類型 靜態連結 下載 ▾ ☐ 顯示值 ☐ 從 0 開始 ☐ 對數尺度



Discussion

1. Weather the model could be applied to the Taiwan's local datasets?
2. Explore weather could be find more similarities while same kind of planing events facing external impacts through the model?

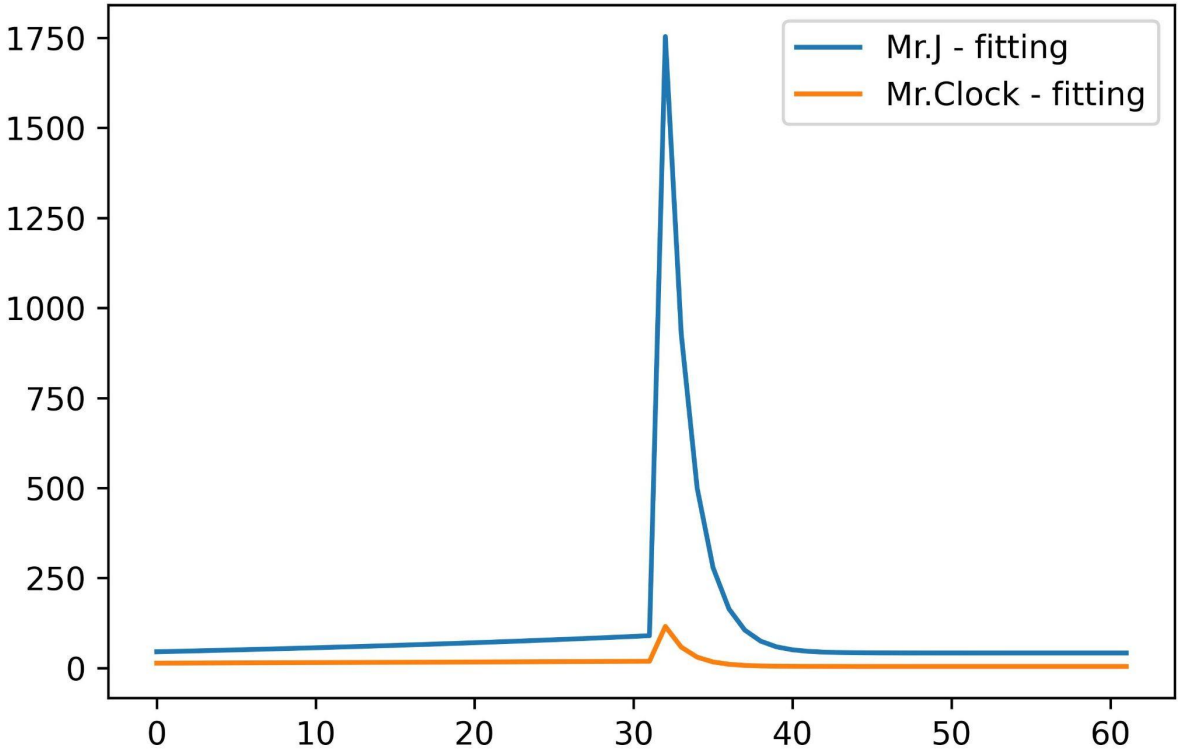
Modeling anticipation and response for local dataset (Taiwan Election)

We have observed the parameters respone to the outcome on local dataset, too.

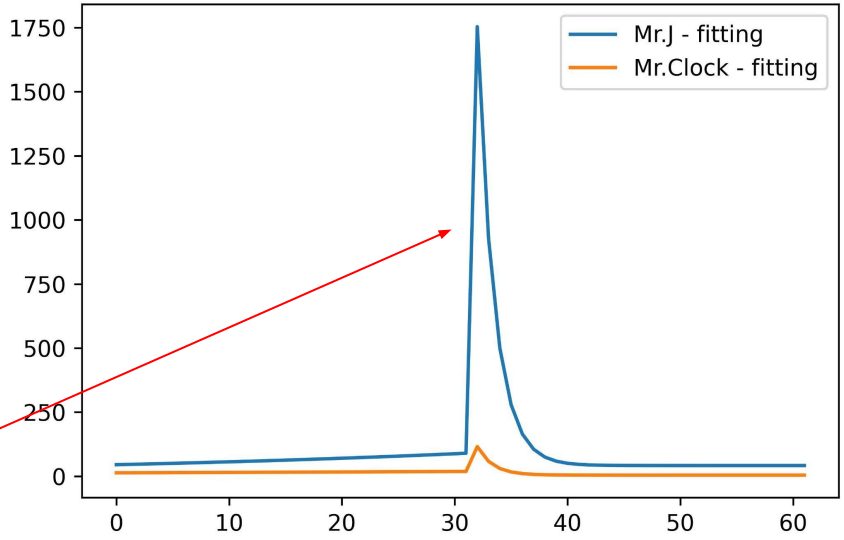
The examples:

1. 2022 台北市長選舉
2. 2020 總統大選

2022 台北市長選舉

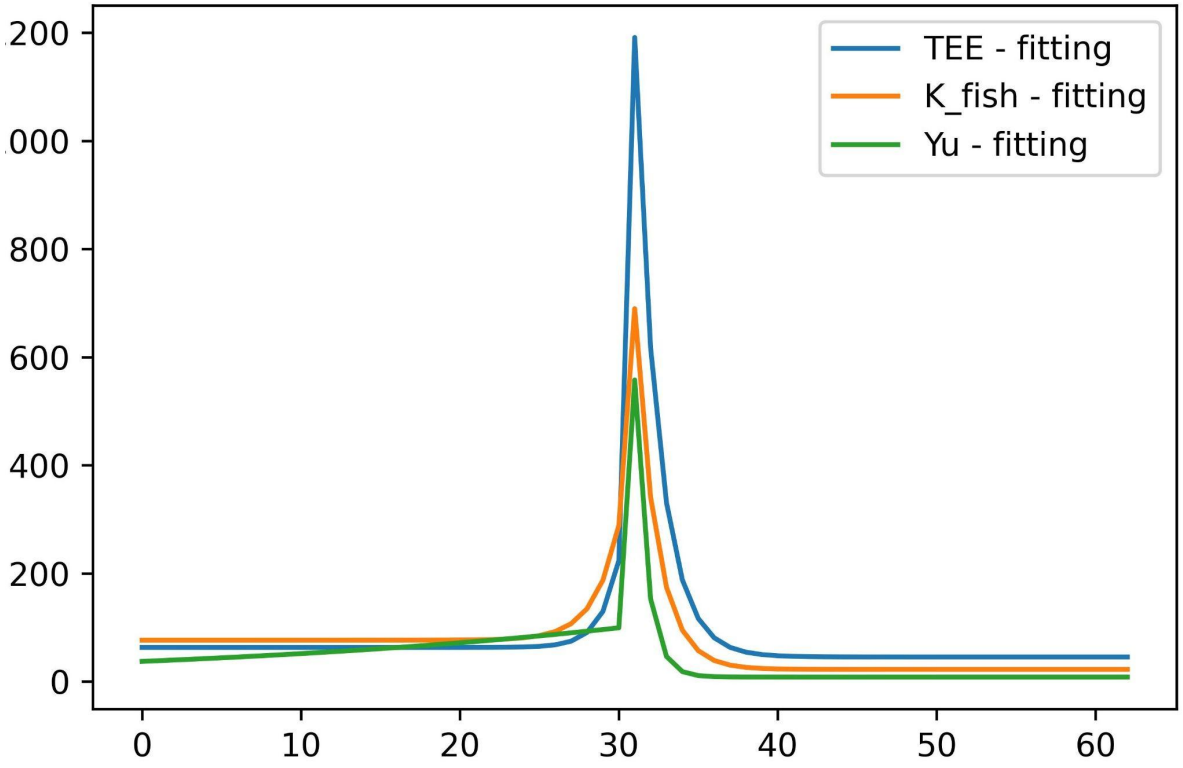

Mr.J - fitting
Mr.Clock - fitting
1750
1500
1250
1000
750
500
250
0
0
10
20
30
40
50
60

2022 台北市長選舉

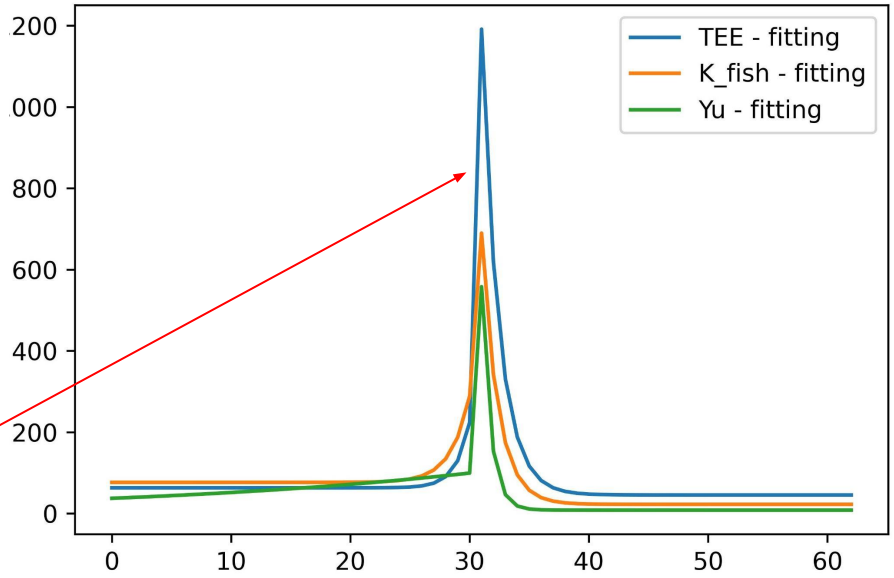


候選人頁面	a-	b-	τ-	a+	b+	τ+
蔣萬安(Mr.J)	91.588	4.87E-08	44.891	1712.465	41.555	1.517
陳時中 (Mr.Clock)	18.7133	2.01E-06	95.919	111.1784	4.178	1.371

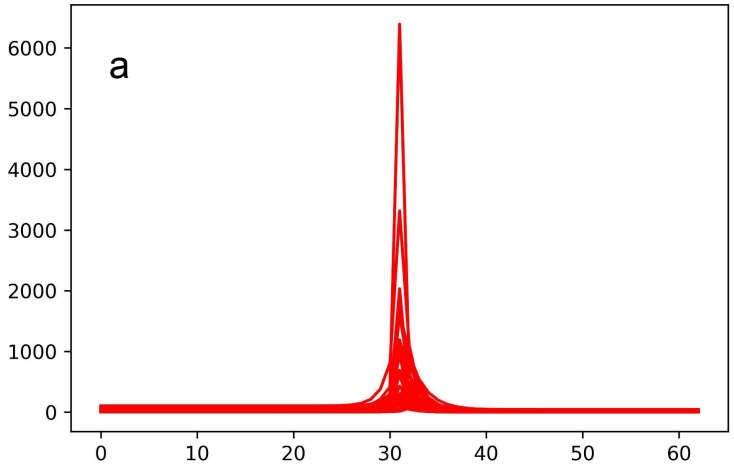
2020 總統大選


TEE - fitting
K_fish - fitting
Yu - fitting
200
000
800
600
400
200
0
0
10
20
30
40
50
60

2020 總統大選



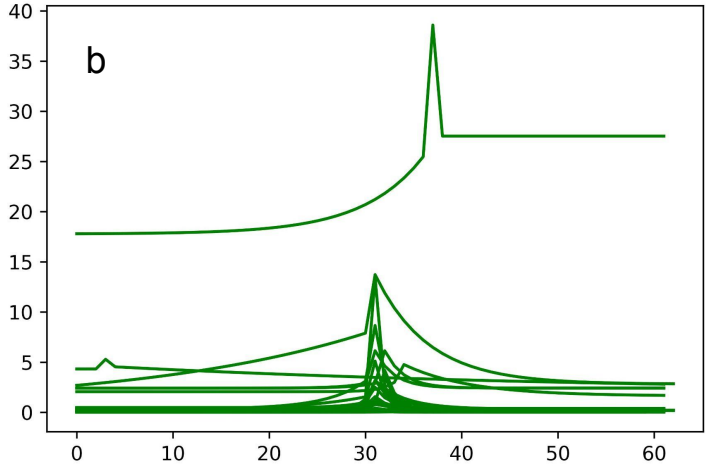
候選人頁面	a-	b-	τ-	a+	b+	τ+
宋楚瑜(Yu)	102.712	1.91E-07	30.571	549.469	8.346	0.748
蔡英文 (TEE)	385.584	63.120	1.138	1145.805	45.499	1.438
韓國瑜 (K_fish)	404.110	76.491	1.547	667.221	22.422	1.351

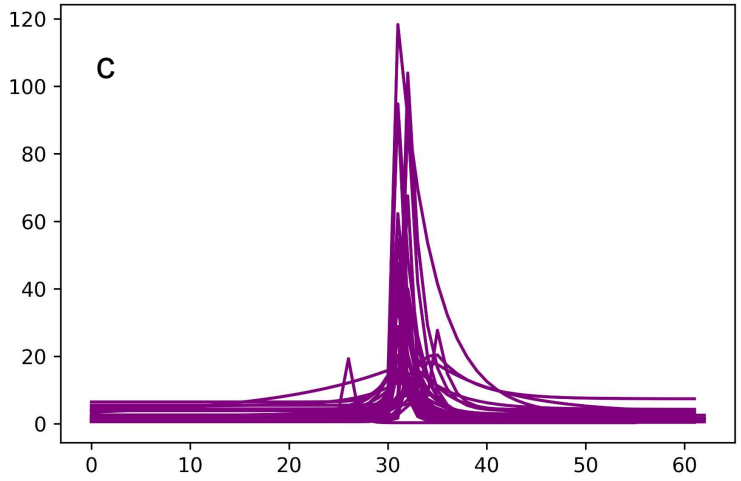


台灣重大選舉事件及政治人物
(總統選舉, 直轄市選舉)

公投事件

地方性相關政治人物選舉





Conclusion

1.The model could be applied to the Taiwan’s local datasets.

2.It could be find more similarities while same kind of planing events facing external impacts through the model.

Refernce

Ryota Kobayashi. Modeling Collective Anticipation and Response on Wikipedia