

機器學系概論 第三組

假新聞判別

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處理流程

資料來源 & 數據處理

- 資料：
[fake-and-real-news-dataset](https://www.kaggle.com/ardit23/blackdataset/fake-and-real-news-dataset)
- 清理資料與合併

模型訓練

- Sciki-Learn
- Tensorflow
- Fasttext
- 測試準確度

新聞分類

- 比較三種機器學習
- 使用訓練好的模型
- 判別是否為假新聞

新聞摘要

- Gemini
- 摘要完辦別是否假新聞

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SCIKIT-LEARN

資料來源 & 數據處理

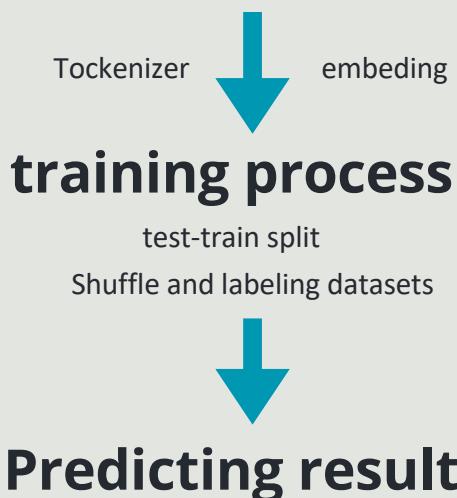
- 資料：[fake-and-real-news-dataset](#)
 - Fake.csv: 23000篇假新聞
 - True.csv: 21000篇真新聞

- 模型訓練只用text

title	A	text	B	subject	C	date	D
1 title		Donald Trump Sends Out Embarrassing New Year? Eve Message: Drunk Bragging Trump Staffer Started Russian Collusion Investigation Sheriff David Clarke Becomes An Internet Joke For Threatening To I		hiDonald Trump just couldn't wish all Americans a Happy N	s	31-Dec-17	
2		Trump Is So Obsessed He Even Has Obama? — Name Coded Into His Christmas Card Pope Francis Just Called Out Donald Trump During His Christmas S		House Intelligence Committee Chairman Devin Nunes is a N	ws	31-Dec-17	
3		Racist Alabama Cops Brutalize Black Boy While He Is In Handcuffs Fresh Off The Golf Course, Trump Lashes Out At FBI Deputy Director		ke it was revealed that former Milwaukee Sheriff David Clar	ws	31-Dec-17	
4		Trump Said Some INSANELY Racist Stuff Inside The Oval Office, A		On Christmas day, Donald Trump announced that he would	ws	29-Dec-17	
5		Former CIA Director Slams Trump Over UN Bullying, Openly Sugges		ec Pope Francis used his annual Christmas Day message to reN	ws	25-Dec-17	
6		WATCH: Brand-New Pro-Trump Ad Features So Much A*** Kissing		g The number of cases of cops brutalizing and killing people N	ws	25-Dec-17	
7		Papa John? Founder Retires, Figures Out Racism Is Bad For Business		Donald Trump spent a good portion of his day at his golf c	ws	23-Dec-17	
8		WATCH: Paul Ryan Just Told Us He Doesn't Care About Struggli		h In the wake of yet another court decision that derailed Don	ws	23-Dec-17	
9		Bad News For Trump ?? Mitch McConnell Says No To Repealing Ob		Many people have raised the alarm regarding the fact that IN	ws	22-Dec-17	
10		WATCH: Lindsey Graham Trashes Media For Portraying Trump As		t Just when you might have thought we'd get a break from v	ws	21-Dec-17	
11		A centerpiece of Donald Trump's campaign, and now his r		ws		21-Dec-17	
12		Republicans are working overtime trying to sell their scam N		ws		21-Dec-17	
13		Paul Ryan Just Told Us He Doesn't Care About Struggli		me Republicans have had seven years to come up with a viable N	ws	21-Dec-17	
14		Bad News For Trump ?? Mitch McConnell Says No To Repealing Ob		—The media has been talking all day about Trump and the R	ws	20-Dec-17	
15		WATCH: Lindsey Graham Trashes Media For Portraying Trump As					6

流程圖

Scikit-learn Tensorflow Fasttext



LLM

- 目標：討論 LLM 生成新聞摘要（資料庫/網路新聞）後，是否仍能有效識別假新聞
- 方法：
 - 資料蒐集與處理：不同來源下的新聞（資料庫/網路新聞）生成摘要
 - 輸入摘要至三種分類模型（Scikit-learn、Fasttext、TensorFlow）判別真假新聞
 - 結果比較與分析

```
def generate_summary(title, content, max_chars=5000):
    article_text = f'{title}\n{content}'
    print(len(article_text))
    article_text = article_text[:article_text.rfind('.') + 1] if len(article_text) > max_chars else article_text

    system_prompt = (
        "你是一位專業做摘要的人，請用英文做摘要（在五句話內），並保持專業和客觀性。"
    )

    user_prompt = f"Please summarize the following news article:\n\n{article_text}"
    prompt = f"{system_prompt}\n\n{user_prompt}"

    response = model_gemini.invoke(prompt)
    return response.content.strip()
```

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結果展示

<https://www.bbc.com/news/election-2017-40209087>

BBC

Hung Parliament: Q&A guide to what happens when no-one wins the election

9 June 2017

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新聞標題：

Hung Parliament: Q&A guide to what happens when no-one wins the election

Gemini 生成摘要：

The 2017 UK general election resulted in a hung Parliament, leaving no party with a majority. Theresa May, as incumbent Prime Minister, intends to form a minority government, seeking support from the Democratic Unionist Party (DUP). A "confidence and supply" arrangement with the DUP is crucial for passing legislation and maintaining stability. Negotiations are underway, but the Conservative/DUP alliance faces potential challenges, and another election remains a possibility if the formation of a coalition is unlikely, and the uncertainty may complicate upcoming Brexit negotiations.

中文翻譯摘要：

2017 年英國大選產生了懸峙議會，沒有任何政黨取得過半數席次。

時任首相梅伊 (Theresa May) 打算組成少數政府，並尋求民主統一黨 (DUP) 的支持。

與民主統一黨達成「信任與支持」(confidence and supply) 的協議對於通過法案和維持政局穩定至關重要。

目前協商正在進行中，但保守黨/民主統一黨的聯盟面臨潛在的挑戰，如果政府變得無效，再次舉行選舉的可能性仍然存在。

組成聯合政府的可能性不高，而這種不確定性可能會使即將到來的英國脫歐談判變得更加複雜。

1/1 — 0s 33ms/step
({'_label_FAKE':}, array([0.95349985]))

模型預測結果：

Scikit-learn 預測：REAL (FAKE 機率：0.1018)

TensorFlow 預測：REAL (FAKE 機率：0.0000)

FastText 預測：FAKE (FAKE 機率：0.9535)

分析結果：

多數決結果：REAL

這篇新聞看起來是真新聞！

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結果展示

新聞標題：
<https://www.bbc.com/news/world-40215432>

BBC

UK election result: How the world reacted

10 June 2017 Share Save



Gemini 生成摘要：
The UK election's unexpected outcome, where the Conservative party lost its majority,

中文翻譯摘要：
英國大選結果出乎意料，保守黨失去多數席位，在全球引發廣泛反應。歐盟領袖，包括容克和巴尼耶，都強調需要迅速
1/1 0s 134ms/step

模型預測結果：
Scikit-learn 預測：REAL (FAKE 機率：0.1557)
TensorFlow 預測：REAL (FAKE 機率：0.0002)
FastText 預測：REAL (FAKE 機率：0.0105)

分析結果：
多數決結果：REAL

這篇新聞看起來是真新聞！

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心得與障礙排除分享

- LLM 中文摘要會大幅降低模型預測準確率
 - 可能原因：訓練資料以英文為主
- TENSORFLOW 模型表現最佳，正確率達 81.52%，深度學習模型可能能夠有效掌握新聞摘要的語意與真假訊息間的潛在關聯。
- FASTTEXT 在短文上的預測不如預期